GLEASON CREEK ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

Commercial Thinning & Density Management

Environmental Assessment Number OR-080-04-14

June 21, 2005

United States Department of the Interior
Bureau of Land Management
Oregon State Office
Salem District
Mary's Peak Resource Area
Benton County, Oregon

Responsible Agency:	USDI - Bureau of Land Management
Responsible Official:	Brad Keller Marys Peak Resource Area 1717 Fabry Road SE Salem, OR 97306 503-315-5968
For further information, contact:	Dan Schreindorfer, Project Leader Marys Peak Resource Area 1717 Fabry Road SE Salem, OR 97306 503-315-5994

Abstract: This environmental assessment discloses the predicted environmental effects of one project on federal land located in Township 13 South, Range 6 West, Section 19, Willamette Meridian and within the Marys River Watershed. The Gleason Creek Thinning is a proposal to thin a 70 year old stand composed of approximately 193 acres of General Forest Management Area (GFMA) and approximately 4 acres of Riparian Reserves (RR) land use allocations (LUA's). New road construction (approximately 2,200 feet) and renovation of existing roads are also a part of the proposed action.

FINDING OF NO SIGNIFICANT IMPACT

Introduction

The Bureau of Land Management (BLM) has conducted an environmental analysis (Environmental Assessment Number OR080-04-14) for a proposal to thin approximately 197 acres of timber in GFMA and RR LUA's. The project area is in Section 19, Township 13 South, Range 6 West, Willamette Meridian, Benton County, in the Marys River watershed.

Implementation of the proposed action will conform to management actions and direction contained in the attached *Gleason Creek Thinning Environmental Assessment* (Gleason Creek EA). The Gleason Creek EA is attached to and incorporated by reference in this Finding of No Significant Impact determination (FONSI). The analysis in this EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS) (EA p. 6). The Gleason Creek project has been designed to conform to the *Salem District Record of Decision and Resource Management Plan***,** May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within Marys Peak Resource Area (EA pp. 6-7).

The EA and FONSI will be made available for public review June 23, 2005 to July 22, 2005. The notice for public comment will be published in a legal notice by the *Gazette Times* newspaper; and posted on the Internet at http://www.or.blm.gov/salem/html/planning/index.htm under Environmental Assessments. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before July 22, 2005 will be considered in making the decision for this project.

Finding of No Significant Impact

Based upon review of the Gleason Creek Thinning EA and supporting documents, I have determined that the Proposed Action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No site specific environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27. Therefore, supplemental or additional information to the analysis done in the RMP/FEIS through a new environmental impact statement is not needed. This finding is based on the following discussion:

Context: Potential effects resulting from the implementation of the proposed action have been analyzed within the context of the Marys River 5th-field Watershed and the project area boundaries. The proposed action would occur on approximately 197 acres of BLM GFMA and RR LUA's encompassing less than 1% of the Marys River Watershed [40 CFR 1508.27(a)].

Intensity

1. The *proposed action* is unlikely to have significant impacts on the affected elements of the environment (EA section 2.3, - vegetation, soils, fuels\air quality, wildlife, water, fisheries and recreation). The following is a summary of the design features that would reduce the risk of affecting the above resources (EA section 2.2.2.2).
   - Retaining all coarse woody debris and snags, where possible, for wildlife habitat,
   - Seasonally restricting ground-based yarding and road construction operations to avoid runoff and sedimentation,
   - Operating some equipment on top of slash and logging debris to minimize compaction,
   - Installing erosion control measures as needed [water bars, sediment traps in ditch lines, silt fences, straw bales, and grass seeding exposed mineral soil areas],
   - Establishing stream protection zones adjacent to all project area streams to maintain canopy cover, water quality, and channel morphology,

   With the implementation of the project design features described in EA section 2.2.2.2, potential effects to the affected elements of the environment are anticipated to be site-specific and/or not measurable (i.e. undetectable over the watershed, downstream, and/or outside of the project area) [40 CFR 1508.27(b) (1), EA section 2.4].

2. The *proposed action* would not affect:
   a. Public health or safety [40 CFR 1508.27(b)(2)];
   b. Unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] because there are no historic or cultural resources, parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA section 2.3);
   c. Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the proposed action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA section 2.3).

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

4. The *proposed action* does not set a precedent for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration [40 CFR 1508.27(b) (6)].

5. The interdisciplinary team evaluated the *proposed action* in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b) (7)]. Potential cumulative effects are described in the attached EA. These effects are not likely to be significant because of the project's scope (effects are likely to be too small to be measurable), scale (project area of approximately 197 acres, less than 1% of the total 5th-field watershed), and duration (direct effects would occur over a maximum period of 2-3 years EA Section 2.4).

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

Wildlife: There is no northern spotted owl critical habitat in or near the project area. Consultation with the USFWS resulted in a "May Affect, Not Likely to Adversely Affect" Determination for the northern spotted owl. The short-term negative impacts to northern spotted owl dispersal habitat would not be significant since the thinning would maintain over-story canopy cover above 40 percent and the untreated mid-seral matrix forest and riparian zones provide abundant dispersal habitat within the watershed. The proposed action would follow all applicable terms and conditions from the Biological Opinion dated November, 2004 [BO# 1-7-05-F-0005]. The proposed action would have no effect on marbled murrelets because there is no marbled murrelet habitat in or near the project area.

Fish: Streams within and adjacent to the Gleason Creek Timber Sale are headwater streams to Gleason Creek and Duffy Creek. These are first order streams that do not have fish. Upper Willamette River (UWR) Steelhead (*Oncorhynchus mykiss*), UWR Chinook Salmon (*Oncorhynchus tshawytscha*) and Oregon Chub (*Oregonichthys crameri*) are listed as threatened under the Endangered Species Act. The upstream limit of UWR Steelhead distribution is approximately twenty miles below the project area in Marys River and the upstream limit of UWR Chinook distribution is approximately nine miles below the project area in the Beaver Creek. Oregon Chub are currently found only in isolated ponds connected to the Marys River Basin. The project would have no effect on listed fish due to the distance to listed fish.

7. The *proposed action* does not violate any known Federal, State, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b) (10)] (EA p. 1).

Prepared by: _____ 6/20/05
Dan Schreindorfer, Team Lead — Date

Reviewed by: _____ 6/20/05
Gary Humbard, NEPA — Date

Approved by: _____ 6/21/05
Brad Keller, Field Manager — Date
Marys Peak Resource Area
Acting Fm.

ENVIRONMENTAL ASSESSMENT

Table of Contents

1.0 INTRODUCTION

1.1 Project Covered in This EA

The Gleason Creek Thinning is a proposal to thin a 70 year old stand composed of approximately 193 acres of General Forest Management Area (GFMA) and approximately 4 acres of Riparian Reserves (RR). New road construction (approximately 0.41 miles) and renovation of existing roads are also a part of the proposed action.

1.2 Project Area Location

The project is located approximately 12 air miles southwest of Corvallis, Oregon, in Benton County on forested land managed by the Marys Peak Resource Area, Salem District of the Bureau of Land Management (BLM). The project area lies within the Marys River Watershed and is within Township 13 South, Range 6 West, Section 19, Willamette Meridian (Map 1).

1.3 Conformance with Land Use Plans, Policies, and Programs

The Gleason Creek project has been designed to conform to the following documents, which direct and provide the legal framework for management of BLM lands within the Salem District: **1/** *Salem District Record of Decision and Resource Management Plan***,** May 1995 (RMP): The RMP has been reviewed and it has been determined that the Gleason Creek project conforms to the land use plan terms and conditions (e.g. complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1). Implementing the RMP is the reason for doing this project (RMP p.1-3); **2/** *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl,* April 1994 (the Northwest Forest Plan, or NWFP); **3/** *Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl*, March 2004 (SSSP); **4/** *Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests within the Range of the Northern Spotted Owl, Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy*, March 2004 (ACSROD)**.**

The analysis in the Gleason Creek Thinning EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). The RMP/FEIS includes the analysis from the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl,* February 1994 (NWFP/FSEIS). The RMP/FEIS is amended by the *Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines*, January 2004 (SSSP/FSEIS); and the *Final Supplemental Environmental Impact Statement, Clarification of Language in the 1994 Record of Decision for the Northwest Forest Plan National Forests and Bureau of Land Management Districts Within the Range of the Northern Spotted Owl,* October 2003 (ACS/FSEIS).

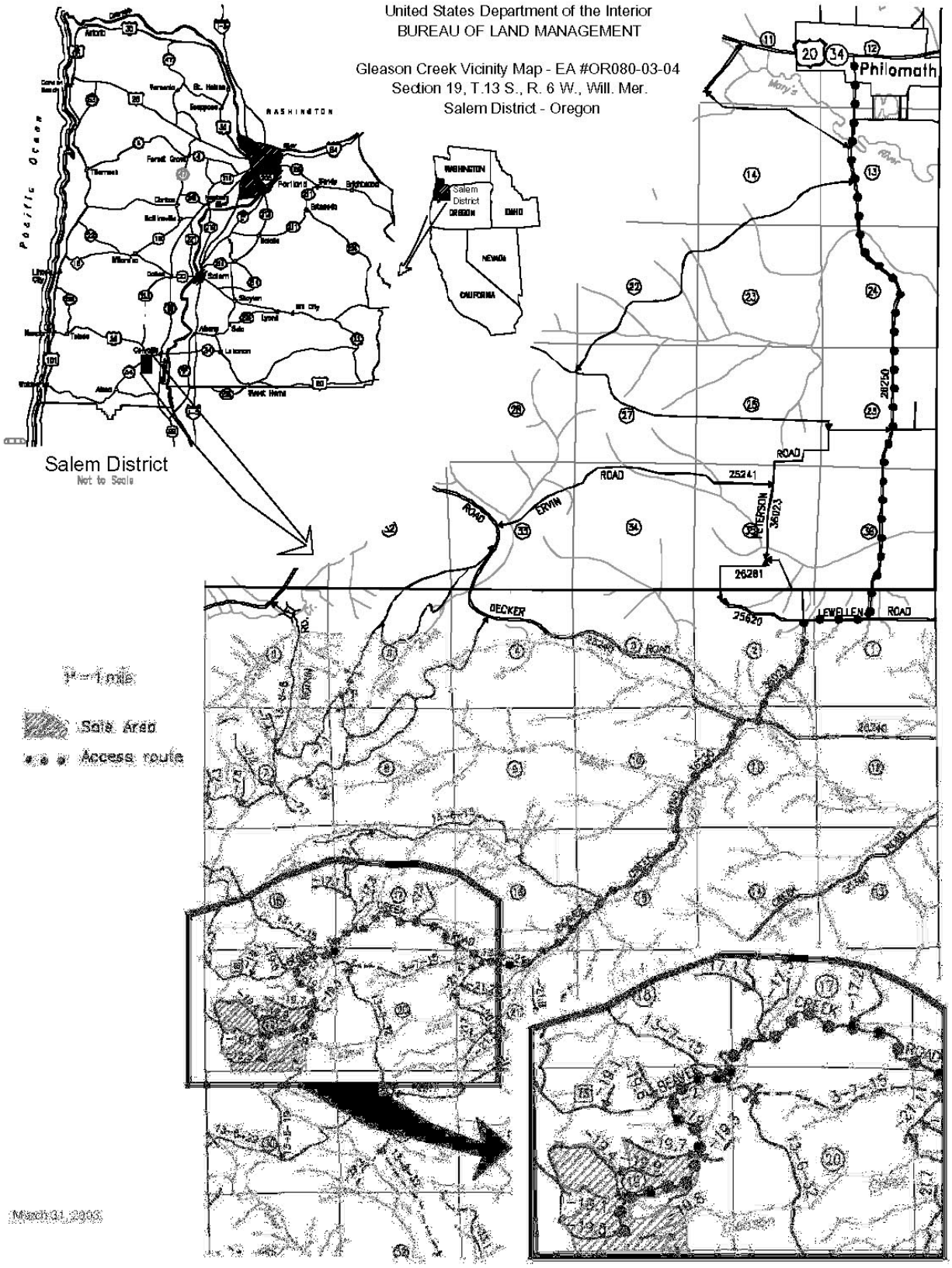
The following document provided additional direction in the development of this project: 4/ *Benton Foothills Watershed Analysis* [(BFWA) (September 1997)]. For GFMA lands, page 123 recommends that in project areas between 20 and 70 years old, thinning trees to increase growth and wood volume production and enhance species composition. In Riparian Reserves, page 130 recommends managing density to encourage understory growth and thinning to maintain fast growth of dominant trees. The above documents are available for review in the Salem District Office. Additional information about the proposed project is available in the Gleason Creek Thinning Analysis File (NEPA file), also available at the Salem District Office.

1.4 Decision to be Made

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

- Whether to approve the Gleason Creek Thinning project, as proposed, not at all, or to some other extent.
- Whether site specific impacts would require supplemental/additional information to the analysis done in the RMP/FEIS through a new EIS.

Map 1: Vicinity Map



2.0 Project – Gleason Creek Thinning

2.1 Purpose of and Need for Action

Marys Peak Resource Area staff performed a comprehensive, landscape level analysis to determine relative priority of watershed areas within the Resource Area for ecosystem management. The proposed project area was chosen for commercial thinning and density management of forest stands. The proposed project is intended to implement a subset of specific management opportunities that were identified within the *BFWA*. The following describe the purpose of and need for action:

- **To manage developing timber stands in the GFMA Land Use Allocation (LUA) so that**:
  - ✓ A marketable timber sale can be offered that would contribute to a sustainable supply of timber for local, regional, and national economies and contribute to community stability (RMP pp. 20), as reflected in the Salem District allowable sale quantity (ASQ) (RMP, pp. 1, 46, 47);
  - ✓ A desirable balance can be achieved between wood volume production, quality of wood, and timber value at harvest (RMP pp. D-3);
  - ✓ A healthy forest ecosystem can be maintained with habitat to support plant and animal populations and protect riparian areas and water resources (RMP p. 1, 20).

- **To manage early to mid-seral stands in Riparian Reserve LUAs (RMP pp. 9-15) so that:**
  - ✓ Growth of trees can be accelerated to restore large conifers to Riparian Reserves (RMP p.7);
  - ✓ Habitat (e.g. coarse woody debris, snag habitat, in-stream large wood) for populations of native riparian-dependent plants, invertebrates, and vertebrate species can be enhanced or restored (RMP p.7);
  - ✓ Structural and spatial stand diversity can be improved on a site-specific and landscape level in the long term (RMP p. 11, 26, D-6).

- **To maintain and develop a safe, efficient and environmentally sound road system that :**
  - ✓ Provides appropriate access for timber harvest and silvicultural practices used to meet the objectives above;
  - ✓ Reduces potential human sources of wildfire ignition and provides for fire vehicle and other management access;
  - ✓ Reduces environmental effects associated with identified existing roads within the project area.

2.2 Alternatives

2.2.1 Alternative Development

Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act of 1969, as amended), Federal agencies shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." No unresolved conflicts were identified. Therefore, this EA will analyze the effects of the Alternative 1 (proposed action) and Alternative 2 (No Action).

2.2.2 Alternative 1 (Proposed Action)

This project consists of conducting commercial thinning on approximately 193 acres within the GFMA LUA and approximately 4 acres of density management in the RR LUA. This project, located within a 70 year old stand, would occur through a timber sale. Trees would be thinned to a density of 48 trees per acre within the GFMA LUA and a density of 39 trees per acre within the RR LUA. Trees would be skyline yarded on approximately 65 acres and ground-based yarded on approximately 132 acres. New road construction and road renovation are also a part of the proposed action.

2.2.2.1 Connected Actions

1. **Road Work**: Road construction of approximately 2,200 feet of new road would occur on or near ridge top locations. Approximately 6 miles of existing road renovation would occur which may include brushing, blading, drainage structure improvement or replacement and spot rocking at deficient locations. New culverts installed would meet 100 year flood design criteria. Cut and fill slopes would be grass seeded. Following harvest, road 13-6-19.8 would be waterbarred, blocked, and grass seeded.

2. **Fuels Treatments**: Debris cleared during road construction would be scattered along the length of rights-of-way. Debris accumulation on landings and roads which are a result of yarding would be machine piled, covered with plastic, and burned under favorable smoke dispersal conditions in the fall, in compliance with the Oregon State Smoke Management Plan. In order to mitigate fire risk, the area would be monitored for the need of closing or restricting access during periods of high fire danger. During the closed fire season the first year following harvest activities, while fuels are in the "red needle" stage, the entire area would be posted and closed to all off road motor vehicle use.

3. **Skid Trail Construction**: Existing skid trails would be utilized as much as possible. New skid trail construction would follow the project design features described in section 2.2.2.2.

4. **Blocking Skid Trails**: After operations, skid trails would be water barred and grass seeded to mitigate soil erosion, reduce noxious weed infestation and help accelerate the return of native vegetation. Junctions of skid trails with roads would be blocked from vehicle usage. Approximately three old skid trails, currently being used as OHV trails and located in the center east portion of the unit, would be waterbarred and blocked from use after yarding operations are completed (see Map #2).

5. **Coarse Woody Debris (CWD) Creation:** The harvest operation would likely create some CWD and possibly knock down some snags. Creation of CWD during harvest could come from harvest activities (e.g. breakage, limbs and tops, trees felled but not harvested), post harvest windthrow, and beetle kill. The recruitment of coarse woody debris and snag levels would be met by reserving extra green trees now resulting in larger diameter snags and CWD later.

6. **Special Forest Products**: Special forest product permits would be available by permit before and after harvest operations as appropriate for GFMA and RR designated lands in this portion of the Marys Peak Resource Area and in compliance with SFP Categorical Exclusion. If firewood is present on the landings after completion of the logging contract, permits may be made available to the public. Burning of the landings would be delayed one or more seasons in order to accommodate firewood cutting.

2.2.2.2 Project Design Features

The following is a summary of the design features that reduce the risk of effects to the affected elements of the environment described in EA section 2.3. Design features are organized by objectives.

General

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

Table 1: Season of Allowable Operation/ Operating Conditions

Season of Operation or Operating Conditions	Applies to Operation	Objective
July 15-April 15	Yarding outside of road right of ways	Protecting the bark and cambium of residual trees
During periods of low precipitation, generally May 1-October 31	Road Construction	Minimize soil erosion
During periods of low precipitation, generally May 1-October 31	Timber hauling on the following roads: 13-6-19 segment A3, 13-6-19.1, 13-6-19.8	Minimize soil erosion/stream sedimentation
During periods of low soil moisture, generally July 15-October 15	Ground based yarding outside of road right-of-ways (Tractor)	Minimize soil erosion/compaction
During periods of low soil moisture, generally June 15- November 15	Ground-based yarding outside of road right-of-ways (Harvester/Forwarder)	Minimize soil erosion/compaction
July 1 to September 30	In-stream work (culvert installation)	Minimize soil erosion/sedimentation

Project Design Features by RMP Objectives

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

- Ground based yarding would take place generally on slopes less than 35 percent.
- Harvester/Forwarder equipment should operate on top of slash as much as practical even during dry conditions and utilize existing skid roads wherever practical. Logging debris would be placed in yarding corridors in front of equipment to minimize the need for machines to go on bare soil.
- Crawler tractor use would require utilization of pre-designated skid trails spaced approximately 150 feet apart where they intersect boundaries and utilize existing skid and off-highway vehicle (OHV) trails as much as practical.
- Harvester/Forwarder use would require utilization of pre-designated skid trails spaced approximately 60 feet apart where they intersect boundaries and utilize existing skid and OHV trails as much as practical.
- Waterbars would be constructed where they are determined to be necessary by the Authorized Officer.

- Areas of exposed soil within all new road construction and on ground-based yarding roads and landing locations would be seeded with Oregon certified (blue tagged) red fescue at a rate equal to 40 pounds per acre. The extent of soil disturbance would be determined in cable yarding corridors at the completion of yarding.
- In the skyline yarding area, one end suspension of logs would be required over as much of the area as possible to minimize soil compaction, damage to reserve trees, and disturbance. Yarding corridors would average approximately 150 feet apart where they intersect boundaries and be 15 feet or less in width. Lateral yarding up to 75 feet from the skyline using an energized locking carriage would be required.
- All new road construction would be rocked with 6 inches to 8 inches of aggregate and would be blocked from vehicular use following harvest operations.
- Log hauling would be allowed year-round on rock surfaced roads.
- Log hauling on natural surfaced roads (13-6-19 segment A3, 13-6-19.1, 13-6-19.8) would be permitted only during periods of low precipitation, generally between May 1 and October 31.
- During periods of high rainfall, the contract administrator may restrict log hauling to minimize water quality impacts, and/ or require the Purchaser to install silt fences, barkbags or apply additional road surface rock.

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

- Stream Protection Zones (SPZ) (no cut buffers) would be established along all streams and identified wet areas within the harvest area. These zones would be a minimum of approximately 50 feet from the high water mark.
- To protect water quality, trees would be felled away from all streams and identified wet areas within the harvest area. Where a cut tree does fall within a SPZ, the portion of the tree within the SPZ would remain in place. No yarding would be permitted in or through the SPZ within the harvest area.
- The vernal ponds (High Water Table) in the southern and eastern portion of the sale area would be protected with a no cut buffer (approx. 25 feet from the outer edge of the riparian vegetation).

To protect and enhance stand diversity and wildlife habitat components:

- Priorities for tree marking (upland and riparian) would be based on Marking Guidelines contained within the Silvicultural Prescription and Riparian Reserves report, respectively (see Silvicultural Prescription and Riparian Reserves report in NEPA file).
- Species diversity would be maintained by reserving all trees other than Douglas-fir and western hemlock.
- All open grown "wolf trees", existing snags, and coarse woody debris would be reserved, except where they pose a safety risk or affect access and operability. In the few cases where snags or logs need to be felled or moved for these purposes, they would remain on site.
- Within the Riparian Reserves, additional trees would be reserved around snags and additional trees would be cut around seedlings and understory trees in order to increase spacing variability. The number of additional reserved trees would be approximately equal to the number of additional cut trees, thereby keeping the prescribed trees per acre described in Section 2.2.2.2.

To protect the residual stand:

- Seven trees within the proposed thinning area selected for their superior genetic quality would be reserved and protected by reserving adjacent trees around them.

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

- The Resource Area Biologist and/or Botanist would be notified if any Threatened and Endangered and/or Special Status Plants and Animal species are found occupying stands proposed for treatment during project activities. All of the known sites would be withdrawn from any timber harvesting activity.

To protect air quality:

- Burning of machine piles would be done under favorable smoke dispersal conditions in the fall, in compliance with the Oregon State Smoke Management Plan.

To maintain recreation management opportunities:

- Off Highway Vehicle trails to remain open after operations (Map 2) would be cleared following completion of logging operations. The clearing operation would be completed by members of the Flat Mountain Riders Association under the guidance of BLM personnel.

To reduce fire hazard risk:

- Debris cleared during road construction would be scattered along the length of rights-of-way. Large accumulations and piles of debris, that may later pose higher than necessary fire hazards, would be avoided.
- Debris accumulations on landings and along roads would be machine piled, covered with plastic.
- In order to mitigate fire risk the area would be monitored for the need of closing or restricting access during periods of high fire danger. During the closed fire season the first year following harvest activities, while fuels are in the "red needle" stage, the entire area would be posted closed to all off-road motor vehicle use.

To protect Cultural Resources:

- No known cultural or palentological resources occur in the project area. A post-harvest survey would take place upon completion of the project according to *Protocol for Managing Cultural Resources on Lands Administered by the BLM in Oregon; Appendix D* dated August 5, 1998. If any sites are identified during timber harvesting, the operations would be immediately halted and the Field Manager would be notified. Operations would be resumed only with the Field Manager's approval, and only after appropriate mitigation measures are designed and implemented to provide any needed protection of those resources.

2.2.3 No Action Alternative

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

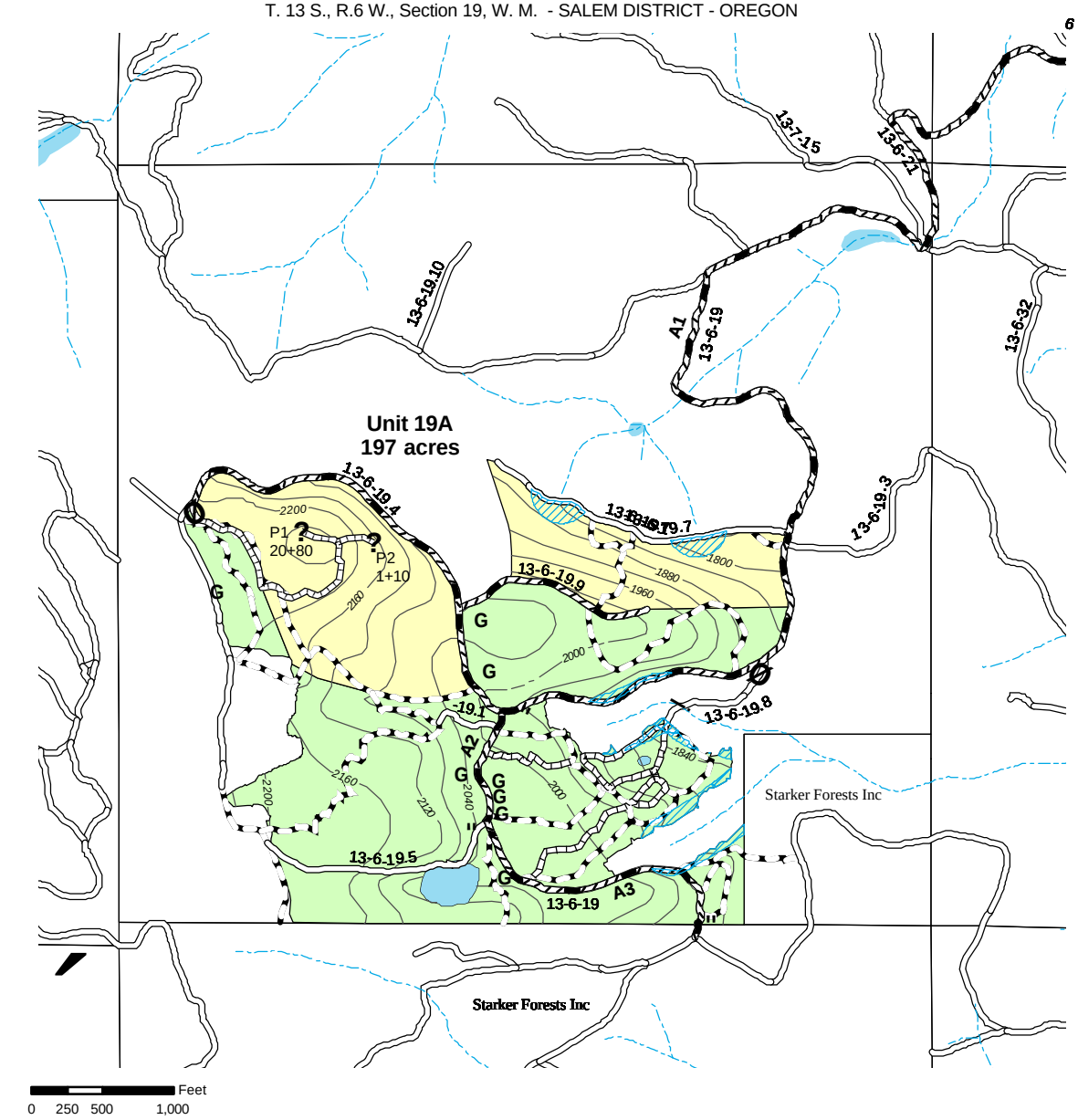
Map of the Proposed Action (Map 2)

6/20/2005

United States Department of the Interior
BUREAU OF LAND MANAGEMENT

GLEASON CREEK EA MAP

T. 13 S., R.6 W., Section 19, W. M. - SALEM DISTRICT - OREGON



Legend

- G — Superior Tree
- ? — Landings
- ¡ — Culvert to be replaced
- Ø — Road Blockage to be constructed
- Contours
- Existing road
- Off Highway Vehicle Trail (open after operations)
- Off Highway Vehicle Trail (closed after operations)
- Road to be Renovated
- New Construction
- Ground-Based Yarding
- Skyline Yarding
- Water Bodies
- Streams
- Riparian Reserve to 210 feet on every stream

2.3 Identification of Affected Elements of the Environment

The interdisciplinary team reviewed the elements of the environment, required by law, regulation, Executive Order and policy, to determine if they would be affected by the proposed action. Table 2 and Table 3 summarize the results of that review. Affected elements are **bold**. All entries apply to the action alternative, unless otherwise noted.

Table 2: Review of Critical Elements of the Environment (BLM H-1790-1, Appendix 5)

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Critical Elements Of The Environment	*Status: (i.e., Not Present , Not Affected, or Affected)*	*Does this project contribute to cumulative effects? Yes/No*	*Remarks If not affected, why?*
Energy (Executive Order 13212)	Not Affected	No	There is no known energy resources located in the project area. The proposed action would have no effect on energy development, production, supply and/or distribution.
Air Quality	**Affected**	**No**	**Burning of slash piles would be done during favorable weather conditions in compliance with OR DEQ regulations and ODF guidance. This would ensure that impacts to the air shed would not exceed the established standards.**
Areas of Critical Environmental Concern	Not Present	No	
Cultural Resources	Not Affected	No	Cultural Resource sites in the Coast Range, both historic and prehistoric, occur rarely. Of Salem District's Resource Area's, the fewest sites have been found on/in Marys Peak Resource Area. The probability of sites are low due to the majority of BLM land being located on steep upland mountainous terrain within areas that lack concentrated resources humans would use. Post-disturbance inventory would be completed on slopes less than 10%.
Environmental Justice (Executive Order 12898)	Not Affected	No	The proposed action is not anticipated to have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.
Prime or Unique Farm Lands	Not Present	No	
Flood Plains	Not Affected	No	The proposed action does not involve occupancy or modification of floodplains, and would not increase the risk of flood loss.
Hazardous or Solid Wastes	Not Present	No	
Invasive, Nonnative Species (plants) (Executive Order 13112)	**Affected**	**No**	**Addressed in text (EA section 2.4.1.1)**
Native American Religious Concerns	Not Affected	No	No Native American religious concerns were identified during the public scoping period.

Table 2: Review of Critical Elements of the Environment (BLM H-1790-1, Appendix 5)				
Critical Elements Of The Environment		*Status: (i.e., Not Present , Not Affected, or Affected)*	*Does this project contribute to cumulative effects? Yes/No*	*Remarks If not affected, why?*
Threatened or Endangered (T/E) Species or Habitat	Fish	Not Affected	No	Upper Willamette River Steelhead and Chinook are downstream from the project area within the mainstem Willamette River. Juvenile Steelhead and Chinook use some of the tributaries to Marys River to a very limited amount approximately 5.5 miles downstream. Oregon Chub are currently found only in isolated ponds connected to the Marys River Basin. It is highly unlikely that the project would affect listed fish and their habitat due to the distance from T/E fish bearing streams.
	Plant	Not Present	No	There are no "known sites" of any T&E species within the project area nor is there any potential habitat present.
	Wildlife	**Affected**	**No**	**Addressed in text (EA section 2.4.1.1)**
Water Quality (Surface and Ground)		**Affected**	**No**	**Addressed in text (EA section 2.4.5.1, Hydrology Report p.1-8 & Cumulative Effects Analysis p.1-4)**
Wetlands/Riparian Zones		Not Affected	No	Wetlands and Riparian zones (i.e., near stream areas with actual riparian vegetation or characteristics) would be designated as stream protection zones and would be buffered out of the project area. Addressed in text (EA section 2.2.2.2 and Riparian Report p.9).
Wild and Scenic Rivers		Not Present	No	
Wilderness		Not Present	No	

Table 3: Review of Other Elements of the Environment

Table 3: Review of Other Elements of the Environment			
Other Elements of the Environment	*Status: (i.e., Not Present , Not Affected, or Affected)*	*Does this project contribute to cumulative effects? Yes/No*	*Remarks If not affected, why?*
Coastal zone	Not Present	No	
Fire Hazard/Risk	**Affected**	**No**	**Addressed in text (EA section 2.4.3.1 and in the Fuels/Soils Report pp. 1-13).**
Other Special Status Aquatic Species (fish, Essential Fish Habitat, aquatic invertebrates)	Not Affected	No	There are no Special Status Aquatic species located near the project area
Land Uses (right-of-ways, permits, etc)	Not Present	No	
Late Successional and Old Growth Habitat	Not present	No	
Mineral Resources	Not Present	No	
Recreation	**Affected**	**No**	**Addressed in text (EA section** 2.4.2.1 **and in the Recreation Report pp. 1-3).**
Rural Interface Areas	Not Present	No	Not present in the immediate vicinity of the proposed project.
Soils	**Affected**	**No**	**Addressed in text (EA section** 2.4.2.1 **and in the Fuels/Soils Report pp. 1-13).**

Table 3: Review of Other Elements of the Environment				
Other Elements of the Environment		*Status: (i.e., Not Present , Not Affected, or Affected)*	*Does this project contribute to cumulative effects? Yes/No*	*Remarks If not affected, why?*
Special Areas outside ACECs (Within or Adjacent) (RMP pp. 33-35)		Not Present	No	
Other Special Status Species/Habitat	Plants	Not Affected	No	There are no "known sites" of any Bureau Special Status species within the project area.
	Wildlife	**Affected**	**Yes**	**Addressed in text (EA section 2.4.4.1)**
Visual Resources		Not Affected	No	Project area is located in VRM IV class.
Water Resources – Other (303d listed streams, DEQ 319 assessment, Downstream Beneficial Uses; water quantity, Key watershed, Municipal and Domestic)		**Affected**	**No**	**Addressed in text (EA section 2.4.5.1 & Hydrology Report p.1-4)**
Wildlife Structural or Habitat Components - Other (Snags/CWD/ Special Habitats, road densities)		**Affected**	**No**	**Addressed in text (EA section 2.4.4.1)**

2.4 Affected Environment and Environmental Effects

Those elements of the human environment that were determined to be affected are *vegetation, soils, fuels\air quality, wildlife, water, fisheries/aquatic habitat, and recreation* (EA Section 2.3). This section describes the current condition and trend of those affected elements, and the environmental effects of the alternatives on those elements.

2.4.1 Vegetation

(Gleason Creek Botanical Report pp. 1-5,Silvicultural Prescription pp. 3-8,Riparian Reserve Report pp. 2-6)

Affected Environment

The over-story is a single layer canopy of 70 year old Douglas-fir. There are also a few scattered western hemlock and hardwoods in the stand. The crown ratio for the stand is 40 percent on dominate and co-dominate trees. There is no substantial intermediate layer in the stand due to past commercial thinnings. An ice and wind storm in 2003 created 1 to 3 new snags or down logs per acre. The canopy is closing as is indicated by the average relative density of 48. Three thousand one-hundred nineteen feet per acre of course woody debris (CWD) in decay classes 1-5 greater than five inches diameter breast height (DBH) was found during the 1996 forest survey in the project area. Table 4 below summarizes existing conditions.

Table 4 Stand Summary

Trees/ Acres	Relative[3] Density	Canopy [1] Closure (%)	Crown[2] Ratio (%)	Snags/ Acre	Course Woody Debris (Cubic ft/ac) Decay Class 1-5
102	48	79	40	1-3	3,119 feet

1. Canopy Closure is the average percent of the crown blocking light from the stand.
2. Crown ratio is the amount of live crown in relation to total tree height.
3. Relative Density (RD) is a ratio of trees in a given stand compared with the number of trees a site can support.

The understory is mostly vine maple and red huckleberry with scattered California hazelnut, oceanspray and wild rose. There are many small areas that occur throughout the stand that are void of any vascular plants and dominated by moss. Few small wet or seep areas exist along the riparian areas within the project areas where Devil's club is present.

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

Environmental Effects

2.4.1.1 Alternative 1 (Proposed Action)

The action would decrease the existing coniferous canopy cover through thinning approximately 197 acres. This would allow for an increased amount of sunlight to reach the understory and forest floor species (shrubs, forbs, ferns and grasses). Sunlight would also be increased to the lower parts of the canopy, which is expected to increase the growth rate of the reserved conifers and forest floor species over the long term. This increase in the growth rate of the remaining trees and tree crowns would increase canopy cover. Since thinning increases the vigor of remaining trees, susceptibility of trees to disease and insects would be decreased. At 90 to 120 years of age, this stand is expected to be ready for a regeneration harvest with high quality trees to harvest and others to provide for ecological functions. Larger diameter trees would provide high quality timber and trees for wildlife needs in the future. Trees with high wildlife quality would help provide for ecological functions. Reserving wildlife trees, snags, and logs (CWD) would help to maintain a moderate level of ecologically valuable components in the stands.

After logging activities, tops, branches and broken/shattered stems would remain on site to decay. Blown-down timber may also occur in the thinned areas creating additional down woody debris. This dead material may provide short-term habitat for the Douglas-fir bark beetle. If standing trees are killed they would contribute to snags and down wood which are valuable for wildlife.

Noxious Weeds (Invasive/Non-Native):
Any ground disturbing activity may lead to an increase in the noxious weeds known from the project area. Grass seeding exposed soil areas tends to abate the establishment of noxious weeds. With the implementation of project design features, adverse effects from noxious weeds are not anticipated. The risk rating for the long-term establishment of noxious weed species and consequences of adverse effects on this project area is low.

Cumulative Effects: There would be no cumulative effects to the vegetation, as the effects from the project would be local, and there would be no other uses affecting this resource.

2.4.1.2 No Action Alternative

The canopy in this stand could remain closed for several decades. The number and diversity of understory and shrubs/forbs species in many areas may remain low. The predicted growth for individual trees would be slow compared to alternative 1. Eventually, dominant trees would shade out and kill suppressed and co-dominant trees. This would create additional snags and down woody debris. Small infestation of the Douglas-fir bark beetle may become established in the dying trees.

Natural disturbance would be the agent for creation of stand structural diversity. The most likely agent for this disturbance would be wind, which would create openings in patches. As openings in the canopy are created additional sunlight would be available to the understory, shrubs and forbs. Additional openings may increase the number and diversity of "botanical and fungal" species in the area. Open slash covered areas may become dominated by shrubs (salal) and/or ferns.

Trees would continue at their present rate of growth, slowing as the canopy closes and competition for light becomes more intense. As the stand approaches stagnation, the stand would have less vertical structure and poor height to diameter ratio than the managed stand due to the crowded stand conditions. Crown ratios would decrease at a faster rate compared to Alternative 1. Subsequently, wind firmness and individual tree stability would decrease as crown ratios decrease. Although it is unknown how long it would take for natural disturbance to create the structural and species diversity needed in this watershed, it is expected based on a considerable body of research that this diversity would take considerably longer to develop than if the Alternative 1 were implemented.

Noxious Weeds (Invasive/Non-Native):
Without any mineral soil disturbances in the proposed project area, the established noxious weed populations would remain low.

2.4.2 Soils

(Gleason Creek Fuels/Soils Report pp. 1-9)

Affected Environment

The predominant soil series on and around the site are Klickitat gravely clay loam and Marty gravely loam. Slopes on most of the skyline yarding areas vary from 30% to 50%; a few included areas have slopes up to 60% for short distances. Slopes on the ground based yarding areas vary from 5 to 35%. Moderate to heavily compacted soils still exist in scattered skid trails that date back to the original tractor logging that took place in the proposed project area in the 1940's.

Less than 3% of the proposed project area is occupied by distinguishable skid trails. A number of these old skid trails are in use as OHV trails, primarily used by motorcycles. The old skid trails that are not currently in use by motorcyclists have trees and brush growing in them and have partially recovered. The skid trails and old haul roads are generally less than 12 feet in width so the timber stands are fully occupied by tree canopies.

Generally, on the flat and moderate slopes the soils are deep and finer textured, with thick top soils (Marty series), as slopes increase, the soils are less deep and coarser textured with considerably more rock fragments included (Klickitat series).

The existing rocked road surfaces within the proposed project area are stable. A few sections of natural surfaced roads show signs of limited surface erosion where vehicle traffic occurs during wet weather and/or where surface water accumulates and runs down the compacted road surface. Some reshaping, water bars or other drainage work would correct these problem areas. No areas were found that had a high risk of contributing large amounts of sediment to streams through surface erosion or mass failure.

Environmental Effects

2.4.2.1 Alternative 1 (Proposed Action)

Compaction and disturbance/displacement of soil: (*Roads)*
Constructing approximately 2,200 feet of new spur roads would result in loss of top soil and compaction of sub-soil on approximately 1 acre (about 0.5% of the total project area). The area currently is forested land that would be converted to non-forested. The roads to be constructed would be on gentle topography so the total width of the clearing would be around 20 feet. This narrow clearing would have a very minimal effect of the over all tree spacing and stocking. All of the new construction would be blocked to vehicle traffic following harvest, so some recovery back to a forested condition would occur in this area over time.

Spot road improvement of existing roads would result in no change in amount of current non-forest land. Some encroaching vegetation along these older roads would be removed and surface rock would be added where needed. The improvements would provide better drainage and road surface conditions resulting in less road surface erosion into the surrounding area or streams. The improvement work would be expected to result in some minor short term roadside erosion where established vegetation in the ditch and culvert catchment areas would be removed during the cleaning and reshaping or culvert installment operations. The addition of extra cross drain culverts and the road surface reshaping would reduce the volume of water flowing on the road surfaces and should result in less future erosion.

No measurable amounts of surface erosion would be expected from the forested lands treated under this proposed alternative. Since timber hauling may be restricted during periods of high rainfall, the amount of sediment produced from roads and entering streams would be negligible to none.

Logging:
Following completion of this proposed action, the majority of the vegetation and root systems would remain, along with surface soil litter and slash from thinned trees. Expected amounts of surface soil displacement, surface erosion and dry ravel resulting from commercial thinning operations should be minimal. Some soil compaction can be expected to result from this project, but the aerial extent and degree would remain within accepted district guidelines (10% or less).

Landings: Logging impacts include the additional area used for landings. About half of the surface area used for landings would be the existing road surface. The additional area adjacent to the road that would be needed for landing area is estimated to be approx. 1200 sq. ft. per landing.

For the entire proposed project area this would amount to 0.6 acres (as a percentage of the total project area less than 0.3 %).

Skyline yarding roads: In skyline yarding areas, impacts usually consist of light compaction of a narrow strip less than 4 feet in width (the skyline road). This is especially true for this type of project where logs are relatively small and there would be adequate slash on the ground in the corridors to yard over. Measurable long term effects on site productivity from this type of disturbance would be minimal to none. Area affected would be approximately 3% of the skyline area or approximately 1.9 acres (as a percentage of the total project area approximately 0.9 %).

Ground based yarding: If yarding is done using crawler tractors for the entire ground-based area (132 acres), the percentage of ground-based unit area impacted by surface disturbance and soil compaction as a result of skid roads and landings would be approximately 6 to 8%, or approximately 8.7 to 11.6 acres (as a percentage of the total project area approximately 5.6%). In crawler tractor yarding roads, a moderate amount of top soil displacement and moderate to heavy soil compaction would be expected to occur depending on the amount of use.

If yarding is done using a harvester/forwarder system for the entire ground-based area, the percentage of total ground-based unit area impacted by surface disturbance and soil compaction as a result of skid roads and landings would be approximately 2 to 5%. In harvester/forwarder yarding roads, soil displacement would generally be minimal to none and soil compaction would be light to moderate.

Some of the potentially impacted acreage listed above includes existing skid roads from previous logging in the late1930 to 1940 period. Where practical, portions of these existing roads would be used for skid roads for this project. As a result, the amount of acreage for new or additional harvest impacts would be less than the totals listed above. For the proposed project, the total (new and existing) area of impacted ground would not be expected to exceed the 10% district guideline for aerial extent of soil impacts listed in the Salem District RMP.

Site Productivity:
Skyline yarding: For skyline yarding systems, the effect on overall site productivity from light compaction on approximately 2.5% of the total area is expected to be low (no measurable reduction in overall yield for the project area).

Ground based yarding: For harvester/forwarder systems, soil impacts in skid roads are expected to result in light to moderate compaction in two discontinuous, narrow strips less than 3 feet in width. The effect on overall site productivity from light to moderate compaction on less than 1% of the total area is expected to be low (no expected measurable reduction in overall yield for the project area).

For crawler tractor yarding plus all landings, soil impacts are expected to result in moderate to heavy, fairly continuous compaction within the landing areas and the main, 10 foot wide skid roads. Impacts would be light to moderate and less continuous on less-traveled portions of skid roads. The expected reduction in productivity for the 12.2 acres of landings and skid roads is a 20% reduction in yield on those acres. The effect on overall project site productivity resulting from the impacted 12.2 acres is expected to be less than 1.2 % reduction in overall yield for the 209 acre project area.

In the entire ground-based yarding area, waterbarring and blocking skid roads after use would promote out-slope drainage and prevent water from accumulating in large quantities, running down the road surface, and causing erosion. After several seasons, the accumulated litter fall on the closed surfaces would further reduce the surface erosion potential.

2.4.2.2 No Action Alternative

There are no apparent impending road failures or surface erosion issues that would cause serious impacts to streams in the proposed project area with the exception of Road 13-6-19.8 where chronic erosion would continue to occur due to use of adjacent OHV trails. Periodic road maintenance is recommended over the long term.

2.4.3 Fuels\Air Quality

(Gleason Creek Fuels/Soils Report pp. 9, 10)

Affected Environment

There is moderate accumulation of dead woody material on the ground. Much of the existing down pole to small log size material is rotten or only partially sound. There are a few moderate to very large sized old, down logs left from the previous logging or from windthrow. Small snags are fairly numerous and scattered throughout the stand. Large snags (over 20" dia.) are less than 2 per acre. The total dead fuel load estimate for these stands varies from 14 to 27 tons per acre.

Environmental Effects

2.4.3.1 Alternative 1 (Proposed Action)

Road Construction: Vegetation cleared for new road construction would result in the creation of approximately 50 tons of slash that would be scattered and/or piled along the right-of-ways. This would increase risk for a fire start along the right-of-ways while the roads are in use. After the project has been completed and the piles burned, the risk of fire from the road construction debris would be insignificant.

Road Renovation: Road renovation would result in very small amounts of slash created along the roads that would be scattered and/or piled along the roads. The scattered slash should create little additional risk. Piled slash would only pose a moderate risk until it is burned.

Logging: In the short term the increase in slash created by the proposed thinning would result in a higher risk of fire on the thinned sites. The dead fuel loading is expected to be increased by 5 to 15 tons per acre with a discontinuous arrangement. Total dead fuel loadings would range from approximately 20 to 40 tons per acre. Overall, the risk of fire following this action would be somewhat higher than most thinning projects in the area but should still be in the moderate range.

Risk of fire would be greatest during the period when attached needles dry out the first season following harvest. Fire risk would continue to diminish as the area "greens up" with understory vegetation, and the fine twigs and branches in the slash begin to break down. Posting the area closed to off-road vehicle use during the first and possibly second fire season following harvest would reduce the risk of fire starts within the thinning area.

Air Quality: Burning of slash piles would be done in the fall when the threat of impacting air quality in designated areas would be very low. Fuels would be piled, covered, and mostly dry which would improve combustion and reduce smoke. Any residual smoke should be of short duration. During this time of the year, good atmospheric mixing conditions and an increased likelihood of rainstorms would scour the air shed and extinguish residual fire fairly quickly.

Cumulative Effects: There would be few cumulative effects to this resource, as the effects from the project would be local, and there would be no other uses affecting this resource. Although there would be an increase in fuel loading and resultant fire hazard in the short term, there would be positive net benefits in the long term due to the proposed thinning and density management treatment. When looked at from a watershed scale, however, the thinning of approximately 197 acres of forest habitat would reduce the long term (5 or more years) potential of the stand to carry a crown fire. This is because of the spacing out of the trees and their crowns, in addition to removal of current ladder fuels that are conducive to the spread of wildfire.

2.4.3.2 No Action Alternative

Conditions would remain as they are at present. There would be no changes in aerial extent of disturbed fuel loadings (assuming no additional OHV use beyond existing trails).

2.4.4 Wildlife

(Gleason Creek Wildlife Report pp. 1-3)

Affected Environment

Wildlife Structural or Habitat Components: The 209 acre thinning project is part of a checkerboard landscape of private and public mid-seral (40-79 years old) conifer forest within the Benton Foothills watershed analysis area. Within this mid-seral forest there are many large patches of conifer early-seral (0-39 years) and deciduous forest habitat along with a few scattered small patches of late-seral (80-199 years) and old-growth (200+ years) habitat. Riparian zones and roads provide corridor habitat throughout the landscape and they are usually dominated by deciduous hardwoods like bigleaf maple and red alder. Mid-seral forests in the Coast Range of Oregon are currently dominated by Douglas-fir with scattered and clumped western hemlock, western redcedar, and various hardwoods. These forests stands, when compared to unharvested late-seral and old-growth forests, are usually characterized as being structurally simple because they have a single-layered, dense, overstory canopy with little or no understory and small amounts of large wood, either dead or alive, standing or down, remaining from the previous stand conditions.

Special Habitats/Special Habitat Components (snags, down logs, remnant old-growth trees): Currently the stands have some soft and hard snags and coarse woody debris but they are primarily in the smaller diameter classes. Larger diameter (greater than 24" dbh) snags and coarse woody debris are preferred over what currently exists in the stand. No-cut buffers (aver. 75 ft), post-harvest leave tree buffers (76-200 ft), and protection of existing snags and coarse woody debris would maintain enough structure & canopy closure (greater than 50%) to protect microclimates and nesting/foraging resting/escape habitats within the riparian reserves for those listed species associated with the riparian zone. During a future regeneration harvest green trees would be reserved for future snags and coarse woody debris.

Threatened or Endangered Wildlife Species or Habitat:
The project area has no suitable nesting habitat or Reserve Pair Area habitat and does not fall within designated Critical Habitat for the northern spotted owl. The mid-seral forest in the proposed thinning area provides suitable northern spotted owl dispersal habitat. The closest known owl site is over one mile to the south of the project area.

Environmental Effects

2.4.4.1 Alternative 1 (Proposed Action)

Wildlife Structural or Habitat Components: The commercial thinning and density management prescriptions for the proposed action would remove the suppressed, intermediate, and smaller co-dominant Douglas-fir and western hemlock and leave the dominant and larger co-dominant conifers. Since the largest trees with the best crown ratios would be left following the thinning, overstory canopy is expected to be 50 percent or greater over most of the thinned area. Since Riparian Reserves provide travel corridors and resources for aquatic, riparian dependant and other riparian and/or late-successional associated plants and animals, the increased structural and plant diversity would ensure protection of aquatic systems by maintaining and restoring the distribution, diversity and complexity of watershed and landscape features. Long term connectivity of terrestrial watershed features would be improved by enhancing conditions for understory development (structural diversity), increasing the proportion of minor species in the stand (species diversity), and increasing growth rates on remaining trees. Development of stand and individual tree characteristics desirable for riparian and old growth associated species would be accelerated by restoring structural complexity to the stands and by accelerating development of desired tree characteristics (increased diameter and limb structure). In time, these reserves would improve in functioning as refugia for late successional, aquatic and riparian associated and dependent species.

Special Habitats/Special Habitat Components (snags, down logs, remnant old-growth trees): The proposed action would abbreviate the recruitment time necessary for the development of larger (greater than 24 inch diameter) hard snags, coarse woody debris, and a more complex overall stand structure which would provide more nesting opportunities for species which prefer late-seral and old-growth structures. A short-term (direct) negative impact would be a simplification of stand structure due to the removal of trees, however, the proposed treatment would have no substantial impact on the composition and functions of these mid-seral stands. A long-term (indirect) positive impact would be the legacy of remnant trees left after a future regeneration harvest to provide late-seral and old-growth structure (similar to how the stand might have looked after a stand replacing fire).

Threatened or Endangered Wildlife Species or Habitat: This action is considered to be a "May Affect, Not Likely to Adversely Affect" to the northern spotted owl. The short-term negative impacts to northern spotted owl dispersal habitat would not be significant since the thinning would maintain overstory canopy cover above 40 percent and the untreated mid-seral matrix forest and riparian zones provide abundant dispersal habitat within the watershed. Although there may be short-term negative impacts to northern spotted owl dispersal habitat (an owl may or may not use the newly thinned stands to disperse through), the thinning would maintain overstory canopy cover above 40 percent and the untreated mid-seral matrix forest and riparian zones would provide abundant dispersal habitat within the watershed.

Cumulative Effects Effects would be limited due to the type of treatment proposed, the project's small size and its location in the watershed. The proposed project would occur in a portion of the watershed that has a checkerboard forest ownership pattern where every other section is either BLM or private timber. The watershed provides early and mid-seral forest habitat and both public (BLM's Matrix lands) and private industrial forests within the watershed are currently harvested sometime during the mid-seral stage of habitat development. Under current management plans, these public and private lands would never provide interior late-seral (80-199 years old) or old-growth (200+ years) forest habitat. However, the BLM's Riparian Reserve lands would eventually function as mature forest landscape corridors and provide connectivity between different aged patches throughout the watershed as they connect with stream buffers on private lands.

2.4.4.2 No Action Alternative

Under the no action alternative the uniform, single layered, mid-seral stand would continue to grow and develop into late-seral size and structure at a much slower rate than if released through thinning. There would be no impacts to owl dispersal habitat or to the mid-seral dependent wildlife species currently using these stands for nesting, foraging, dispersal, resting/roosting, and escape habitat. Species dependent on larger and more complex structure would avoid these stands for a longer period of time.

2.4.5 Water

(Gleason Creek Hydrology report pp.1-7)
(Cumulative Effects Analysis pp. 1-3)

Affected Environment

The project area contains two headwater tributaries of Gleason Creek, which flow directly into Beaver Creek and then Muddy Creek. These streams are typically narrow with moderate side slopes, which braid at valley flats creating small marshes which sustain hydric vegetation. The project area also contains two small (less than 1 acre) wetlands, which are surrounded by conifers. During field review of stream channels in the project area, channels were observed to be mostly stable and functional with sediment supplies in the range expected for these stream types. Streamside shading from riparian vegetation appears adequate to buffer streams from summer temperature increases and all channels viewed in the field appear in "Proper Functioning Condition". None of the project area streams are listed on the state's 303d list or in the 319 Report for water quality issues (see Hydrology report p. 2-3). However, Beaver Creek flows directly into Muddy Creek which is 303d listed for exceeding summer temperature standards.

The drainage in the project area has been disturbed by past logging practices and is currently being influenced by a network of OHV trails. The trails are capturing and routing runoff, especially in steeper sections of the project area.

Recognized beneficial uses of in-stream flows include resident fish, anadromous fish, recreation, and esthetic value. There are no known municipal or domestic water users in the project area. The nearest domestic water right is located approximately 2 miles downstream from the project area on Gleason Creek.

Environmental Effects

2.4.5.1 Alternative 1 (Proposed Action)

Long-term, measurable negative effects to watershed hydrology, channel morphology, and water quality as a result of the proposed action would be unlikely. The proposed action would be unlikely to alter the current condition of aquatic systems either by affecting their physical integrity, water quality, sediment regime or in-stream flows.

Tree removal and road construction would not occur on steep, unstable slopes where the potential for mass wasting adjacent to stream reaches is high. Therefore, increases in sediment delivery to streams due to mass wasting would be unlikely to result from this action. In addition, potential impacts resulting from tree harvest and road construction would be mitigated to reduce the potential for measurable sediment delivery to streams by implementing Best Management Practices (BMPs) such as stream and wetland no-treatment buffers, minimum road widths, minimal excavation, ensuring appropriate drainage from road sites, and restricting hauling during wet weather. Equipment would operate on the existing OHV trails, to the extent possible. Following harvest, OHV trails which are concentrating runoff, including the steepest trail sections, would be covered by logging slash and closed to future recreational use in order to redirect surface flow and mitigate soil erosion. Because the proposed project would affect only 0.2% of the forest cover in the Marys River 5th-field watershed, it would be unlikely to produce any measurable effect on stream flows.

There are a small number of acres of Riparian Reserve in the project area (approx. 4 acres). Within these areas, substantial portions of the riparian canopy would be retained, therefore maintaining riparian microclimate conditions and protecting streams from increases in temperature.

Pile burning along roads and on landings may produce small patches of soil with altered surface properties that restrict infiltration. However, these surfaces would be surrounded by large areas that would easily absorb any runoff or sediment that may reach them. Pile burning would occur away from surface water or streams and outside of Riparian Reserves where possible.

This proposal would be unlikely to impede and/or prevent attainment of the stream flow and basin hydrology, channel function, or water quality objectives of the Aquatic Conservation Strategy (ACS). Over the long term, this proposal should aid in meeting ACS objectives by speeding the development of older forest characteristics in the riparian zone.

Cumulative Effects: The proposed project would be unlikely to contribute to cumulative effects to sedimentation or increases of stream temperature because it would be unlikely to produce any measurable effects on these parameters. Because the mechanical removal of vegetation and road construction in a watershed can result in increases in stormflow volume and earlier, higher peak flows, the proposed action was analyzed for its potential affects on peak flows.

The proposed project area falls within three 7^{th}-field watersheds (catchments): Upper Beaver Creek, Upper Reese Creek, and Upper Oliver Creek. Because the acres of proposed project area that would fall within the Upper Reese Creek and Upper Oliver Creek catchments would be so

small (approximately 9.3 acres and 0.8 acre respectively), the catchment boundaries of Upper Beaver Creek were modified for the analysis to incorporate these outlying acres.

Two Level 1 analyses for potential increases to peak flows in the modified Upper Beaver Creek catchment determined the risk of increasing flows to be "low". In general, the catchment is covered by mature forest (greater than 70% total crown closure and less than 75% of the crown in hardwoods or shrubs), lies mostly outside the rain-on-snow (ROS) zone (less than 2,000 feet), and has mixed ownership (35% federal, 65% private). Although approximately 67% of the proposed Gleason Creek project area lies within a potential rain-on-snow zone, the project would maintain crown closures of 45-60%. Therefore, the proposed action would be unlikely to pose an additional risk to augmenting peak flow events in the Upper Beaver Creek catchment.

Cumulative impacts to the Upper Beaver Creek catchment are likely to continue from both public and private actions. Current and likely future management actions on public lands in the watershed include: stand density management through timber sales, road maintenance (drainage improvements, renovations, decommissioning), and riparian treatments.

Likely future private actions include: timber management and associated road construction in the west and Christmas tree farming, limited grazing and small-scale agriculture in the east-northeast portions of these catchments.

2.4.5.2 No Action Alternative

No action would result in the continuation of current conditions and trends at this site as described in EA section 2.4.5. Existing OHV trails would continue to further erode and concentrate runoff from frequent use. Runoff would continue to flow down the 13-6-19 road, eventually threatening the integrity of the road surface.

Activities from management of both public and private lands would continue to occur.

2.4.6 Fisheries/Aquatic Habitat

(Gleason Creek Timber Sale Fish Input pp. 1-3)

Affected Environment

Surveys for fish distributions on Gleason Creek indicate upper limits for resident cutthroat trout (*Oncorhynchus clarki*) are almost 1.5 miles downstream from the thinning unit. Access to portions of Gleason Creek may be impaired due to an impassable culvert downstream on private land, however, fisheries would still not reach the unit were access restored. Cheyenne Creek, tributary to Duffy Creek near the northeast corner of the unit was assessed for fish distribution. Exact fish distribution in Duffy Creek was not determined, however, review of the stream channel indicates the stream would be too steep for fisheries, with reaches in excess of 20% for at least ¾ of a mile downstream of the unit. Moderate amounts of wood are within the stream channels and make small steps and plunge pools.

Threatened and Endangered Species: Upper Willamette River (UWR) Steelhead and UWR Chinook are down stream from the project area within the Marys River and Beaver Creek respectively. The upstream limit of UWR Steelhead distribution is approximately twenty miles

below the project area in Marys River and the upstream limit of UWR Chinook distribution is approximately nine miles below the project area in Beaver Creek. Oregon Chub are currently found only in isolated ponds connected to the Marys River Basin.

Environmental Effects

2.4.6.1 Alternative 1 (Proposed Action)

Logging: The proposed logging action would not adversely affect the aquatic environment, resident or anadromous fish which are down stream. Skyline yarding in sloped areas (for lift) with a minimum of one end suspension, the small amount (thinning) and size of timber being hauled out in conjunction with stream protection zones and seasonal restrictions (see design features) would keep sediment delivery to a minimal level.

Remaining trees, vegetation, duff, and stream protection zones would keep the chances of mass wasting into streams to a minimal level. Due to stream protection zones (50 foot minimum), remaining trees, and topographic relief, there is very little chance that these streams would increase in temperature.

Ground based yarding would not negatively impact streams. Mitigation measures and design features such as: installation of water bars, and grass seeding of skid roads would keep impacts to a minimum.

Trees that remain after thinning would benefit from increased sunlight and would grow fuller crowns allowing them to grow faster. This would increase the amount of future potential quality large diameter wood for in-stream function, complexity and riparian dependant species. Thinning within the riparian reserve also allows for a secondary canopy to establish and increase species diversity and complex habitat to develop.

Timber Hauling: The potential for timber hauling to generate road sediment is minimized by project design features. Winter haul would occur on rocked road surfaces only. Native surface roads would be restricted to dry season use only. Haul routes from the unit reach a paved road within approximately 4 miles. Hauling operations would be suspended if weather or environmental conditions pose an imminent risk of road sediment flowing in road ditches. Beaver Creek is the only known fish bearing stream that the haul route crosses on unpaved roads. The haul route crosses Beaver Creek in two locations (see map 1, p. 8). The approaches and crossings are bridged and are paved for short distances on either side of Beaver Creek. These stream crossings are in excellent condition and on nearly flat locations in the valley bottom. The road is regularly maintained by Benton County in the area of the stream crossings and the ditchlines are covered with vegetation. This segment of road is used for residential access as well as private forestry management. It is highly unlikely that project hauling would negatively affect fisheries habitat due to distance from fish bearing streams (greater than 3/4 mile) in the small tributary streams associated with most of the haul route and because of the maintenance and nature of the stream crossings on Beaver Creek.

Road Work: The road work that is associated with this project would have a short term impact due to increases in turbidity. This increase in turbidity would be small and would occur within the first year. It is unlikely to harm fish and other aquatic organisms due to placement of new road

construction (ridge tops), seasonal restrictions (construction during dry season only) and other mitigation measures (sediment traps, grass seeding, etc).

Cumulative Effects: The Project would not contribute to cumulative impacts on fish or fish habitat due to the small size of the project.

2.4.6.2 No action Alternative

Current stream habitat conditions would continue. Riparian Reserves would not be thinned and consequently trees would continue to compete for sunlight. Over time trees would thin themselves, but remaining trees would be of smaller diameter and have smaller crowns. Trees that die and fall would be smaller diameter. Smaller diameter trees would not function on the ground and in stream as long or as well as larger diameter trees.

2.4.7 Recreation

(Gleason Creek Recreation/VRM/Rural Interface Evaluation pp. 1-3)

Affected Environment

The project area is characterized by a forest setting with many modifications to the natural setting both public and private. This thinning is accessed by gravel forest roads and has dispersed recreation. There are no developed recreational facilities within the project area, however, the project is within an area of extensive Off Highway Vehicle (OHV), primarily motorcycle use. The Flat Mountain Riders Association is a self policing group that maintains a trail system in exchange for riding opportunities on OHV trails within the Flat Mountain area. Other activities that may occur include hunting, target shooting, driving for pleasure, and special forest product harvest such as mushroom collection.

Environmental Effects

2.4.7.1 Alternative 1 (Proposed Action)

Any recreational use in the project area would be restricted in the short term during the harvest operation. A forest setting would still be maintained, and vegetation disturbed by logging activities would be expected to return within five years. The thinning of the project would open up the stand, which may make it easier to walk through the project and provide forage for big game animals, however logging debris may hinder these same activities. New skid road constructions would increase opportunities for OHV use. After logging operations, recreation users would continue to use public lands as in the past. Some historically used OHV trails would be obliterated by harvest activities. A few existing trails would be closed to OHV use due to the damaged caused by improper trail design and location. It is possible that the loss of trails in this project area could lead to other trails being built elsewhere. If this occurs impacts could be transferred to these other areas and potentially cause increased erosion.

2.4.7.2 No action Alternative

With the exception of unexpected changes (i.e. wildfire or disease), the project area would continue to provide a forest setting for dispersed recreational activities and local residents. A short-term increase in log truck traffic, noise and other inconveniences related to the harvest of the project would not occur. However, these inconveniences from other lands in the vicinity would most likely still occur.

2.4.8 Comparison of Alternatives With Regard to the Purpose and Need

Table 5: Comparison of Alternatives by Purpose and Need

Purpose and Need (EA Section 2.1)	Alternative 1 (Proposed Action)	No Action Alternative
1. Manage timber stands in the GFMA (LUA) that balances a marketable timber sale between wood volume production, quality of wood, and timber value at harvest while maintaining a forest ecosystem that supports plant and animal populations and protects riparian areas and water resources	Thinning would accelerate growth on approximately 193 acres of a 70 year old stand. Offers approximately 3,300 MBF of timber for sale. Minor species in the stand would be maintained on site. The proposed action would be unlikely to alter the current condition of aquatic systems either by affecting their physical integrity, water quality, sediment regime or in-stream flows.	Does not meet this purpose and need. The sparse ground-cover and single canopy conditions would remain until a severe weather event occurred to open up the stand. As the stand approached stagnation, the residual trees would not be as vigorous as the managed stand with reduced crown sizes. The stand would likely develop more slowly than in a thinned stand, possibly resulting in not attaining the desired tree diameter, crown and wood quality for GFMA objectives.
2. Manage early to mid-seral stands in Riparian Reserve LUA so that growth of trees can be accelerated to restore large conifers to Riparian Reserves; habitat for populations of native riparian-dependent plants, invertebrates, and vertebrate species can be enhanced or restored, and structural stand diversity can be improved on a site-specific and landscape level in the long term.	Would reduce stand densities on approximately 4 acres of RR and allow reserved conifers to increase diameter and height growth. This action would result in increased sizes of future large down wood, coarse woody debris, and snags. Would accelerate the development of changes in some stand components and help develop certain elements of diversity sooner by releasing the understory.	Does not meet this purpose and need. Natural disturbance (likely wind) would be the agent for creation of stand structural diversity. The number and diversity of understory and shrubs/forbs species in many areas may remain low. Stand mortality would increase, creating increased amounts of small CWD, snags and instream LWD. Trees would continue at their present rate of growth, slowing as the canopy closes. Tree growth would stagnate and not meet the need for development of future large down wood, coarse woody debris, and snags.
3. To maintain and develop a safe, efficient and environmentally sound road system that provides access for timber harvest, silvicultural practices, reduces potential human sources of wildfire ignition, provides for fire vehicle access and reduces environmental effects associated with identified existing roads within the project area.	Constructs 2,200 feet of new roads. Approximately 800 feet of existing road would be blocked. Maintenance and renovation of roads in the project area would improve existing road system and improve stability.	No change. Maintain existing road densities. Existing OHV trails would continue to further erode and concentrate runoff from frequent use. Runoff would continue to flow down the 13-6-19 road, eventually threatening the integrity of the road surface.
	Would implement maintenance on feeder roads, allowing for continued access.	Delay maintenance on feeder roads, main routes would be maintained. Delay maintenance on feeder roads would be delayed resulting in increased road related runoff due to the risk of culverts plugging and failing over time.

3.0 Compliance with the Aquatic Conservation Strategy

Table 6 describes the project's compliance with the four components of the Aquatic Conservation Strategy. **Table** 7 describes the project's consistency with the nine ACS objectives.

Table 6: Project's Compliance with Components of the Aquatic Conservation Strategy

ACS Component	Project Consistency
Component 1 - Riparian Reserves	The Riparian Reserve boundaries would be established consistent with direction from the Salem District Resource Management Plan (p. 10). Maintaining canopy cover along all streams and the wetlands would protect stream bank stability and water temperature. There would be no road construction within the Riparian Reserve.
Component 2 - Key Watershed	The project is located within the Marys River Watershed which is not designated as a key watershed.
Component 3 - Watershed Analysis	The *BFWA* was completed in Sept. 1997.
Component 4 - Watershed Restoration	Increasing stand diversity in Riparian Reserves addresses this component.

Table 7: Project's Consistency with the Nine Aquatic Conservation Strategy Objectives
Unless otherwise specified, the No Action Alternative would not prevent the attainment of any of the nine ACS objectives. Current conditions and trends would continue and are described in EA Section 2.4.

Table 7: Project's Consistency with the Nine Aquatic Conservation Strategy Objectives	
Aquatic Conservation Strategy Objectives (ACSOs)	Proposed Action
1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features.	Does not prevent the attainment of ACSO 1. Riparian Reserves in the analysis area as a whole are characterized by lack of older-forest characteristics (BFWA p. 125). The proposed thinning project would be a means to enhance late-successional forest conditions and speed up attainment of these conditions across the landscape. Since Riparian Reserves provide travel corridors and resources for aquatic, riparian dependant and other riparian and/or late-successional associated plants and animals, the increased structural and plant diversity would ensure protection of aquatic systems by maintaining and restoring the distribution, diversity and complexity of watershed and landscape features.
2. Maintain and restore spatial and temporal connectivity within and between watersheds.	Does not prevent the attainment of ACSO 2. Long term connectivity of terrestrial watershed features would be improved by enhancing conditions for understory development (structural diversity), increasing the proportion of minor species in the stand (species diversity), and increasing growth rates on remaining trees. In time, these reserves would improve in functioning as refugia for late successional, aquatic and riparian associated and dependent species. Both terrestrial and aquatic connectivity would be maintained, and over the long-term, as Riparian Reserves develop late successional characteristics, lateral, longitudinal and drainage connectivity would be restored.
3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.	Does not prevent the attainment of ACSO 3. This action is unlikely to alter the current condition of the aquatic systems either by affecting its physical integrity, water quality, sediment regime or in-stream flows (EA section 2.4.5.1). Over the long term, this proposal should aid in meeting ACS objectives by speeding the development of older forest characteristics in the riparian reserves (EA section 2.4.5.1).
4. Maintain and restore water quality necessary to support healthy riparian,	Does not prevent the attainment of ACSO 4. The proposed logging action would not adversely affect the aquatic environment, resident or anadromous fish (EA section 2.4.5.1). The proposed project is unlikely to contribute to cumulative

Table 7: Project's Consistency with the Nine Aquatic Conservation Strategy Objectives	
Aquatic Conservation Strategy Objectives (ACSOs)	Proposed Action
aquatic, and wetland ecosystems.	effects to sedimentation or increases of stream temperature. Within riparian reserves, substantial portions of the canopy would be retained, protecting streams from increases in temperature. Potential impacts to sedimentation and stream turbidity resulting from tree harvest and road construction would be mitigated to reduce the potential for measurable sediment delivery to streams, by implementing Best Management Practices (BMPs) (EA section 2.4.5.1).
5. Maintain and restore the sediment regime under which aquatic ecosystems evolved.	Does not prevent the attainment of ACSO 5. Tree removal and road construction would not occur on steep, unstable slopes where the potential for mass wasting adjacent to stream reaches is high. Therefore, increase in sediment delivery to streams due to mass wasting is unlikely to result from this action (EA section 2.4.5.1). Project design features would maintain the physical integrity of the hill slopes and channel; no long-term alteration of the current sediment regime is expected.
6. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing.	Does not prevent the attainment of ACSO 6. Because the Gleason Creek thinning project would affect only 0.2% of the forest cover in the Marys River 5th field watershed, it would be unlikely to produce any measurable effect on stream flows (EA section 2.4.5.1).
7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.	Does not prevent the attainment of ACSO 7. The proposed project would not alter existing patterns of floodplain inundation or water table elevation as it would have no effects or only negligible short-term negative effects on existing flow patterns and stream channel conditions. Over the long term, reductions in stand density would likely increase riparian forest health and tree size. This would lead to increased large wood recruitment for stream channels, an important factor in proper channel function. Additional large wood in project area channels would ultimately slow stream velocity, increase retention of organic material, capture bed load, and improve aquatic habitat. The project area also contains two small (less than 1 acre) wetlands, which are surrounded by conifers.
8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.	Does not prevent the attainment of ACSO 8 because the actual riparian areas along streams would be excluded from treatment by designating stream protection zones (see ACSO 3), and only the upslope portions of the Riparian Reserves would be included in the density management treatment. The proposed project would restore the species composition and structural diversity of plant communities by enhancing conditions for understory development (structural diversity), increasing the proportion of minor species in the stand (species diversity), and increasing growth rates on remaining trees.
9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species.	Does not prevent the attainment of ACSO 9 because habitat to support well distributed riparian-dependent and riparian associated species would be restored by reducing overstocked stands, increasing tree species diversity, and altering forest structural characteristics. Density management within the Riparian Reserves would enhance stand conditions, growing residual trees faster than if the stand were to grow without treatment. This would increase the potential for high quality in-stream large woody debris. Development of stand and individual tree characteristics desirable for riparian and old growth associated species would be accelerated by restoring structural complexity to the stands and by accelerating development of desired tree characteristics (increased diameter and limb structure).

4.0 LIST OF PREPARERS

Table 8: List of Preparers

Resource	Name	Initial	Date
Cultural Resources	Tom Vanderhoof	GLH	6-20-05
Hydrology/ Water Quality	Ashley LaForge	ES	6/21/05
Silviculture/Riparian Ecology	Bill Caldwell		6-16-05
Botany TES and Special Attention Plant Species	Ron Exeter		June 16, 2005
Wildlife TES and Special Attention Animal Species	Gary Licata		6/20/05
Fuels/Soils	Tom Tomczyk		6/20/05
Fisheries	Steve Liebhardt/Scott Snedaker		6/20/05
Recreation Sites, Visual Resources Management and Rural Interface	Traci Meredith	TMM	6/20/05
NEPA/Plans	Gary Humbard	GLH	6-20-05

5.0 CONTACTS AND CONSULTATION

5.1 Agencies, Organizations, and Persons Consulted

5.1.1 ESA Section 7 Consultation

1. US Fish and Wildlife Service

To address concerns for affects to listed wildlife species and potential modification of critical habitats, the proposed action was consulted upon with the U.S. Fish and Wildlife Service, as required under Section 7 of the Endangered Species Act. Consultation for this proposed action was facilitated by inclusion under the *Programmatic Biological Assessment (BA) in the North Coast Province for Fiscal Year 2003-2004 Projects Which Would Modify the Habitats of Bald Eagles, Northern Spotted Owls, and Marble Murrelets* (July 24, 2002). A biological opinion was issued by the US Fish and Wildlife Service based upon the information provided in the biological assessment (FWS reference # 1-7-02-F-956). Consultation with the USFWS resulted in a "May Affect, Not Likely to Adversely Affect" Determination for northern spotted owl. The proposed action would have no effect on marbled murrelets because there is no marbled murrelet habitat in or near the project area. The proposed action would follow all applicable terms and conditions of the BA and any additional Terms and Conditions that were included in the Biological Opinion dated November, 2004 [BO# 1-7-05-F-0005].

2. NOAA Fisheries (NMFS)

Consultation with National Oceanic Atmospheric Administration (NOAA) Fisheries is required for projects that 'may affect' listed species. Upper Willamette River (UWR) Steelhead, UWR Chinook Salmon and Oregon Chub are listed as threatened under the Endangered Species Act. The upstream limit of UWR Steelhead distribution is approximately twenty miles below the project area in the Marys River and the upstream limit of UWR Chinook distribution is approximately nine miles below the project area in Beaver Creek. Oregon Chub are currently

found only in isolated ponds connected to the Marys River Basin. A determination has been made that this proposed project would have 'no effect' on Upper Willamette River (UWR) Steelhead (*Oncorhynchus mykiss*), UWR Chinook Salmon (*Oncorhynchus tshawytscha*) and Oregon Chub (*Oregonichthys crameri*). The project would have no effect on listed fish due to the distance to listed fish.

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

The project follows the Protocol for Managing Cultural Resources on Lands Administered by the Bureau of Land Management in Oregon; Appendix D – "Coast Range Inventory Plan". Dated August 5, 1998.

5.2 Public Scoping and Notification

5.2.1 Tribal Governments, Adjacent Landowners, General Public, and State County and local government offices:

- A scoping letter, dated April 2, 2003, was sent to 51 potentially affected and/or interested individuals, groups, and agencies. Two comment letters were received during the scoping period. The letters comments were addressed in Section 7.0.
- A description of the project was included in the October 2003, March, June September and December 2004 and March and June 2005 project updates to solicit comments on the purposed project.

5.2.2 30-day public comment period

The EA and FONSI will be made available for public review June 23, 2005 to July 22, 2005. The notice for public comment will be published in a legal notice by the *Gazette Times* newspaper; and posted on the Internet at http://www.or.blm.gov/salem/html/planning/index.htm under Environmental Assessments. Comments received by the Marys Peak Resource Area of the Salem District Office, 1717 Fabry Road SE, Salem, Oregon 97306, on or before July 22, 2005 will be considered in making the final decisions for this project.

6.0 MAJOR SOURCES AND COMMON ACRONYMS

6.1 Major Sources

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USDA. Forest Service, USDI. Bureau of Land Management. 2004. *Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl.* Portland, OR.

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

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

USDI. Bureau of Land Management. 1992. *Final Record of Decision for Western Oregon Program Management of Competing Vegetation.* (August 1992).

USDI. Fish and Wildlife Service 2002. *Programmatic Biological Assessment in the North Coast Province for Fiscal Year 2003-2004 Projects Which Would Modify the Habitats of Bald Eagles, Northern Spotted Owls, and Marbled Murrelets.* Biological Opinion – FWS reference: 1-7-02-F-956]. Portland, OR.

6.2 Common Acronyms

ACS.....Aquatic Conservation Strategy
BFWA.....Benton Foothills Watershed Analysis (1997)
BLM.....Bureau of Land Management
BMP.....Best Management Practice(s)
BO.....Biological Opinion
CWD.....Coarse Woody Debris
DBH.....Diameter Breast Height
EA.....Environmental Assessment
ESA.....Endangered Species Act
FONSI.....Finding of No Significant Impact
GCAF.....Gleason Creek Thin Timber Sale NEPA/EA Analysis File
GFMA.....General Forest Management Area land use allocation (Matrix)
HUC#.....Hydrologic Unit Code Number (US Geological Survey)
LUA.....Land Use Allocation
LWD.....Large Woody Debris
NEPA.....National Environmental Policy Act (1969)
NOAA.....National Oceanic Atmospheric Administration (National Marine Fisheries Service (NMFS) is now called NOAA Fisheries)
NWFP.....Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl and Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl (1994) (Northwest Forest Plan)
RMP.....Salem District Record of Decision and Resource Management Plan (1995)
RMPFEIS.....Salem District Proposed Resource Management Plan / Final Environmental Impact Statement (1994)
RR.....Riparian Reserves (land use allocation)
S&M FSEIS.....Final Supplemental Environmental Impact Statement For Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2000)
S&M ROD.....Record of Decision and Standards and Guidelines for Amendment to the Survey and Manage, Protection Buffer, and Other Mitigation Measures Standards and Guidelines (2001)
SPZ.....Stream Protection Zone (no-cut protection zone/no-cut buffer/no-treatment zone/stream buffer)
USDI.....United States Department of the Interior
USFWS.....United States Fish and Wildlife Service

7.0 APPENDICES

7.1 Response to Scoping Comments

A scoping letter was sent on April 2, 2003 (see EA 5.2.1) to federal, state and municipal government agencies, nearby landowners, tribal authorities, and interested parties on the Marys Peak Resource Area mailing list. The letter briefly described the current version of the Gleason Creek Thinning project and included maps.

7.1.1 Summary of comments and BLM responses

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

7.1.1.1 Flat Mountain Riders Association (May 3, 2003)

1. **Comment:** *"Trail riders are concerned with the possible loss of recreational opportunities in an area that has seen responsible off road use since the 1940's. We fear that the trails that we work so hard to maintain and protect will disappear under a thick layer of rock."*

   Response: We are aware of the possible loss of responsible recreational opportunities due to road construction and harvest operations. To maintain these opportunities, the majority of OHV trails would be re-opened following harvest operations by clearing and piling the debris by machine to a width of 6 feet. The debris would be covered with plastic and burned in the fall. Approximately 700 feet of existing OHV trail (P1 road construction) would be obliterated by road construction and covered with rock (see EA section 2.2.2.2 and project map). Following harvest, OHV trails which are concentrating runoff, including the steepest trail sections, would be covered by logging slash and closed to future recreational use in order to redirect surface flow and mitigate soil erosion.

7.1.1.2 Oregon Natural Resource Council (June 13, 2003)

1. **Comment:** *"New roading or road construction should always be avoided. If the current road system is not adequate, consider staying out of the area. Even temporary roads degrade the ecosystem for years to come"*.

   Response: Some new road construction is necessary for operability due to topography present in the project area. All new road construction would be blocked to vehicular traffic following harvest. Best Management Practices would be followed during road construction to reduce the risk of adverse effects to aquatic resources. The following table includes the length of each new road to be constructed and the number of acres accessed by each road and then computed the cost:benefit ratio of the number of acres treated per mile of road construction.

Road #	Primary Road Work	Miles	Associated Unit Acres	Acres of Unit/Mile of Road
P1	New	0.39	35	90
P2	New	0.02	7	350

2. **Comment**: *"Avoid timber harvest, roads, mining, development and motorized recreation in roadless areas"*.

   Response: There are no identified "roadless areas" located within the project area.

3. **Comment:** *"Avoid commercial timber harvest, roads, and mining in late-seral forests. Impacts on old growth species should be discussed in EA"*.

   Response: Timber harvest, road construction and/or mining would not occur in late-seral forests. Timber harvest and road construction would occur only in mid-seral forest. Please refer to Appendix A, *NEPA Impacts Analysis for Listed Terrestrial Wildlife Species,* within the *Biological Evaluation* of the Gleason Creek Analysis File (GCAF) for no significant impact/no effect calls on listed species in the Resource Area.

4. **Comment:** *"Special status species surveys must be completed prior to developing alternatives and before the decision is determined"*.

   Response: Inventory of the project area for Federal and Oregon State threatened and endangered and Bureau special status vascular plant, lichen, bryophyte, and fungal species were accomplished through intuitive controlled surveys, in accordance with survey protocols for the specific groups of species. There are no "known sites" of any T&E or Bureau special status vascular plant, lichen, bryophyte or fungi species within the project area nor were any found during subsequent surveys.

5. **Comment:** *"Project analysis should separately discuss each of the ACS objectives"*.

   Response: Each ACS objective is discussed separately (see EA Table 7, pp. 31-32).

6. **Comment: "***A full range of action alternatives (ie. wildlife enhancement, restoration) should be considered"*.

   Response: Wildlife enhancement and restoration are some of the purposes of this project as meeting the need to accelerate the growth of trees to restore large conifers to Riparian Reserves and to enhance or restore habitat (e.g. coarse woody debris, snag habitat, in-stream large wood) for populations of native riparian-dependent plants, invertebrates, and vertebrate species can be enhanced or restored. Pursuant to Section 102 (2) (E) of NEPA (National Environmental Policy Act of 1969, as amended), Federal agencies shall "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." No unresolved conflicts were identified. Therefore, this EA will analyze the effects of the Proposed Action and No Action Alternatives.

7.1.1.3 Oregon Natural Resource Council [January 11, 2000 (referenced from June 13, 2003 letter)]

1. **Comment: "***Greatly concerned over impacts this project may present to lynx and lynx habitat".*

   Response: Conclusive data on biological vulnerability and threat to the North American lynx are not available to support proposal to list as endangered or threatened by the U. S. Fish and Wildlife Service. Current information indicates the North American lynx has been exterminated from the Oregon Coast Range for the past 100 years.

7.1.1.4 Oregon Natural Resource Council [February 16, 2000 (referenced from June 13, 2003 letter)]

1. **Comment:** *"Important to take a close look at "roadless areas" and defer projects until a decision is made about their future management.*

   Response: There are no identified "roadless areas" within or near the project area.

2. **Comment:** *"A Transportation Management Plan should be developed before any more roads are constructed or reconstructed".*

   Response: A Transportation Management Plan (TMP) was completed in June, 1999 for the Marys Peak R.A. The plan is currently being implemented as road densities are being reduced by road decommissioning and closures in the R.A. Road maintenance standards are also implemented after consultation of the TMP.

3. **Comment:** *"A full EIS should be completed for this project".*

   Response: Since this action complies with the *Salem District Record of Decision and Resource Management Plan* (RMP), which was analyzed in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (**RMP/FEIS**), its effects in a broad scope have been already analyzed in an EIS.

   However, an Environmental Assessment was prepared, in accordance with 40 CFR Part 1508.9(a)1 that can be used by an agency to "make (its) determination whether to prepare and environmental impact statement" or not. In the attached Finding of No Significant Impact (FONSI), the field manager found that "Based upon review of the EA and supporting documents, I have determined that the proposed projects are not major federal actions 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, an environmental impact statement is not needed."

   The FONSI goes on further with rationale for the field manager's determination.

4. **Comment:** *"Good maps of the proposed alternatives and existing baseline should be provided".*

Response: An accurate colored map (EA Map #2) depicting yarding methods, acres of partial cut area, topography and stream, road and OHV trail locations are included on the map. The map depicts OHV trails to remain open and closed following harvest operations and roads to be constructed and renovated within this action.

5. **Comment:** *"A full analysis of the No Action" alternative should be included in the EA.*

   Response: We agree. Environmental affects for every affected resource is described in the EA for the "No Action" alternative (see EA section 2.4).

6. **Comment**: *"All timber sale projects must conform to the Standards and Guidelines of Option 9 of the Northwest Forest Plan.*

   Response: As stated in section 1.3 of the EA, *Conformance with Land Use Plans, Policies, and Programs***,** …"The projects are subject to the following documents, which direct and provide the legal framework for management of BLM lands within Marys Peak Resource Area: **1**/*Salem District Record of Decision and Resource Management Plan,* May 1995 (**RMP**)[1], as amended. This plan has been reviewed and it has been determined that the proposed project conforms to the land use plan terms and conditions (e.g. complies with management goals, objectives, direction, standards and guidelines) as required by 43 CFR 1610.5 (BLM Handbook H1790-1, Illustration 3)."

7. **Comment:** *"If thinning is planned the BLM needs to assess what affect the thinning would have on the affected environment."*

   Response: The EA (Sec. 2.4) includes environmental effects analysis for each affected resource as required by NEPA.

8. **Comment:** *"The EA must document the impact on species with limited dispersal capabilities if the project proposes to harvest older forests adjacent to existing plantations.*

   Response: The project would not harvest older forests.

9. **Comment:** "*The agency should quantify for each alternative the amount of soil that would be affected as a result of logging activities".*

   Response: We agree. The EA (sec. 2.4.2.1) describes the amount of soil displacement and compaction that would be affected. Approximately 2,200 feet of new spur roads would result in loss of top soil and compaction of sub-soil on approximately 1 acre. The area currently is forested land that would be converted to non-forested". Logging impacts including the additional area used for landings would affect 0.6 acres. In skyline yarding areas, area affected would be approximately 1.9 acres. If yarding is done using crawler tractors for the entire ground-based area, the area of ground-based yarding impacted by surface disturbance and soil compaction as a result of skid roads and landings would be approximately 8.7 to 11.6

[1] Individual RMP references can be found in the applicable section of this document.

acres. If yarding is done using a harvester/forwarder system for the entire ground-based area, the area of total ground-based yarding impacted by surface disturbance and soil compaction as a result of skid roads and landings would be approximately 2.9 to 7.3 acres.

10. **Comment:** *"The EA should state whether any roads are proposed for construction or reconstruction within Riparian Reserves and which of these will require stream crossings".*

    Response: We agree. The EA states **"**Road construction of approximately 2,200 feet of new road would occur on or near ridge top locations". Riparian Reserves are depicted on EA Map #2. No construction or reconstruction would occur within Riparian Reserves and/or require stream crossings.

11. **Comment:** *"It is important to avoid all entry into forested ecosystems unless proper mitigation for species is provided".*

    Response: Addressed in response #6 in 7.1.1.4

12. **Comment:** *"A functional analysis should be conducted if the activity occurs in proposed critical habitat for the northern spotted owl".*

    Response: N/A. There is no northern spotted owl critical habitat in or near the project area.

13. **Comment:** *"The EA should disclose whether yew trees occur in the project area and if found protect them from being damaged in the harvest operation".*

    Response: Although the forest exam survey did not indicate a presence of pacific yew trees within the project area, all pacific yew trees would be reserved from cutting and removal unless they pose a safety hazard.

14. **Comment.** *"The EA should detail the specific effects this project would have on old-growth species other than the northern spotted owl".*

    Response: Refer to Appendix A, *NEPA Impacts Analysis for Listed Terrestrial Wildlife Species,* within the *Biological Evaluation* of the GCAF for no significant impact/no effect calls on listed species in the Resource Area.

15. **Comment.** *"Many of the aquatic species would be adversely affected by logging, roads and OHV's".*

    Response: No-cut buffers (aver. 75 ft) and protection of existing snags and coarse woody debris maintain enough structure & canopy closure (greater than 50%) to protect microclimates and nesting/foraging resting/escape habitats within the riparian reserves for those listed species associated with the riparian zone.Refer to Appendix A, *NEPA Impacts Analysis for Listed Terrestrial Wildlife Species,* within the *Biological Evaluation* of the GCAF for no significant impact/no effect calls on listed species in the Resource Area.

16. **Comment**. *"A habitat effectiveness index analysis should be performed on how this project would affect big-game species".*

Response: Roosevelt elk and black tailed deer populations are either stable or increasing within the project area. Well distributed foraging areas are being provided mainly by private timber company harvest activities. The project area has a relatively high density of black-tailed deer. Roosevelt Elk numbers are low but increasing within the watershed analysis area.

17. **Comment**. *"Timber harvest is allowed in riparian reserves only if needed to attain aquatic conservation strategy".*

    Response: We agree. We design all of our projects in a manner that meet the ACS objectives or the projects are not carried forth (see EA Table 7).

18. **Comment**. *"Agency should prepare a cumulative affects analysis of logging within the entire watershed".*

    Response: There would be no cumulative effects to vegetation, as the effects from the project would be local, and there would be no other uses affecting this resource (EA p.19). Although there would be an increase in fuel loading and resultant fire hazard in the short term, there would be positive net benefits in the long term due to the proposed thinning treatment. When looked at from a watershed scale, however, the thinning of approximately 197 acres of forest habitat would reduce the long term (5 or more years) potential of the stand to carry a crown fire. This is because of the spacing out of the trees and their crowns, in addition to removal of current ladder fuels that are conducive to the spread of wildfire (EA p. 23). The proposed project would occur in a portion of the watershed that has a checkerboard forest ownership pattern where every other section is either BLM or private timber. The watershed provides early and mid-seral forest habitat and both public (BLM's Matrix lands) and private industrial forests within the watershed are currently harvested sometime during the mid-seral stage of habitat development. Under current management plans, these public and private lands would never provide interior late-seral (80-199 years old) or old-growth (200+ years) forest habitat. However, the BLM's Riparian Reserve lands would eventually function as mature forest landscape corridors and provide connectivity between different aged patches throughout the watershed as they connect with stream buffers on private lands (EA p. 25). The proposed project would be unlikely to contribute to cumulative effects to sedimentation or increases of stream temperature because it would be unlikely to produce any measurable effects on these parameters (EA p.26). The Project would not contribute to cumulative impacts on fish or fish habitat due to the small size of the Project (EA p.29).

19. **Comment**. *"The agency should confer with Oregon DEQ to determine if streams are being polluted by non-point sources and should disclose the problems associated with any streams on the 303(d) list that are located downstream".*

    Response: The BLM conferred with the Oregon DEQ during the development of the proposed Willamette Total Maximum Daily Load (TMDL) regarding non-point source pollution and the effect of federal actions on these pollutants. During the environmental assessment process, the proposed action was found to comply with the requirements of the Draft Willamette TMDL (http://www.deq.state.or.us/WQ/TMDLs/WillametteBasin.htm), which outlines proposed loadings for bacteria, mercury, and temperature within the Willamette Basin.

The DEQ also published the 319 Report, which identifies streams with potential non-point source pollution problems (*Oregon Department of Environmental Quality, Water Quality Division, 1988. 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution. Portland, Oregon).* No water quality issues were identified for Gleason Creek, Beaver Creek, Muddy Creek, or the upper Marys River. The lower Marys River and the Willamette River were identified as having severe and moderate water quality conditions respectively. These conditions were cited as affecting fish, aquatic habitat, and in the Willamette River, contact recreation or shellfish.

The ODEQ's 303(d) list is a compilation of streams which do not meet state water quality standards. Neither Gleason Creek, Beaver Creek nor their tributaries are listed on the 303d report. However, Beaver Creek flows directly into Muddy Creek which is listed from river mile 0-33 for exceeding summer temperature standards.

The Gleason Creek timber sale would not affect levels of bacteria or mercury in the Willamette basin, since the proposed activities would not add to or deplete these parameters in the environment. The proposed action would also maintain stream temperatures by increasing and/or maintaining effective shade adjacent to all stream channels. No shade producing vegetation within the "primary shade zone" (estimated to be no less than 50 feet from the active channel in all cases) would be cut or removed. Canopy closure in the secondary shade zone would be reduced to no less than 50%, and therefore shade loss would be too small to affect cumulative stream temperatures (following the guidance of the *U.S. Forest Service and Bureau of Land Management 2004. Northwest Forest Plan Temperature TMDL Implementation Strategies. Draft. Portland, Oregon. pp.19*). Consequently, the proposed action is unlikely to impact nonpoint source pollution in the Willamette Basin or further degrade water quality conditions of downstream 303(d) listed streams.

20. Comment. *"The EA should clearly indicate whether interim riparian reserve widths are being reduced or expanded as stated in NFP ROD and be included on the EA map"*.

Response: As stated in the RMP Riparian Reserve boundaries for intermittent streams may change based on hydrologic, geomorphic and ecologic processes in a watershed. Interim Riparian Reserve widths apply until watershed analysis is completed, a site-specific analysis is conducted and described and the rationale for final Riparian Reserve boundaries is presented through NEPA decision-making process. Riparian Reserve boundary changes have not been proposed for any watersheds within the Marys Peak Resource Area. Riparian Reserve boundaries are shown on EA map #2.

21. Comment. *"The EA must not plan mitigation measures or restoration activity as a substitute for preventing habitat degradation."*

Response: We agree. Within 20 to 30 years the stands are expected to be ready for a regeneration harvest with high quality trees to harvest and others to provide for ecological functions. Larger diameter trees would provide high quality timber and trees for wildlife needs in the future. Trees with high wildlife quality would help provide for ecological functions. Reserving wildlife trees, snags, and logs (CWD) would help to maintain a moderate level of ecologically valuable components in the stands. The proposed logging action would not adversely affect the aquatic environment, resident or anadromous fish which

are down stream. Due to stream protection zones (50 foot minimum), remaining trees, and topographic relief, there is very little chance that these streams would increase in temperature. Ground based yarding would not negatively impact streams. Trees that remain after thinning would benefit from increased sunlight and would grow fuller crowns allowing them to grow faster. This would increase the amount of future potential quality large diameter wood for in-stream function, complexity and riparian dependant species. Thinning within the riparian reserve also allows for a secondary canopy to establish and more species diversity and complex habitat within the riparian reserve to develop.

22. Comment. *A complete cultural resources survey must be completed before the EA is signed.*

Response: No known cultural or palentological resources occur in the project area. A post-harvest survey would take place upon completion of the project according to *Protocol for Managing Cultural Resources on Lands Administered by the BLM in Oregon; Appendix D* dated August 5, 1998. If any sites are identified during timber harvesting, the operations would be immediately halted and the Field Manager would be notified. Operations would be resumed only with the Field Manager's approval, and only after appropriate mitigation measures are designed and implemented to provide any needed protection of those resources.

23. Comment. *If slash burning is planned, the EA should include information of how emissions would be minimized.*

Response: Burning of slash piles would be done in the fall when the threat of impacting air quality in designated areas would be very low. Fuels would be piled, covered, and mostly dry which would improve combustion and reduce smoke. Any residual smoke should be of short duration. During this time of the year, good atmospheric mixing conditions and an increased likelihood of rainstorms would scour the air shed and extinguish residual fire fairly quickly (see EA sec. 2.4.3.1, p. 23)

24. Comment. *Agency must discuss how project would impact neotropical migrant bird species.*

Response: There are no listed special status neo-tropical migrant bird species listed within the Marys Peak RA.