Highland Flung Thinning Timber Sale

Final Decision, Decision Rationale and Finding of No Significant Impact (DR)

Environmental Assessment Number (EA) # OR080-08-05

November 2010

United States Department of the Interior
Bureau of Land Management, Oregon State Office
Salem District, Cascades Resource Area
Upper Clear Creek and Headwaters of Milk Creek 6th field Watersheds.
Clackamas County Oregon

Willamette Meridian,
T. 4 S., R. 4 E., Sections 21, 27, 29.

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BLM
Salem District

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BLM/OR/WA/AE-11/001+1792

1.0 Introduction

The Bureau of Land Management (BLM) has conducted an environmental analysis for the Highland Fling Thinning project, which is documented in the *Highland Fling Thinning Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)* approved on March 23, 2010. This EA is incorporated here by reference in this Final Decision, Decision Rationale, and Finding of No Significant Impact (DR). I signed a preliminary Finding of No Significant Impact on March 23, 2010 and made the EA available for public review from March 24, 2010 to April 23, 2010 (DR section 6.0). Substantive comments received during the public review period are addressed in DR section 10.0.

The Highland Fling Thinning project has been divided into two timber sales; the Highland Flung Thinning timber sale is the second to be offered. This decision is limited to the Highland Flung Thinning timber sale, which is located in: T. 4 S., R. 4 E., Sections 21, 27 and 29, W.M. Additional units that were analyzed in the Highland Fling Thinning EA were offered in the Highland Fling Thinning timber sale on September 15, 2010.

2.0 Decision

I have decided to implement the Highland Flung Thinning as a timber sale consisting of eight of the eighteen units of the proposed action described in the EA (pp. 10-24). The units I will implement in the Highland Flung Thinning timber sale are T. 4. S., R. 4 E., units 21; 27A, B and C; and 29A, B_1, B_2 and C. (DR Table 2)[1]. The following is a summary of the decision, hereafter referred to as the "selected action" in this Decision Rationale (DR). The selected action will:

2.1 Timber Harvest

Harvest approximately 152 acres (DR Table 2, DR section 8.0). This harvest includes:

- Thinning 149 acres within the following RMP Land Use Allocations (LUA)
  - 143 acres within the General Forest Management Area (GFMA) portion of the Matrix LUA,
  - 6 acres within the Riparian Reserve LUA.
- Clearing 3 acres of vegetation within the road rights-of-way accessing units in sections 27 and 29 in the timber sale Contract Area (DR Table 2).

2.2 Logging Systems

All logging operations will be done using ground based yarding systems.

2.3 Road Work for Logging and Hauling

- Construct approximately 0.5 miles of new road to access thinning units and accommodate logging equipment and log transport.
- Renovate approximately 0.4 miles of unmaintained, currently unusable road to the minimum standard necessary for hauling, including spot rocking, blading, brushing, curve alignment, and tree removal.
- Stabilize and block all natural surface roads (newly constructed or renovated). Stabilizing entails installing water-bars or other shaping of roads for drainage, placing woody debris, and/or seeding with native species. Earth and debris berms or other methods determined to be effective for each site will be used to block these roads.

[1] DR Table 2 (*DR section 8.0*) shows the selected action by section and the crossover between EA and Timber sale units. The maps (*DR section 9.0*) show the selected action by section.

- Seed approximately 1.1 acres of disturbed soil associated with roads in and adjacent to harvest units.
- Renovate and maintain approximately 2.9 miles of existing, usable road. Renovation and maintenance may include blading and shaping of roadway and ditches, small slide/slump repairs, clearing brush from cut and fill slopes, cleaning or replacing culverts, and applying rock surfacing material to depleted surfaces.

2.4 Fuels Treatments

On up to 17 acres within 100 feet of property lines that form harvest unit boundaries, slash will be treated after harvest operations to provide a fuel break. The planned treatment is to pile slash mechanically, cover the piles to keep them dry, and burn the piles. After the fuels have cured, piles will be burned in compliance with the Oregon Smoke Management Plan after the fall rains begin, when fire danger is low and soils are moist (EA pp. 19, 23, 100). Slash which accumulates at logging landings will be piled, covered and burned as described above.

2.5 Public Access

After the completion of the timber sale:

- Public access to units will not be changed as a result of this timber sale.
- Natural surface roads (both existing and new construction) that access the thinning units will be stabilized to prevent erosion and blocked to prevent vehicle access. Foot and horseback access would not be closed.

2.6 Special Forest Products

The BLM will make permits available for collecting Special Forest Products (SFP) (RMP p. 49) from the harvest units if there is a demand for the products, and collection would not interfere with proposed project operations. Special Forest Products are salable natural products that can be found in the forest and may include: edible mushrooms, firewood, posts and poles. Transplants of native plants from road rights-of-way, skid trail locations and landings will be available for permit. Access to the area will be controlled through the Special Forest Products permit requirements.

2.7 Design Features

Project Design Features described in EA section 2.3.4 will be implemented in the timber sale contract.

3.0 Alternatives Considered

1. No Action (EA section 2.4): No commercial timber management actions would occur. Only normal administrative activities and other uses (e.g. road use, programmed road maintenance, harvest of special forest products on public land) would continue on BLM land within the project area.

2. Proposed Action (EA section 2.3): The proposed action analyzed in the EA is a proposal to commercially thin approximately 720 acres including:
   - 91 acres of 28 to 40 year-old Early and Early-Mid Seral Stage[2] timber stands;
   - 564 acres of 41 to 80 year-old Mid and Late-Mid Seral Stage timber stands;

[2] Age ranges of stands proposed for treatment are based on 2008 Stand Exam data and are rounded for this presentation. Seral Stage Age Classes are: Early = 0-30; Early Mid = 31-40; Mid = 41-60; Late Mid = 61-80; Early Mature = 81-120; Mature = 121-200; Old Growth = 201+.

- 65 acres of 81 to 93 year-old Early Mature Seral Stage timber stands.

The above acres include rights-of-way acres. Approximately 545 acres are in General Forest Management Area (GFMA) LUA and 175 acres are in the Riparian Reserve LUA. In the proposed action, approximately 98 acres were proposed for skyline yarding and 622 acres for ground-based yarding. Connected Actions include constructing 5.3 miles of new road, maintaining approximately 6 miles of existing road, removing a failing log fill stream crossing, fording one stream at a single crossing point, and reducing forest fuel accumulations on approximately 370 acres.

3. Alternatives considered but not analyzed in detail (EA pp. 25-26)[3]: Alternatives were considered for:
   - Treatment of other forest stands within the Riparian Reserve LUA;
   - Treatment of additional areas in Section 29 of 4S-4E, dropped from additional analysis when trees with old-growth characteristics were found in the stands;
   - Management options for an existing network of unauthorized user-created trails in multiple units in the proposed action were dropped from further analysis because this area is not in any designated Special Recreation Management Area (SRMA) and management of recreational facilities is outside of the scope of this project analysis;
   - An alternative that would manage stands for carbon storage was not analyzed in detail for reasons described in EA section 2.5 and that this alternative would have the same effects as the No Action alternative.

4. Selected Action (DR sections 2.0, 8.0, DR Table 2): EA units 4S4E-21; 27A, B and C; and 29A, B_1, B_2 and C of the Proposed Action (item number 2 above) have been selected to form the Highland Flung Thinning timber sale. The Selected Action is to commercially thin approximately 149 acres of 31-89 year old mixed conifer stands and clear approximately 3 acres of right-of-way for new and renovated roads. All logging will be done with ground based equipment. The selected action includes 0.5 mile of new road construction. None of the new road construction would take place within the Riparian Reserve land use allocation. (See maps).

   No skyline yarding is included in the selected action. Field assessments of treatment needs for both Matrix and Riparian Reserve objectives, the operational feasibility of each potential skyline logging setting, timber volume recovery and economic efficiency on acres suitable for skyline logging resulted in dropping all skyline yarding that had been included in the proposed action.

   Unit 2 (EA unit 4S4E-29B_2):

   Unit 2 of the selected action will be yarded to a landing in Unit 3 as shown on attached maps. The unit will be logged by skidding logs across the intermittent stream shown on attached map and the map on EA p. 137. This change to the Proposed Action eliminates the need to construct approximately 1,000 feet of new road adjacent to the Riparian Reserve to access Unit 2. This stream is dry during the logging season and the crossing location is on an existing skid trail with a user-created recreation trail. There was no apparent channel with scour and deposition crossing this old skid trail in the spring of 2010, and the stream adjacent slopes are gentle (less than 20 percent).

[3] Only alternatives considered for the area east of Highway 214 are included in this list because units west of that highway would have been associated only with the Highland Fling Thinning Timber Sale.

After the completion of logging operations, the BLM would implement project design features to control erosion and to provide a seedbed for native groundcover plants to restore this crossing to its current (or improved) condition within one year. In addition to the standard design features, the contract requires the operator to present a logging plan for BLM review that details specific operating methods that protect resources and are appropriate to his equipment. BLM review of the plan and administration of the contract will ensure that any sediment created when the stream flows is within the standards and effects analyzed for culvert maintenance operations at road/stream crossings.

4.0 Decision Rationale

I used the following factors in selecting the alternative that best meets the purpose and need and decision factors described in EA sections 1.2. Table 1 compares the alternatives with regard to the Decision Factors described in EA section 1.2.3 and the project objectives in EA section 1.2.2.

Table 1: Comparison of the Alternatives by Decision Factors and Project Objectives

Decision Factors and Project Objectives	Comparison of Alternatives
a. Provide timber resources and revenue to the government from the sale of those resources (objectives 1 and 2); b. Reduce the costs both short-term and long-term of managing the lands in the project area objectives 1 and 2); and c. Provides safe, cost-effective access for logging operations, fuels management and fire suppression (objectives 2, 6, and 7)	The No Action Alternative would not meet this factor since no timber sale would take place. The proposed action and selected action would provide timber resources to the market.
d. Reduce competition-related mortality and wildfire risk, and increase tree vigor and growth (objectives 1 and 7)	The No Action Alternative would not meet this decision factor. The proposed action and selected action would meet this decision factor. (EA pp. 24-25, 46-47, 64, 72, 78, 94-95, 103, 111-112, 114, 115).
e. Reduce erosion and subsequent sedimentation from roads (objectives 3 and 6)	The no action alternative, proposed action and selected action meet this decision factor. Under the proposed action and selected action, roads would be maintained, reducing the risk of erosion and sedimentation associated with the existing road system. New road construction and renovation would not cause sedimentation. (EA pp. vi, 3, 17-21, 47-64, 64-72)
f. Provide for the establishment and growth of conifer species while retaining structural and habitat components, such as large trees, snags, and coarse woody debris (objectives 4 and 5); g. Promote the development of healthy late-successional characteristics in the Riparian Reserve LUA (objective 4)	Under the no action alternative, stand health and tree growth rates would decline if stands are not thinned. Competition would result in mortality of smaller trees and some co-dominant trees in the stands. This alternative retains existing elements, but does not enhance conditions to provide these elements for the future stand. Trees would continue to grow slowly until reaching suitable size for coarse woody debris, snags and late successional habitat. The proposed action and selected action would meet these decision factors. Stand health and tree growth rates would be maintained as trees are released from competition. These alternatives retain the elements described under “no action” on untreated areas of the stands in the project area, and create more open stand conditions in treated areas that would encourage development of larger diameter trees. These conditions add an element of diversity to the landscape not provided on BLM lands under the No Action alternative. (EA pp. vi, viii, 11-12, 21-22, 26-29, 30-31, 35-47, 78-95, 95-103, 112-114, 117-122).

Decision Factors and Project Objectives	Comparison of Alternatives
h. Establish a defensible area for use during extended fire suppression activities and possibly reduce the overall size and intensity of a wildfire (objective 7). i. Reduce potential human sources of wildfire ignition by controlling access (objective 7).	The no action alternative, proposed action and selected action meet this decision factor. However, under the No Action Alternative, dense forest stands with high crown densities are more susceptible to a high intensity, stand replacement wildfire that escapes initial attack and could threaten the public and other resources. Under the proposed action and selected action, managed, thinned forest stands are less prone to catastrophic wildfires. Fires that do start tend to be easier to control in managed stands. (EA pp. vii, 14-16, 23, 95-103, 112-114).

Considering public comment, the content of the Highland Fling Thinning EA, the supporting project record, and the management direction contained in the RMP, I have decided to implement the selected action as described in DR section 2.0. The following is my rationale for this decision.

1. No Action Alternative: This alternative was not selected because it does not meet the project objectives or delays the achievement of the project objectives described in EA section 1.2 (EA pp. 2-4) and DR Table 1.

2. Proposed Action:
   - I have selected EA units 4S4E-21; 27A, B and C; and 29A, B_1, B_2 and C as the Highland Flung Thinning timber sale, documented as the Selected Action.
   - Units 3S3E-35A, B, C and D; 4S3E-1; 21A and C; 27A and B; and 29B were not selected because I implemented them in the Highland Fling Thinning timber sale, which was documented in the Highland Fling Decision Rationale (DR) signed August 17, 2010 and sold on September 15, 2010.
   - I have continued to defer the decision on treatment of EA unit 4-3-29A and the associated action of removing the failing log fill crossing on a tributary to Randall Creek as described in the Highland Fling DR.
   - I have continued to defer the decision on fuels treatments outside of proposed thinning units. If I implement these treatments at another time, I will prepare a separate decision.

3. Selected Action: The selected action implements the Highland Flung Thinning timber sale described in the DR section 2.0. The Selected Action:
   - Meets the purpose and need of the project as described in the Highland Fling Thinning EA section 1.2 (EA pp. 1-3), and all decision factors (EA pp. 3-4) as shown in DR Table 1 (DR section 4.0).
   - Is consistent with the Salem District Record of Decision and Resource Management Plan and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA pp. 4-7, DR sections 5.0, 7.1).
   - Is responsive to concerns for an economically efficient project (EA p. 9).
   - Decreases potential for stand replacement fires by (EA pp. vii, 23, and section 3.3.6):
   - Would not contribute to the long term expansion of invasive/nonnative weed populations (EA pp. vi, 22, 42, 47).
   - Would not have a significant impact on the affected elements of the environment beyond those already anticipated and addressed in the RMP EIS (EA, pp. v-ix, DR section 7.1).
   - Uses the minimum transportation system to facilitate implementation of the project (DR section 2.3).
   - Would have no effects on ESA listed fish or their occupied habitat (DR section 6.3).

5.0 Compliance with Direction

The analysis documented in the Highland Fling 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 Highland Fling project, which includes the Highland Flung Thinning timber sale, was designed under the *Salem District Record of Decision and Resource Management Plan***,** May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA pp. 4-7). All of these documents may be reviewed at the Cascades Resource Area office. The project also complies with authorities described in EA sections 1.3.2 and 3.3.10.

Survey and Manage Review (EA section 1.3.1): Following the Court's December 17, 2009 ruling, the Pechman exemptions are still in place. Judge Coughenour deferred issuing a remedy in his December 17, 2009 order until further proceedings, and did not enjoin the BLM from proceeding with projects. Nevertheless, I have reviewed the Highland Flung Thinning timber sale, in consideration of both the December 17, 2009 and October 11, 2006 order.

I have determined that the Highland Flung Thinning timber sale complies with both the December 17, 2009 and October 11, 2006 orders because:

- The Highland Flung Thinning timber sale entails no regeneration harvest;
- Units 4S4E-27A and C; and 29A, B_1, B_2 and C entail thinning only in stands less than 80 years old. I have made the determination that this portion of this project meets Exemption A of the Pechman Exemptions (October 11, 2006 Order).
- Botany: All botanical surveys for this project, as well as all proposed timber sale projects within the Cascades Resource Area, are conducted to the same standards as was required under Survey & Manage (2001 ROD). Known sites for any listed botanical species in the proposed project area or close proximity are identified, all habitat, with a focus on suitable habitat, is inventoried and all botanical species (vascular plants, lichens, bryophytes and fungi) encountered are identified. All botanical species encountered during surveys of this project are common species with no concern for persistence. (EA pp. 42).
- Wildlife: The *Supplementary Wildlife Report - Highland Fling/Flung* Projects (USDI BLM, 2010) is incorporated here by reference. According to this report:
  - The following units of the Highland Flung Thinning timber sale are the only units in this sale that are older than 80 years (DR section 8.0, Table 2).

EA Unit No.	Stand Age*	EA Unit Acres	Timber Sale Unit No.	Timber Sale Unit Acres
4S4E-21	89	14	5	7
4S4E-27B	83	23	7	17
	Total Acres	37		24

*From Stand Exams

  - *Methodology:*
    - These units were surveyed for mollusk species in order to comply with the *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage Mitigation Measures Standards and Guidelines, Forest Service National Forests and Bureau of Land Management Districts Within the Range of the Northern Spotted Owl* (ROD 2001) without Annual Species Reviews (IM-OR-2010-017, Interim NEPA Direction for Survey and Manage Species).
    - Mollusk Survey and Manage surveys were conducted according to the latest survey protocol (version 3.0 2003) during the spring (March, May and June) of 2010.

- Red tree vole: 4S4E-21 is located outside of the range of the red tree vole (Huff, Biswell et.al, 2002, rev 2008). 4S4E-27B is within the range of the red tree vole and was surveyed. No red tree vole nest structures were found.

- *Survey Results:*
  - Two mollusk species were found (Oregon megomphix *MEHE* and Malone's jumping-slug)
    - Oregon megomphix was found at four locations within EA unit 4S4E-21 and at seven locations within EA unit 4S4E-27B. Previous agency surveys have expanded the knowledge of this species' range. Based on the frequency of observations, the Oregon megomphix meets the criteria for locally common in all of the units surveyed (MEHE MR 1999 pp. 17-18[4], Supp. WL Report pp. 3[5]).
    - Malone's jumping-slug: One Malone's jumping slug was found within EA unit 4S4E-21 and in EA unit 4S4E-27B. Malone's jumping-slug is now known to be more common than previously thought, occurring in the Columbia River Gorge and the southwestern Washington Cascades and in the Oregon Western Cascades range.
  - Oregon slender salamanders: Concurrent with terrestrial mollusk surveys, Oregon slender salamanders were located in the units surveyed. Oregon slender salamanders are addressed in the Highland Fling Environmental Assessment, Section 3.3.5.
- *Recommendations:*
  - No buffers are recommended due to the abundance of sites over the geographic range of the species found, and the lack of any Bureau status. The scientific rationale provided in the 2001 and 2003 Annual Species Reviews is the currently the best science available. These documents state that these species are more common than previously thought, and the reserve system and other Standards and Guidelines of the NWFP appear to provide for a reasonable assurance of species persistence (ASR 2003, FEIS 2007, Appendix 8 & 9).
- *Design Features* (EA sections 2.3.1; 2.3.4, pp. 21-24):
  Design features that have been incorporated into the selected action that would assure persistence of these species include:
  - Unthinned areas would include the best habitat in Riparian Reserves where most of the hardwood component is located. Large portions of like habitat in the parcels where thinning is proposed would be left unthinned, and thus not impacted. In 4S4E section 21 eighty percent of the habitat would be left unthinned, and in 4S4E section 27 eighty-five percent of the habitat would be left unthinned.
  - Most of the hardwoods within the thinning unit boundaries would be retained and left standing, including big leaf maple.
  - Due to seasonal restrictions on bark slippage and soil moisture, operations would occur during the dry season when these mollusks are less active.
  - No broadcast burning would occur, and only limited pile and burning would occur in the units.
  - Large coarse woody debris would remain on site, and existing CWD would be left in place whenever feasible.
  - Canopy closures would be maintained above 40 percent and in some cases over 60 percent.

Therefore the Highland Flung Thinning timber sale may still proceed to be offered for sale even if the District Court sets aside or otherwise enjoins use of the 2007 Survey and Manage Record of Decision since the Pechman exemptions for units 1,2,3,4,6, and 8 (EA Units 4S4E-29A, B_1, B_2 and C; 27A and C) would remain valid in such case.

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[4] Applegarth, J. 1999. Management Recommendations for Terrestrial Mollusk Species, *Megomphix Hemphilli*, version 2.0. IM No. OR-2000-015 (MEHE MR 1999)

[5] England, J. 2010. Supplementary Wildlife Report -Highland Fling and Highland Flung Projects

Units 5 and 7 (24 acres) of the Highland Flung Thinning timber sale (EA Units 4S4E-21 and 4S4E-27B) meet the December 17, 2009 order because these units were surveyed to the standards outlined in the 2001 Survey and Manage Record of Decision (2001 ROD without Annual Species Reviews (ASRs) and the latest survey protocols (DR pp. 9, 10).

6.0 Public Involvement/ Consultation/Coordination

6.1 Scoping

External scoping (seeking input from people outside of the BLM) for this project was conducted by means of a scoping letter sent out to approximately 291 federal, state and municipal government agencies, nearby landowners, tribal authorities, and interested parties on the Cascades Resource Area mailing list on February 20, 2008. In addition, BLM representatives attended the Clarkes-Highland Community Planning Organization meeting on March 05, 2008 to answer questions about the Highland Fling Thinning proposal and solicit comments.

Approximately thirty-eight (38) comment letters/emails/postcards were received during the scoping period. The scoping and EA comment letters/emails/postcards are available for review at the Salem District BLM Office, 1717 Fabry Rd SE, Salem, Oregon. EA section 1.4.2 addresses the topics raised in the comments. Internal scoping was conducted by the Interdisciplinary Team (IDT) through record searches, field reviews and the project planning process.

6.2 EA Comment Periods and Comments

BLM made the Highland Fling Thinning EA and FONSI (Finding Of No Significant Impact) available for public review from March 24, 2010 to April 23, 2010. BLM representatives (the Decision Maker, a Natural Resource Staff Supervisor and the Highland Fling IDT leader/EA author) attended a field trip at Bark's request during the EA comment period on April 16. One representative of Bark and four local people attended. Eight comment letters/emails/postcards were received during the EA comment period. These comments are available for review at the Salem District BLM Office, 1717 Fabry Rd. SE, Salem, Oregon.

6.3 ESA Section 7 Consultation

1. U.S. Fish and Wildlife Service (USFWS)

   EA section 5.1.1 describes consultation with USFWS. The Highland Flung Thinning selected action "may affect, but is not likely to adversely affect" the northern spotted owl and is "not likely to adversely affect" spotted owl Critical Habitat or to "diminish the effectiveness" of the conservation program due to the modification of dispersal and suitable habitat because (EA pp. 87-88):
   - No dispersal or suitable habitat would be altered or downgraded by the project within the provincial home range of any known spotted owl sites;
   - None of the units are located in LSR or Critical Habitat for spotted owl;
   - Current habitat conditions would be maintained after treatment even though the stands would be altered;
   - The presence of nesting spotted owls within 0.5 miles of any of the timber sale units is highly unlikely due to the units' location in rural residential areas in the Willamette Valley.

2. National Marine Fisheries Administration (NMFS)

Consultation with the National Marine Fisheries Service (NMFS) on effects of the Highland Flung Thinning project on Lower Columbia River (LCR) coho salmon and LCR winter steelhead trout, and Upper Willamette River (UWR) winter steelhead trout and UWR Chinook salmon was not required because the thinning sale will have no effect on these species or on essential fish habitat. Section 29 (T.4S, R.4E) is > 2 miles upstream of UWR steelhead habitat and > 25 miles from UWR Chinook salmon habitat. Sections 21 and 27 are adjacent to LCR coho salmon and LCR steelhead trout habitat (0 to 0.3 miles upstream), but thinning units are on flat to gently sloping benches with > 500 feet wide stream protection buffers on Clear Creek. Thus, the thinning sale will not have any affect on large wood supplies to Clear Creek, nor affect stream shading or stream temperature, or result in sediment delivery to the stream.

Additional project design features for the Highland Flung Thinning project (EA section 2.3.4-2) which result in no effect to listed fish, particularly relative to preventing sediment delivery to listed fish habitat, include:

- meeting NW Forest plan standards and guidelines and BMPs for protection of water quality;
- thinning from below, retaining the dominant/co-dominant trees;
- meeting or exceeding minimum stream protection buffer widths (e.g. 100 feet on perennial streams and 50 feet on intermittent streams within 1 mile of LFH; and 60 feet on perennial and 30 feet on intermittent streams more than 1 mile from LFH);
- no felling of trees within the primary shade zone on perennial streams;
- retaining minimum 50% average canopy closure within the secondary shade zone;
- using existing landings and skid trails to the maximum extent possible;
- constructing new roads on stable, relatively flat topography;
- implementing erosion control measures; and
- no timber transport on natural surface roads during the wet season.

7.0 Conclusion

7.1 Final Finding of No Significant Impact

I have made a final decision on the Highland Flung Thinning timber sale portion of the Highland Fling Thinning project. The selected action is described in DR section 2.0. The *Highland Fling Thinning Environmental Assessment* documents the environmental analysis of the proposed commercial thinning activity. The EA is incorporated by reference in this Finding of No Significant Impact determination. The analysis in this EA is site-specific and supplements analyses found in the *Salem District Proposed Resource Management Plan/Final Environmental Impact Statement*, September 1994 (RMP/FEIS). The proposed thinning activities have been designed to conform to the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA Section 1.3). The EA and FONSI was made available for public review from March 24, 2010 to April 23, 2010. I received eight comment letters. Response to substantive comments is described in DR section 10.0.

Based upon review of the *Highland Fling Thinning EA* and supporting documents and the public comments I received on this project, I have determined that the selected action is not a major federal action and would not significantly affect the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity as defined in 40 CFR 1508.27.

Therefore, supplemental or additional information to the analysis in the RMP/FEIS in the form of a new environmental impact statement is not needed. This finding is based on the following discussion:

Context:

Potential effects resulting from the implementation of the selected action have been analyzed within the context of the project area boundaries, and the following 6th field watersheds: Upper Clear Creek, and Headwaters of Milk Creek. This project would affect approximately 0.7 percent of the 22,632 acre combined 6th field watersheds listed above. (EA section 1.1, Table 1) [40 CFR 1508.27(a)]

Intensity:

1. The resources potentially affected by the proposed thinning activities are: vegetation and forest stand characteristics, hydrology, fisheries and aquatic habitat, soils, wildlife, air quality and fire hazard/risk, carbon storage, carbon emissions and climate change, recreation, visual resources and rural interface areas, and cultural resources. The effects of commercial thinning are unlikely to have significant adverse impacts on these resources [40 CFR 1508.27(b) (1)] for the following reasons:

   - *Project design features* described in EA section 2.3.4 would reduce the risk of effects to affected resources to be within RMP standards and guidelines and to be within the effects described in the RMP/EIS.
   - *Vegetation and Forest Stand Characteristics* (EA section 3.3.1): 1/ No special status vascular plant species or bryophytes would be affected. 2/ Noxious Weeds – Increases in the number of invasive/non-native plants are expected to be short lived because all areas with ground disturbing activities be revegetated with native species (EA section 2.3.4 – 3); and native species would naturally revegetate after thinning activities (EA section 3.3.1.1). 3/ The proposed action would not result in adverse effects to BLM Special Status Species because no suitable habitat for any species known or likely to be present would be lost or altered to a degree that may impact existing populations. Therefore, the project would not contribute to the need to list any BLM Special Status Species.
   - *Hydrology; Fisheries and Aquatic Habitat; and Soils* (EA sections 3.3.2-3.3.4): Road construction would occur on gentle slopes with stable, vegetated surfaces. Gentle to moderate slope gradients in this project area provide little opportunity for surface water to flow. Stream protection zones (60 feet on perennial streams, 30 feet on intermittent streams - increased to 100 feet on perennial and 50 feet on intermittent streams within one mile of listed fish habitat) would maintain current stream temperatures by retaining the current vegetation in the primary shade zone and most of the current levels of shading in the secondary shade zone. Stream protection zones are also expected to prevent sediment as a result of overland flow or surface erosion in logging units from reaching streams during storms of less than a 10 year return interval (EA section 3.3.2).

     Timber haul and road maintenance project design features would prevent sedimentation delivery to streams in quantities that would exceed Oregon DEQ requirements. In-stream work (standard culvert maintenance cleaning inlets and pipes) would take place during the dry season/in-water work period to prevent water quality degradation for more than a few hours within a few days time period within ½ mile downstream of the work site. The proposed action will abide by and meet State of Oregon water quality standards.
   - *Soils*: Soil compaction is limited to no more than 10 percent of each unit's acreage, with less than 2 percent potential loss of productivity.

- *Wildlife* (EA section 3.3.5): 1/ Stands proposed for thinning are not presently functioning as late-successional old growth habitat. 2/ Existing snags, remnant old growth trees and coarse woody debris (CWD) would be retained. The few (fewer than 10 percent of existing) large (≥ 15 inches diameter and ≥ 15 feet tall) snags that would be felled for safety or knocked over by falling and yarding operations would be retained as CWD. 3/ No suitable habitat for BLM Special Status species known or likely to be present would be lost. Therefore, the project would not contribute to the need to list any BLM Special Status species. 4/ Thinning would not significantly change species richness (a combination of species diversity and abundance) of the Migratory and Resident Bird community. No species would be extirpated in stands as a result of thinning. 5/ See # 2, for effects to northern spotted owl.

- *Air Quality and Fire Hazard/Risk* (EA section 3.3.6): After 2 to 4 years the fine fuels generated by thinning would be decayed in the units and within 15 years all slash would be decomposed so that the risk of surface fire would decrease to near current levels. The thinning itself would decrease the risk of a canopy fire by reducing ladder fuels and increasing stand vigor. The selected action would comply with State of Oregon Air Quality Standards by strict adherence to smoke management regulations. For example, slash burning would take place when wind and air movement patterns would dissipate smoke within 12 hours, reducing the effect on air quality.

- *Carbon Storage, Carbon Emissions and Climate Change* (EA section 3.3.7):
    - The net incremental increase in carbon emissions as greenhouse gasses that could be attributable to the selected action is of such small magnitude that it is unlikely to be detectable at regional, continental or global scales or to affect the results of any models now being used to predict climate change.
    - The retained trees would sequester carbon equal to the amount of carbon from the live trees pool emitted during the first decade of the project within three years after thinning, so the direct impacts are of short duration as well as small magnitude.
    - An equal amount of wood would be harvested and processed from other lands within the region to meet market demand, resulting in zero net difference between the action and no action alternatives on regional carbon storage and global climate change scales.

- *Recreation, Visual Resources, and Rural Interface* (EA section 3.3.7): Changes to the landscape character would be low and would comply with Visual Resource Management guidelines because the project would maintain a forested setting. Some disturbance to vegetation would be observable after thinning activities and would be expected to develop an undisturbed appearance within five years. Within harvest units, existing unauthorized trails would only be inaccessible to recreational users for a short time during harvest operations (a few weeks or months on each unit while active operations would pose safety hazards to recreational users). Although the unauthorized trails would not be protected or maintained by the BLM; recreational access to the project area after timber harvest operations are complete will not be restricted because of the selected action.

2. The proposed thinning activities:

- Would not affect:
    - Unique characteristics of the geographic area [40 CFR 1508.27(b)(3)] - There are no parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project area (EA Section 3.3.10);

- Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the selected action cause loss or destruction of significant scientific, cultural, or historical resources [40 CFR 1508.27(b)(8)] (EA Section 3.3.10).

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

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

- Are not expected to adversely affect Endangered or Threatened Species listed under the Endangered Species Act (ESA) of 1973 [40 CFR 1508.27(b) (9)].
  - ESA Wildlife - Northern spotted owl (EA Section 3.3.5). Effects to the species are not significant because:
    - The project maintains dispersal and suitable habitat, and does not affect suitable owl habitat within and between known owl sites.
    - Habitat conditions are expected to improve as thinned stands mature (>20 years); residual trees would increase in size and be available for recruitment or creation of snags, culls and CWD for prey species and nesting opportunities, particularly in Riparian Reserves. ESA Consultation is described in EA section 5.1.1 and in DR section 6.3.
  - ESA Fish – UWR Chinook salmon, UWR steelhead trout, LCR coho salmon, and LCR steelhead trout (EA Sections 3.3.2, 3.3.3). Final ESA Consultation is described in DR section 6.3. Effects to ESA fish are not significant because:
    - Thinning is not expected to affect these species for the reasons stated in the *Hydrology; Fisheries and Aquatic Habitat; and Soils* section, above.
    - New road construction would be located in stable locations and would not contribute to degradation of aquatic habitat.
- Do not violate any known Federal, State, or local law or requirement imposed for the protection of the environment [40 CFR 1508.27(b) (10)] (EA Section 1.3).

3. The Interdisciplinary Team (IDT) evaluated the project area in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b) (7)] and determined that there is a potential for cumulative effects on water quality and fisheries, and on carbon storage. These effects are not expected to be significant for the following reasons:

- Water Quality/Fisheries: The selected action would be expected to temporarily increase stream sediment and turbidity as a result of culvert maintenance, road renovation, and road maintenance. There is a theoretical potential for increases in stream sediment and turbidity as a result of thinning and logging operations (EA Sections 3.3.2 -3.3.4). These effects are not expected to be significant for the following reasons:
  - Any sediment increase resulting from thinning would be too small to be discernable relative to background sediment yields, would not be expected to exceed ODEQ water quality standards and would decrease quickly over time, returning to current levels within three to five years as vegetation increases (Dissmeyer, 2000).
  - The limited magnitude (less than 0.3 percent of the total 6th field watershed sediment supply, an undetectable change) and duration (primarily major storm events during the first year following disturbance) of this effect would likely be insignificant for water quality on the watershed scale.

- Cumulatively, the selected action and connected actions would be unlikely to result in any detectable change for water quality on a sixth or seventh field watershed scale and would be unlikely to have any effect on any designated beneficial uses, including fisheries. (EA Section 3.3.3.2)

- Carbon storage and carbon emissions (EA section 3.3.7): The proposed thinning would contribute to cumulative effects to carbon storage and carbon emissions. The effects are not significant for the following reasons:
  - The incremental increase in carbon emissions as greenhouse gasses that could be attributable to the selected action is of such small magnitude that it is unlikely to be detectable at global, continental or regional scales or to affect the results of any models now being used to predict climate change. The Highland Flung Thinning timber sale accounts for 21 percent of the acreage analyzed in the Highland Fling Thinning EA proposed action. The proposed action would contribute to cumulative effects to carbon storage and carbon emissions by emitting 5,052 tonnes of Carbon over the next 10 years (Table 17, Item 11) which is approximately 0.000007 percent of average global emissions (Table 18, Items E, E-1).
  - Tables 17and 18 of the EA show that carbon emissions resulting from the proposed thinning over the next 10 years would total 5,052 tonnes of (0.000005 Gt) of carbon or 18,541 tonnes (0.000019 Gt) of carbon dioxide (tonnes C*3.67). Current annual global emissions of carbon dioxide total 25 Gt of carbon dioxide, (IPCC 2007, p. 513), and current annual U.S. emissions of carbon dioxide total 6 Gt (EPA 2007, p 2-3. Therefore, the short-term (1-10 years) emissions of carbon from the proposed thinning would constitute 0.000007 percent of current global emissions and 0.00003 percent of current U.S. emissions. The incremental increase in carbon emissions as greenhouse gasses that could be attributable to the selected action is of such small magnitude that it is unlikely to be detectable at global, continental or regional scales or to affect the results of any models now being used to predict climate change. In addition, the net carbon emissions would be of short duration. The remaining trees in the proposed action project area would sequester approximately 2,255 tonnes of carbon per year, restoring the carbon loss from fuel burning, harvested wood, and harvest operations emissions within three years after thinning (Tables 17 and 18, EA section 3.3.7).
  - Over the thirty years following the proposed thinning, the increase of 28,056 tonnes of live tree carbon would contribute to an annual average of 0.0012 percent of the U.S. annual accumulation of carbon from forest management of 0.191 Gt. The proposal would contribute 0.13 percent of the annual accumulation of 0.00169 Gt of carbon as a result of current implementation on BLM-managed lands in western Oregon. (2008 FEIS, p. 4-537). The Selected Action comprises 21 percent of the proposed action analyzed.

7.2 Administrative Review Opportunities

The decision described in this document is a forest management decision and is subject to protest by the public. In accordance with Forest Management Regulations at 43 CFR 5003, protests of this decision may be made within 15 days of the publication of a notice of decision in a newspaper of general circulation. The notice for this decision will appear in the *Molalla Pioneer* newspaper on November 17, 2010. The planned sale date is December 15, 2010.

To protest this decision a person must submit a written protest to Cindy Enstrom, Cascades Field Manager, 1717 Fabry Rd SE, Salem, Oregon 97306 by the close of business (4:30 p.m.) on December 2, 2010. The regulations do not authorize the acceptance of protests in any form other than a signed, written and printed original that is delivered to the physical address of the advertising BLM office.

The protest must clearly and concisely state the reasons why the decision is believed to be in error. Any objection to the project design or my decision to go forward with this project must be filed at this time in accordance with the protest process outlined above. If a timely protest is received, this decision will be reconsidered in light of the statements of reasons for the protest and other pertinent information available and shall serve a decision in writing on the protesting party (43 CFR 5003.3).

7.3 Implementation Date

If no protest is received within 15 days after publication of the notice of decision, this decision will become final. For additional information, contact Keith Walton (503) 375-5676 or Rudy Hefter (503) 315-5671, Cascades Resource Area, Salem BLM, 1717 Fabry Road SE, Salem, Oregon 97306.

Approved by: Cindy Enstrom 11/16/2010

Cindy Enstrom — Date

Cascades Resource Area Field Manager

8.0 Selected Action by Section

Table 2: Selected Action by section, unit, LUA and yarding method.

EA Unit No. 4S4E-	Stand Age	EA Unit Acres	Timber Sale Unit No.	Timber Sale Unit Acres	Acres by Harvest Method and Land Use Allocation (LUA)							Timber Sale Acres by Section
					Thinning by LUA		Road Const. & Renovation					
					Ground Based Yarding		Road Miles			Clearing Road Right-of-Way (ROW)		
					Riparian Reserve	Matrix	New on BLM	Renovation	New on Private	Riparian Reserve	Matrix	
29A	57	23	1	17	0	17	0.1	0	0	0	1	119
$29B_2$	57	86	2	7	2	5	0	0	0	0	0	
$29B_1$	31		3	78	3	75	0.1	0.4	0	0	1	
29C	72	20	4	15	0	15	0.1	0	0	0	0+	
21	89	14	5	7	0+	7	0	0.4	0	0	0	7
27A	65	8	6	5	0	5	0	0	0	0	0	26
27B	83	23	7	17	1	16	0+	2.1	0.1	0	1	
27C	65	21	8	3	0	3	0	0	0	0	0	
			Road ROW	3								
Total Acres		195		152	6	143	0.4	2.9	0.1	0	3	152
Total Acres by Yarding Type					149						3	
Total Acres by Land Use Allocation					Riparian Reserve		6			Matrix	146	

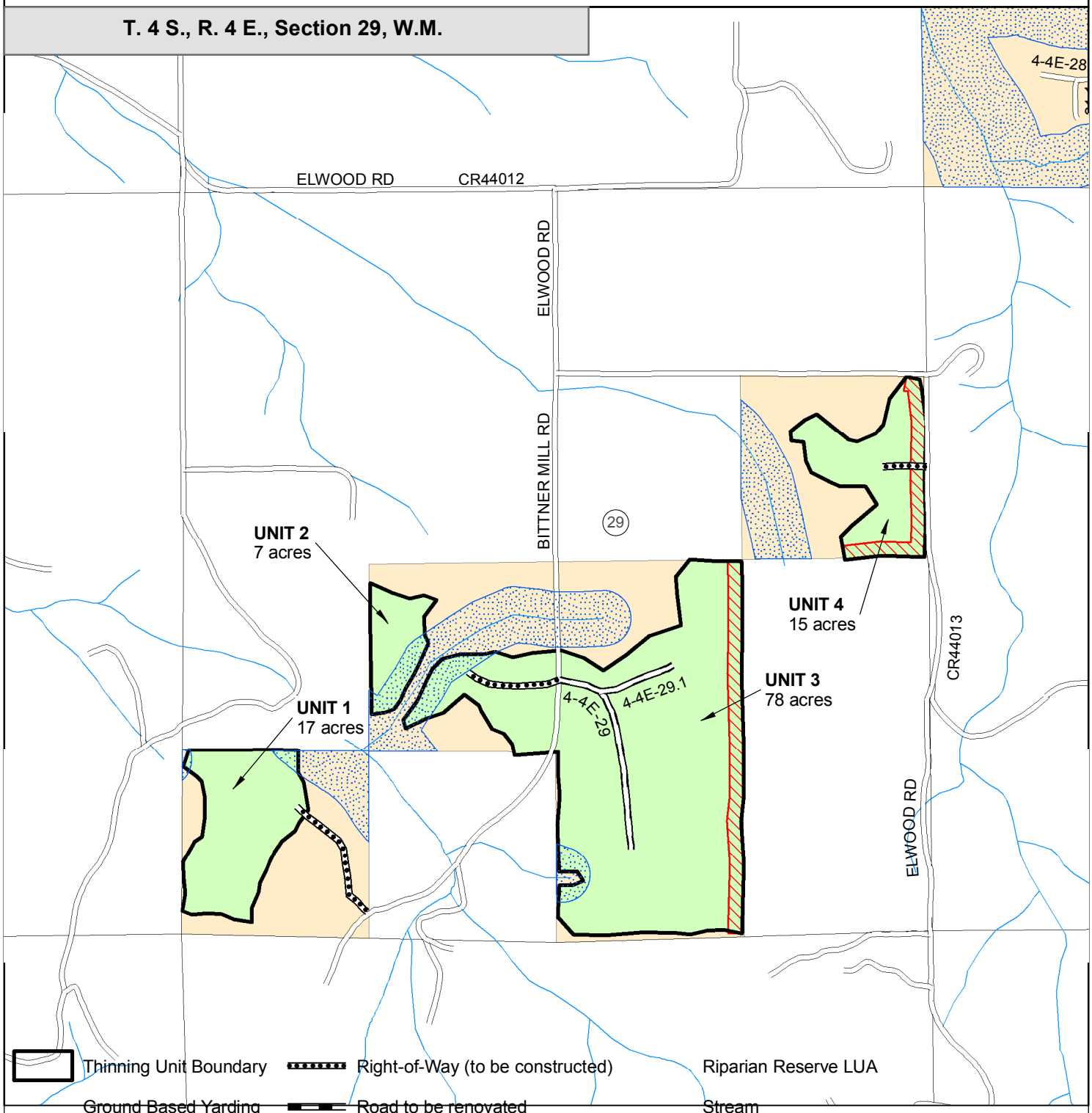
Notes: 0+ indicates less than 0.5 acre or 0.05 mile. 0.5 acre is rounded to 1. Acres rounded to nearest full acre. New construction Right-of-Way clearing averages 30 feet wide, or approximately 1/4 mile of R-o-W clearing per acre. Clearing for renovated roads calculated using half of new construction acreage. Miles rounded to 0.1. "Renovation" refers to unmaintained, currently unusable road to be renovated to useable condition under original design standards. All new and renovated roads are natural surface (dirt).

9.0 Maps

The next three pages show maps of T4S, R4E sections 29, 21, and 27.

HIGHLAND FLUNG THINNING
Decision Rationale EA No. OR080-08-05
Harvest Units

T. 4 S., R. 4 E., Section 29, W.M.



Thinning Unit Boundary
Ground Based Yarding
Fuel Reduction Area
Right-of-Way (to be constructed)
Road to be renovated
Existing Road
Riparian Reserve LUA
Stream
BLM Managed Land (outside of Unit Area)

United States Department of the Interior
Bureau of Land Management
Salem District Office
Cascades Resource Area
1717 Fabry Road S.E.
Salem, Oregon 97306

N

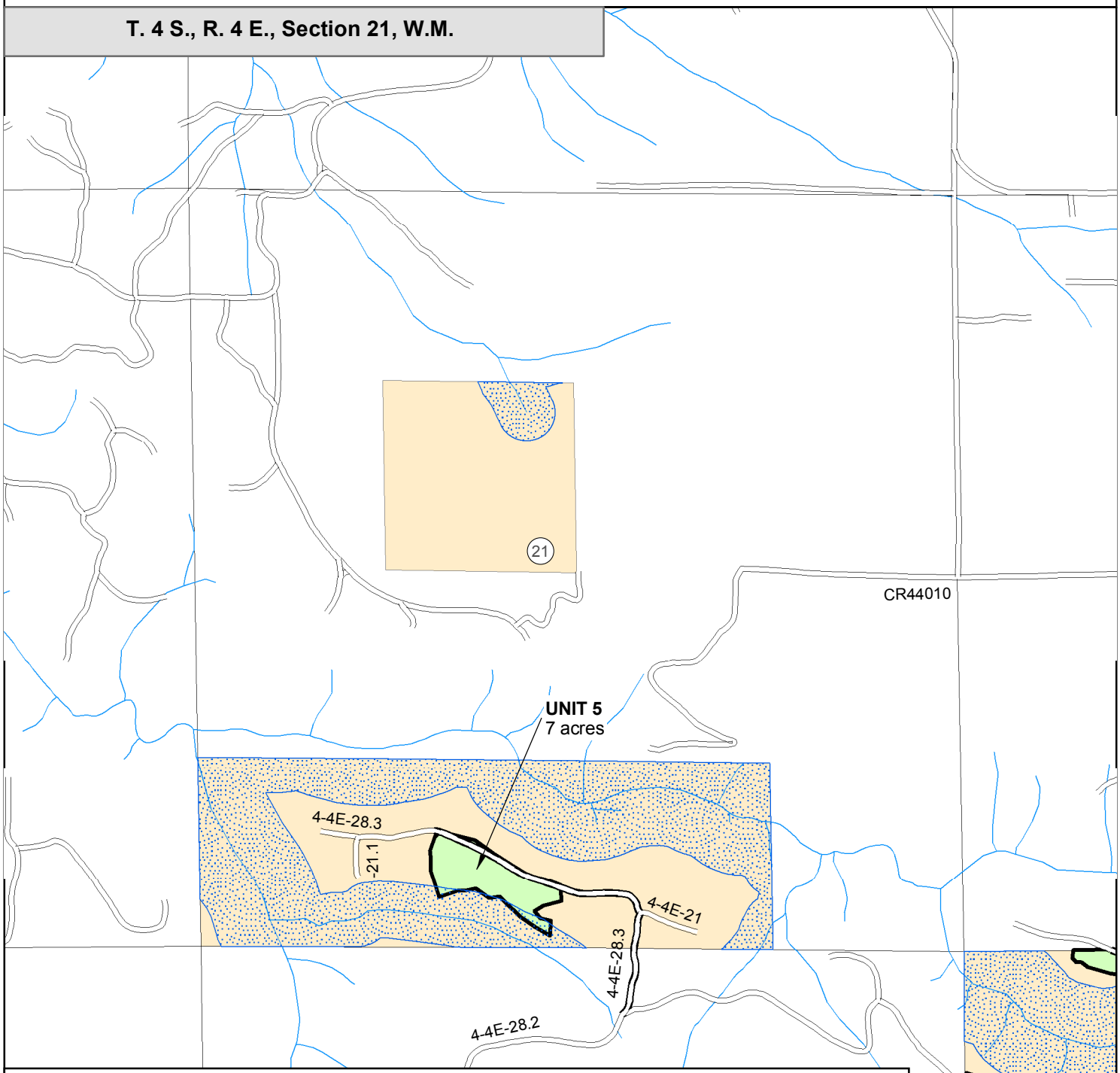
1,000 500 0 1,000 Feet

The Bureau of Land Management does not warrant the accuracy, reliability, or suitability of this information for individual or aggregate use with other data for a particular purpose. The accuracy of the data and map product may vary due to compilation from various sources, and may not meet National Map Accuracy Standards of the Office of Management and Budget. This product was developed through digital means and may be updated, corrected, or otherwise modified without notification.

10/12/2010 Field Support Services

HIGHLAND FLUNG THINNING
Decision Rationale EA No. OR080-08-05
Harvest Units

T. 4 S., R. 4 E., Section 21, W.M.



Thinning Unit Boundary	Right-of-Way (to be constructed)	Riparian Reserve LUA
Ground Based Yarding	Road to be renovated	Stream
Fuel Reduction Area	Existing Road	BLM Managed Land (outside of Unit Area)

United States Department of the Interior
Bureau of Land Management
Salem District Office
Cascades Resource Area
1717 Fabry Road S.E.
Salem, Oregon 97306

N

1,000 500 0 1,000 Feet

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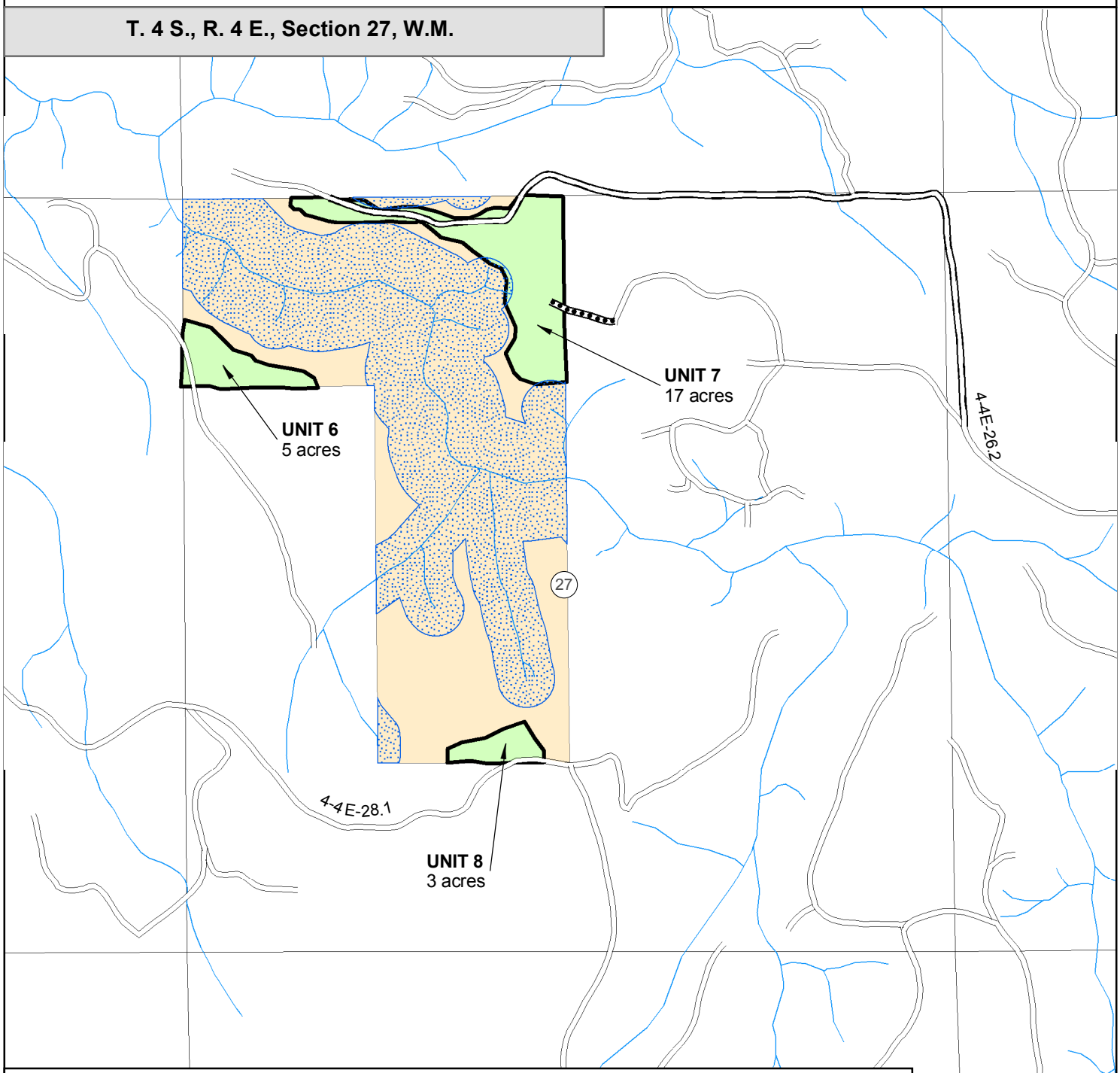
10/12/2010 Field Support Services

HIGHLAND FLUNG THINNING
Decision Rationale EA No. OR080-08-05
Harvest Units

T. 4 S., R. 4 E., Section 27, W.M.



Thinning Unit Boundary	Right-of-Way (to be constructed)	Riparian Reserve LUA
Ground Based Yarding	Road to be renovated	Stream
Fuel Reduction Area	Existing Road	BLM Managed Land (outside of Unit Area)

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10/12/2010 Field Support Services

10.0 Response to Comments Received during the EA Comment Period:

Having reviewed all of the comments I received during the EA comment period (March 24-April 23, 2010), I have summarized them into the following categories: Authorities, Land Use Allocations, Public Involvement, Alternatives, Thinning, Road Construction, Aquatic, Riparian Reserve and Riparian Habitat, Soils, Special Status Species, Snags, Spotted Owl Habitat and Threatened/Endangered Species, Carbon and Climate Change, and Cultural Resources.

10.1 Authorities

1. *I received a comment questioning whether implementing a project under the 1995 Salem District Resource Management Plan (RMP) is in compliance with the Federal Land and Policy Management Act (FLPMA) because the plan has not been substantially revised in the last 15 years. The commenter recommends that the district begin the process of evaluating the revision of their management plan beginning with this sale.*

   Response to 1: The BLM is in compliance with the Federal Land and Policy Management Act (FLPMA). FLPMA (Public Law 94–579—Oct. 21, 1976, as amended through May 7, 2001) Sec. 202.[43 U.S.C. 1712] (a) states:

   > The Secretary shall, with public involvement and consistent with the terms and conditions of this Act, develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands.

   The BLM revised their resource management (land use) plans in 2008. On July 16, 2009, Secretary of the Interior Ken Salazar withdrew the Records of Decision (2008 ROD) for the Western Oregon Plan Revision and directed the BLM to implement actions in conformance with the resource management plans for western Oregon that were in place prior to December 30, 2008. For the Salem District, the plan in place prior to December 30, 2008 is the 1995 Salem District Management Plan (RMP), which provides the specific direction for implementing the Northwest Forest Plan (NWFP) (DR section 5.0). The Highland Flung Thinning timber sale has been designed to comply with the land use allocations, management direction, and RMP objectives. See Response to Comment # 2.

   The NWFP and current RMP continue to be in accordance with the FLMPA, O&C Act, Endangered Species Act, Clean Water Act, and other applicable laws. Evaluating a revision of the RMP is outside the scope of this project.

10.2 Land Use Allocations, Management Objectives, and Alternative Development

2. *I received comments expressing differing views of BLM management objectives for Matrix and Riparian Reserve Land Use Allocations (LUA). Specific comments included:*
   - *recommendations to change the objectives to a recreation only, and a recreation and education emphasis, including adding parking, facilities and kiosks to support them;*
   - *support for a decision to take no action (protect or decommission) the unauthorized recreation trails;*
   - *an opinion that the primary role of Matrix is to support owl dispersal and owl prey species and that BLM should manage for those species;*
   - *support for maintaining a timber emphasis in the Matrix LUA;*

Response to 2: With regard to BLM management objectives for this project, the IDT designed the Proposed Action to meet the Purpose of and Need for Action (purpose and need), implementing RMP management objectives for the Matrix and Riparian Reserve land use allocations (LUA). RMP objectives applicable to this project are described in EA section 1.2.2 and 1.3 (EA pp. 2-5) and in the following table. The following is a summary of the purpose and need for the Highland Fling project (which includes the Highland Flung Thinning timber sale).

Table 3: Summary of the Purpose of the Project and Applicable RMP Objectives

Land Use Allocation	Summary of Purpose (Objectives) of the Project	Applicable RMP Objective(s)
Matrix (GFMA) LUA and Timber Resources	Summarized from EA pp. 2,3: Manage developing stands on available lands to promote tree survival and growth and to achieve a balance between wood volume production, quality of wood, and timber value at harvest. Supply a sustainable source of forest commodities from the Matrix land use allocation to provide jobs and contribute to community stability. Select logging systems based on the suitability and economic efficiency of each system for the successful implementation of the silvicultural prescription, for protection of soil and water quality, and for meeting other land use objectives by developing timber sales that can be successfully offered to the market place.	Summarized from: RMP p.46: Manage developing stands on available lands to promote tree survival and growth and to achieve a balance between wood volume production, quality of wood, and timber value at harvest. Provide a sustainable supply of timber and other forest products. RMP p. 48: Commercially thin managed timber stands to increase timber production or to achieve other management objectives. RMP p. 20: Produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability. RMP p. 2: maintain water quality standards
Riparian Reserve LUA	EA p. 3: Maintain water quality standards and improve stream conditions by maintaining effective shade for streams…; and designing new roads and using existing roads to avoid increasing the quantity of water and sediment transported to streams. Develop large conifers and future large coarse woody debris, large snag habitat, in-stream large wood, and long-term structural and spatial diversity by applying commercial thinning treatments within the Riparian Reserve LUA …, removing merchantable material only when it is consistent with the purposes for which the Riparian Reserves were established.	RMP p. 2: maintain water quality standards RMP p. 7: Apply silvicultural treatments to restore large conifers in Riparian Reserves. RMP p. 11: Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives.
All land use allocations	EA p. 3: Maintain and develop a safe, efficient and environmentally sound road system and reduce environmental effects associated with identified existing roads within the project area.	RMP p. 62: Develop and maintain a transportation system that serves the needs of users in an environmentally sound manner. RMP p.11: Minimize sediment delivery to streams from roads. RMP p. 2: maintain water quality standards

Land Use Allocation	Summary of Purpose (Objectives) of the Project	Applicable RMP Objective(s)
All land use allocations	EA p. 3: Protect, manage, and conserve federal listed and proposed species and their habitats to achieve their recovery in compliance with the Endangered Species Act and Bureau special status species policies.	RMP p. 28: Protect, manage and conserve federally listed and proposed species and their habitats to achieve their recovery in compliance with the Endangered Species Act, approved recovery plans, and BLM special status species policies.

Summary of the Need for the Project (EA p. 2):

On Matrix lands designated for the sustained production of timber, overstocked stands with declining growth rates have resulted in reduced volume yield and value over the planned timber rotation. The proposed forest management activities are needed in the project area stands to reverse these trends so the stands will persist and contribute to future forest production and other goals of the NWFP.

On Riparian Reserve lands designated for restoring and maintaining the ecological health of watersheds and aquatic ecosystems (RMP p. 5), and for providing habitat for terrestrial species (RMP p. 9), overstocked conifer stands have resulted in simple stand structure and declining growth rates that result in delayed development of large diameter snags and other habitat characteristics associated with late-successional forests.

Changing the management of the area to recreation only would require RMP level changes for land use objectives and is outside of the scope of this timber sale project.

Forgoing logging within the project area is described in the No Action Alternative of the EA. The effects of the no action alternative are described for each resource in EA section 3.0. The no action alternative does not meet the purpose and need for the project (EA pp. 121-122).

The commenter believes that the primary role of Matrix is to support owl dispersal and owl prey species and that BLM should manage for those species. The RMP, pp. 20 states that the primary role of Matrix is to produce a sustainable supply of timber and other forest commodities to provide jobs and contribute to community stability; provide connectivity (along with other allocations such as Riparian Reserves) between Late-Successional Reserves; provide habitat for a variety of organisms associated with both late-successional and younger forests; provide for important ecological functions such as dispersal of organisms, carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components such as down logs, snags, and large trees; and provide early successional habitat.

The EA, p. 82 states that the project area is in the northern Willamette Valley, which is considered to be outside of the normal range of the spotted owl (Adamus 2001, Marshall et.al 2003). Furthermore, the Willamette Valley is a barrier to both natal and breeding dispersal (Forsman *et al.* 2002). The closest known spotted owl site is 3 miles away from any proposed unit and some proposed units are over ten miles away from the nearest known spotted owl site. None of the units are located in Critical Habitat and there are no unmapped LSRs (100 acre core areas of known spotted owls as of January 1994) in the vicinity of the proposed units.

This project supports owl dispersal habitat and prey species by retaining at least 40% canopy cover, retaining large snags and large coarse woody debris.

EA p. 88 states that current habitat conditions for the spotted owl would be maintained after treatment because the components and functionality of the habitat for spotted owl life history requirements (>60 percent canopy cover for suitable habitat, >40 percent canopy cover for dispersal habitat, down wood, tree-height class diversity, older hardwoods) are supported, even though treatments alter the stand.

3. *I received comments about the future management of stands in the project area, including:*

- *opposition to potential regeneration harvest within the next thirty years;*
- *advocacy for potential regeneration harvest within the next thirty years;*
- *generic comments on potential future partial cut;*
- *concerns that the current silvicultural prescription in Riparian Reserve will presuppose future logging in Riparian Reserves;*

Response to 3: This comment is outside of the scope of this project. The Salem Resource Management Plan (RMP) currently directs the management of BLM lands. Under the current RMP, some or all of these stands would be evaluated for management options within the next thirty years. The current treatment leaves multiple options for future management with potential to develop structural diversity. Management options to be considered will be defined by the RMP in place at that time, so predicting specific management practices decades in the future would be speculative.

4. *I received comments about the range of alternatives for silvicultural objectives and prescriptions analyzed, including:*

- *advocacy for thinning to promote timber values in Riparian Reserve as well as in Matrix;*
- *advocacy for silvicultural treatment primarily to enhance wildlife habitat (including northern spotted owls and their prey species addressed in comment 3) in Matrix as well as in Riparian Reserve with specific calls for creating of gaps and developing decadence;*
- *support for the objectives for thinning in the Riparian Reserve described in the EA;*
- *advocacy for using "passive restoration" in the Riparian Reserve;*
- *advocacy for implementing a "light thinning" or a "variable density thinning";*
- *a compliment that the BLM does a "good job managing the forest".*

Response to 4: The BLM considered a reasonable range of alternatives as required by NEPA. In the development of alternatives, the EA follows the guidance stated in Section 102 (2) (E) of the National Environmental Policy Act of 1969, as amended (NEPA), Federal agencies shall "…study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."

The IDT examines each stand within the proposed project then uses objective data collected during stand exams and stand modeling that uses one or more scientific models, combined with personal, professional observations and judgment to develop sound silvicultural prescriptions to achieve the defined objectives. EA p. 2 shows that overstocked stands in the project area need immediate forest management activities to reduce the number of trees per site to allow remaining trees to have sufficient water, nutrients and space for additional growth to meet RMP objectives.

EA pp. 2-3 show that the purpose of the project is to manage developing stands to optimize growth; supply forest commodities; maintain water quality standards; develop large conifers in Riparian Reserves; protect federally proposed and listed species; maintain a safe, environmentally sound road system; and protect public, facilities and resources from wildfire. See response to comment 2. Therefore:

- The BLM did not analyze managing primarily for timber values in the Riparian Reserve LUA or managing primarily for wildlife habitat characteristics in the Matrix LUA because they do not meet the objectives for the project (EA sec. 1.2, pp. 1-3), response to comment 2.
- The BLM did not analyze alternative thinning prescriptions ("light", variable density, gap creation, creating decadence) because they are simply variations of the proposed action. The proposed and selected actions achieve the purpose and need, including variability both within BLM managed lands and on a larger landscape level.
- "Passive restoration" is simply implementing the "no action" alternative, which the BLM analyzed in the EA.

5. *I received comments that the EA should have analyzed specific alternatives for treatment or deferral based on stand age, specifically to thin younger stands and defer harvest of older stands.*

Response to 5: See Response to Comment #4. "Deferred harvest" is simply the "no action" alternative with a presupposition that future management will include harvest (to defer is "to put off until a future time"). Future management actions are outside of the scope of this analysis, response to Comment # 3. The BLM analyzed thinning in stands ranging from 31 to 89 years old and the "no action" alternative. The Commenters do not define "older" or "younger" stands or discuss site specific stand structure characteristics.

10.3 Survey and Manage/Special Status Species, and Compliance with Current Court Orders

6. *I received comments questioning the accuracy and validity of the stand ages used in the EA and how the BLM determined stand ages.*

Response to 6: The BLM uses currently accepted scientific methods for determining stand age based on tree ring counts and cross-checked against historical records. Stand Exam procedures determine the numbers of sample plots to take in each stand type based on currently accepted statistical analysis methods. Multiple measurements and observations are recorded for each plot, including tree ring counts for both the dominant (tallest) tree on or near each plot and a random sample (computer generated selection) of other trees. Analysis of this data generates overall stand age, ages of multiple cohorts if they are present in the stand, the ages of oldest trees found and of the youngest trees sampled. Stand age is calculated by commonly used growth and yield model programs and reflects population age, not the age of the oldest specimen(s) found.

The BLM compares this information to historical records of timber sales, salvage sales, firewood sales, grazing permits, fire records and, when available, reforestation and silvicultural treatment records. If there is a long gap between timber sale and stand establishment dates, BLM personnel apply reason and professional judgment based on experience and general historical knowledge to either reconcile the conflicting information or to determine that additional statistical sampling is needed.

7. *I received comments questioning how the project stands comply with the Pechman Exemption and/or other current Survey and Manage requirements. (Some comments linked this issue with determining stand age, see comment 6.)*

Response to 7: DR section 5.0 describes how each stand, based on its age, was analyzed to meet the Pechman Exemption and other Survey and Manage requirements. In summary, stands younger than 80 years meet the Pechman Exemption while the two stands that are older than 80 years were surveyed according to Survey and Manage protocols.

Two mollusk species were found and appropriate management guidelines were implemented. See response to Comment # 6 concerning determination of stand age.

8. *I received comments that the EA did not adequately address Survey and Manage Species and other Special Status Species in response to scoping comments. The commenter listed several categories of lists, changes to lists, surveys, species and protections for which the commenter desired more detail.*

Response to 8: Species lists, current and historical, are in the project records, which is available for inspection at our office. This information was not included in the EA because this data was not specifically needed for the Field Manager to choose between alternatives, or to describe project effects.

The BLM followed survey protocols for all species on all current lists - botanical and animal, aquatic and terrestrial. Protocols include: identifying known populations, assessing habitat present in the project vicinity, reviewing habitat requirements for species to determine which species are potentially present, and field surveys for those species. Surveys are done as needed by trained and qualified people.

For listed botanical species, all known sites in the proposed project area or close proximity are identified, all habitat, with a focus on suitable habitat, is inventoried and all botanical species (vascular plants, lichens, bryophytes and fungi) encountered are identified. All botanical species encountered during survey efforts of the proposed project area are common species with no concern for persistence. The proposed project area contains no T&E species or suitable habitat (EA pp. 42).

All species are treated individually and if protection is needed or required, then appropriate protection is described in the project EA and implemented in the project design. Survey methods for botanical species are described in the EA (pp. 28-29) and results are described in the EA (p. 42). Methodologies for analysis of Special status animal species are described in the EA (pp. 30-31) and results are described in the EA (pp. 82-83). In some cases, if habitat is present it is assumed (without surveys) that the species is present and appropriate protection is incorporated into the project design. See DR section 5.0.

10.4 Road Systems

9. *I received comments about road construction, use and management. Specific comments include:*
- *concern that road density and environmental effects of road construction be fully analyzed;*
- *advocacy for minimal road construction;*
- *advocacy for treating areas that are not served by existing roads as "inaccessible" and managing those areas for habitat;*
- *concern about the impacts of new roads compared to the need for them (cost: benefit)*
- *advocacy that the transportation system be re-used for future management;*
- *advocacy that permanent roads be retained to provide for fire control access, not decommissioned;*
- *concern that new roads may provide access for unauthorized OHV use;*
- *concern that new roads may allow new populations of invasive weed species to become established;*
- *concern that decommissioned roads be stabilized to prevent erosion and sediment;*
- *concern that road construction associated with the project conflicts with ACS objectives.*

Response to 9: The EA documents the environmental effects of roads on affected resources. Effects of road construction on sedimentation are described in Response to Comment # 12. Other effects, as described in the EA include:

- EA p 42: Invasive species populations are not expected to spread within new road construction because seeding native species on exposed soil associated with roads has been demonstrated for more than a decade on BLM land to consistently abate the establishment of invasive/non-native species on disturbed soil associated with roads; and washing of earth moving and logging equipment before entering BLM land, visual inspection of that equipment by BLM personnel, and monitoring invasive species after logging, have been proven over the last decade to reduce the risk of spreading invasive species to a very low level.

- EA p. 86: Within thinning units, most existing snags in all sizes over 15 inches diameter would be retained. It is anticipated that 90+ percent of these snags would remain standing after treatment. The remaining 10 percent or less of these snags may need to be felled for safety, for skid roads and road construction. More of the smaller diameter/taller snags (<12 inches diameter and >25 feet tall), would be felled for safety reasons, or fall incidental to thinning operations.

Construction of roads is a capital investment, therefore, for both economic and environmental reasons the BLM does not construct roads unless analysis shows that they provide a way to meet management objectives and to implement the proposed action that is both economically and environmentally sound (EA pp. 13-14, DR Response to Comment # 2).

Lack of existing roads does not make an area "inaccessible" and does not constitute a reason to change management objectives. The proposal to build new roads has been analyzed in the EA (pp. 75-76).

DR section 3.0, item 4 describes the decision to change the logging system for unit 2 and eliminate approximately 1,000 feet of new road construction was based on additional analysis after the EA was published. In the selected action, the BLM proposes to build 0.5 mile of new road.

No permanent (open and rocked) roads in the project area will be decommissioned. The open or closed status of roads in the project area will not be changed as a result of this project. Both new temporary road locations and existing roads are intended to be used for future management and fire control access. Temporary roads will be closed and treated to prevent erosion, prevent use by OHV, and prevent establishment of invasive weeds populations as described in the EA pp. 17, 19 and 20-21. Such road closure and treatment would not decompact the subgrade, so the road locations are anticipated to be useable for future management activities and can be opened quickly if needed for fire control access.

The EA analyzes how the project meets the Aquatic Conservation Strategy (EA pp. 117-122). There is no road construction within the Riparian Reserve LUA in the Highland Flung Thinning timber sale. Commenter has not presented evidence to support the claim that the planned road construction conflicts with ACS objectives.

10.5 Aquatic Conservation Strategy Objectives, Water Quality, Riparian Reserve, Riparian Habitat

10. *I received a comment questioning EA analysis of the project's compliance with Aquatic Conservation Strategy Objective #8, "amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability."*

Response to 10: The Highland Flung Thinning timber sale is only treating approximately 6 acres within Riparian Reserve. This small area is unlikely to have any effect on "amounts and distribution of coarse woody debris" in the project area. In addition, the proposed stream protection zones (no cut buffers) of 30-50 feet (50 feet within 1 mile of listed fish) for intermittent streams and 60-100 feet (100 feet within 1 mile of listed fish) for perennial streams will maintain the current amounts and distribution of coarse woody debris (CWD, terrestrial) and source material for large woody debris (LWD, stream structure) as well as maintaining current species composition and structural diversity of plant communities in riparian areas and wetlands.

Existing CWD would be retained throughout the Riparian Reserve (see section 9.0, Maps) that are not proposed for treatment (all but 6 acres). Within the 6 acres of Riparian thinning, as described on EA p. 22, the selected action will retain Coarse Woody Debris (CWD) meeting RMP standards of at least 20 inches diameter (large end) and 20 feet long wherever feasible, protect CWD from logging damage, and will leave existing CWD in place whenever feasible. Also, trees would be retained throughout the Riparian Reserve, providing for future recruitment of additional CWD (see comment and response #14 about snags, CWD and LWD). Therefore the project would not prevent the attainment of ACS objective #8 (EA sections 2.3.1; 2.3.4; 3.3.1; 3.3.2; and 3.3.5).

11. *I received comments concerned about water quality related to stream temperature, dissolved oxygen and pH. Comments included:*

- *a comment questioning the sufficiency of the EA analysis of stream temperatures, dissolved oxygen (DO) and pH and expressing the opinion that the analysis was not sufficient to conclude that they are within natural parameters.*
- *other comments with non-specific concerns about stream temperatures (and sediment, see comment and response # 12;*
- *an opinion that narrow buffers are sufficient for protection of water resources and increase economic viability of a sale;*
- *an opinion expressing approval of wider stream protection zones on streams less than one mile above listed fish habitat).*

Response to 11: This project is in compliance with established water quality standards. As described in the EA (p. 55), stream temperatures in the project area meet Oregon Department of Environmental Quality (DEQ) water quality standards. Based on field surveys of streams and riparian zones in the project area, review of aerial photographs and IVMP (Interagency Vegetation Mapping Project) data, and effective shade curves, the area hydrologist concluded that effective shade is near to full potential (80-95 percent) along most of the perennial streams on public lands in the project area. Effective shade is an accepted surrogate measure for the heat load a stream receives from sunlight. Therefore, the existing riparian vegetation in the project area is adequate to maintain perennial streams in the temperature range required by the ODEQ under the Clean Water Act because the shade produced prevents sunlight from shining directly on the stream with enough intensity or for long enough during the day to increase summer stream temperatures above standards. EA p. 59 states:

The proposed action would have little potential to result in any measurable alteration of temperature regime in intermittent and ephemeral streams because almost all of the primary shade zone vegetation and at least 50 percent of the canopy in the secondary shade zone would be retained along these streams. Therefore, these channels have little potential to be heated by exposure to direct solar radiation so effects from thinning would not be detectable.

As described in the EA (pp. 55, 59), although there was no available data for DO and pH in the immediate project area, observed stream conditions of full forest cover, high shade, low stream temperatures, lack of high loading with fine organic material and aeration potential contribute to the conclusion that it is likely that DO and pH levels are within the range of natural variation and meet state standards. The selected action would not measurably change the factors that contribute to DO levels. Available data from the USEPA indicates that most forest management activities have little effect on pH or conductivity.

Stream protection zone widths were designed by the IDT to be consistent with a variety of shade and temperature studies, fisheries consultation standards and the professional judgment of soils, hydrology, fisheries, wildlife, and silviculture specialists. These physical and operating controls are designed to ensure that the project meets ODEQ standards and the Clean Water Act. Commenters provide no evidence to show that the BLM's analysis is incorrect.

12. *I received comments about water quality related to sediment. Specific comments include:*
- *an opinion disagreeing with the EA analysis of the project's effects on sedimentation (and temperature, see comment and response # 11);*
- *a question about preventing road generated sediment from entering streams at road crossings;*
- *comments regarding skyline yarding corridors directing runoff toward streams.*

Response to 12: With regard to water quality related to sediment, the selected action follows the RMP road management objectives in Riparian Reserves by minimizing the sediment delivery to streams from roads (RMP p. 63). The following passages of the EA show how the project would minimize the sediment delivery to stream from roads and would be in compliance with ODEQ water quality standards. The ODEQ, under the Clean Water Act, has been delegated authority to protect the quality of all waters in the State of Oregon (EA p. 54).

- EA p. vi: Timber haul and road maintenance project design features would prevent sedimentation delivery to streams in quantities that would exceed Oregon DEQ requirements.
- EA p. viii: Effects of the log hauling are not significant because hauling would be conducted in summer when road surfaces are dry, and because approaches to the stream crossings drain water away from the streams, and ditches are densely vegetated with no sign of sediment movement from road surfaces. New road construction would be located in stable locations and would not contribute to degradation of aquatic habitat.
- EA p. 17 shows that the Highland Fling project follows the watershed analysis recommendation regarding road densities by locating roads to be constructed, improved or renovated for use in this project on stable, gentle slopes to avoid sedimentation impacts. New and renovated roads in the project would be stabilized and closed after use.
- EA p. 20:
  - New, improved and renovated road surfaces would be designed to drain surface water to adjacent slopes where it would infiltrate into the soil and groundwater.
  - The BLM timber sale administrator and the BLM harvest inspectors would visually monitor turbidity (a visible reduction in water clarity, Hydrology Report p. 26) caused by road-generated sediment entering the stream at stream crossings on the haul route. The ODEQ standard is less than ten percent increase in turbidity.

- Prevent sediment runoff from entering streams that would cause a visible increase in turbidity in those streams by using one or more of the following methods: maintain vegetation in the ditch; create small settling basins; or install straw bales, wattles or other artificial filters.
- Haul logs only during times and road conditions that would not generate sediment that would enter streams and cause a visible increase in stream turbidity.
- Stabilize all new roads and some existing roads after use to prevent erosion and reduce changes to natural drainage patterns.
- The BLM would restrict road construction, stabilizing operations to the dry season (typically June through October) and dry conditions when no surface mud or sediment laden runoff would be generated.
- Seed and mulch all disturbed soil at stream crossings with native species seed approved by the BLM and sterile mulch (free of non-native seed).

- EA p. 57: No new road construction crossing perennial stream channels or wetlands is proposed.
- EA p. 58: The road construction proposed for this project has a low risk of altering watershed hydrology or peak flows because proposed road locations and design would not allow intercepted water to reach stream channels any faster than precipitation which falls on the forest floor.
- EA p. 60: New roads would not be connected to the stream system and therefore no pathway would exist for delivery of any sediment to streams generated by their construction or use. All new road construction would occur on low to moderate slopes emanating from the existing road network, on stable surfaces (i.e., surfaces that are not contributing to landsliding or mass wasting) and therefore road related landslides in these locations are also unlikely. All road construction in the proposed action would comply with applicable water quality standards because project design features would utilize the BMPs[6] required by the Federal Clean Water Act (as amended by the Water Quality Act of 1987) to reduce non-point source pollution to the maximum extent practicable.
- EA p. 64: the risk of short term (during the action and the first winter following) increases in stream turbidity levels directly below road/stream intersections as a result of road maintenance and hauling would be maintained below the limits required by the Oregon State DEQ.
- Cumulatively the limited magnitude (not visible more than 800 meters downstream of the crossing) and duration (primarily in the first winter following road repairs) of this effect would be non-detectable on the scale of the seventh field watershed (decreasing degree of effect on the scale of larger sixth and fifth field watersheds) and would be unlikely to have any effect on any designated beneficial uses.

As shown above, the EA adequately shows that this project would meet the RMP road management objective by minimizing the sediment delivery to streams from roads (RMP p. 63).

All areas requiring skyline yarding were dropped from the Highland Flung Thinning timber sale, primarily because costs exceeded the value of the timber to be harvested in the small areas where it would be required for logging (see DR sec. 3.0, #4). Therefore the soil erosion and water quality issues raised regarding skyline yarding corridors no longer apply. However, the design features for and impacts of skyline yarding were addressed in the EA (pp. 19, 61-62, 74-77).

[6] http://www.epa.gov/owow/nps/forestrymgmt

13. *One commenter requested more information on the locations of the water intakes for municipal water supplies relative to the project area.*

Response to 13: There are no municipal water intakes within the project area. Three water providers have withdrawals in Clear Creek and Mill Creek, downstream of the project area (Hydrology Report, p. 16, EA p. 54). Oregon DEQ maps show the locations several miles downstream of the project area.

10.6 Snags, Down Wood, and Terrestrial Habitat

14. *I received one set of comments about the EA analysis of snag management, including:*

- *an opinion that the EA does not correctly analyze the effects of thinning on the number, size and timing of snags that will occur in the future;*
- *an opinion that the EA does not correctly analyze how the effects of thinning on the number, size and timing of down wood will affect dead wood availability to streams for pool formation;*
- *a concern about the method of determining the number of snags needed for terrestrial habitat needs as defined in the RMP;*
- *an opinion that the EA analysis of cumulative effects of the project on snag development and habitat is "not true".*

Response to 14: The EA fully analyzed the impacts of thinning on current and future snag recruitment both in the matrix and riparian reserve land use allocations (EA pp. 86, 87, 92, 94). The analysis includes stand exam data (see response # 10 and EA p. 81) on the size and number of snags in each stand and identifies a near term (30 years) snag deficit that does not meet the needs of cavity nesting bird species. Predictions of future snag retention and development for both the proposed action and no action alternatives are based on the professional experience of BLM silviculturists, wildlife biologists, foresters and contract administrators as well as professional interpretation of stand projection modeling.

Science has demonstrated that the larger snags receive greater wildlife use (EA, p. 81, Table 10; Wildlife Report p. 9). The project identified a shortage of large diameter snags (15-25 inches diameter breast height (dbh) and greater than 25 inches dbh) in the project area. BLM recognizes that thinning “captures future mortality”, thus reducing the total number of snags that develop over the life of the forest stand. The majority of this future mortality would consist of the smaller suppressed trees that the project is targeting for removal by "thinning from below" (EA p. 86), resulting in fewer snags in the "smaller than 15 inches dbh" class which is used by fewer species. The EA also analyzes that thinning accelerates diameter growth in retained trees (EA p. 40) and that average tree diameters in the stand would be larger with thinning than without (EA Table 6 on p. 37; p. 40).

The EA also analyzed the effects of thinning on down wood, including coarse woody debris (CWD) for terrestrial habitat (EA pp. 79-80, 86-87) and large woody debris (LWD) for stream structure (including pool formation) and aquatic habitat (EA pp. 65-69, 69-71, 71,72).

The stream protection zones (SPZ, or no cut buffers) along all stream courses and untreated areas adjacent to the stands being thinned will continue to provide CWD and LWD as they would if the BLM did not thin as planned. The trees being retained in the areas being thinned will be available as future sources of CWD and LWD through mortality and windthrow.

BLM has considered recent science concerning wildlife management, including snag management (EA, pp. 79, 86, 92). BLM has fully addressed snags and down wood in the EA (pp. 86-87, 92, 94). The NWFP and Salem District RMP are the current management guidelines for the Salem District and set the minimum standards for snag and down wood retention. Changing management standards for the NWFP and the Salem District RMP are outside the scope of this project. The NWFP and current RMP continue to be in accordance with the O&C Act, Endangered Species Act, Clean Water Act, and other applicable laws. BLM has no new land management mandates or direction to manage for snag levels greater than those in the RMP.

Cumulative effects for snag and CWD are based on anticipated results decades in the future and the EA (p. 92) indicated uncertainty by stating that "Beneficial cumulative effects to CWD, snag habitat and associated species **may** [emphasis added] occur as a result of implementing the projects...". While stand growth projections are based on many decades of large scale experience and research and can reasonably be predicted with confidence, individual tree mortality is dependent on highly variable and largely unpredictable patterns of disease, human caused damage, lightening strikes, fire and windthrow. The BLM anticipates a potential benefit compared to the no action alternative because: 1) Larger snags and CWD are used by more species; 2) Thinning results in accelerated diameter growth of the retained trees so that trees get larger faster; and 3). It is reasonable to conclude that it takes a large live tree to become a large standing dead tree (snag) or dead and down tree (CWD).

10.7 Carbon and Climate Change

15. *I received comments concerning the BLM's analysis of carbon storage and climate change, including:*

- *concerns about the adequacy of BLM's carbon/climate analysis;*
- *a reference to previous comments on the carbon/climate analysis in other recent timber harvest EAs;*
- *concerns about net change to stored carbon, short term and long term;*
- *concerns about BLM's analysis of carbon released from fuel used for logging;*
- *an opinion that BLM's use of information in the2008 Western Oregon Plan Review (WOPR) is inappropriate.*
- *a compliment on: methodology, presentation of calculations, summary analysis on p. 107;*
- *a comment pointing out calculation errors in Table 17 of the EA carried into text;*
- *a question on calculation of net increase in carbon sequestration of the no action and proposed action alternatives, p. 112, commenter requested explanation.*

Response to 15: The BLM analyzed carbon storage and related issues in EA section 3.3.7, pp 103-112. The BLM analyzed and disclosed the effects (consequences) of the proposed action (logging and forest management activities) on carbon storage. This analysis was done at multiple scales (project level, regional, continental and global) and for short term (0-10 years) and long term (11-30 years) temporal scales.

The effects of the proposed action on climate were not analyzed because there are no known models of climate change and carbon/greenhouse gasses interrelationships which are sensitive enough to analyze amounts this small and because the available data would not provide additional information useful for making a reasoned choice among alternatives (EA p. 104). The Commenters provided no analysis to demonstrate that this is in error or that there is an internationally accepted model that can analyze potential effects of this magnitude on climate change.

I reviewed and considered the commenter's previous comments on the carbon analysis in other recent timber harvest EAs. Since the commenter presented no alternative models or calculations, there was no basis for me to change the analysis method. Since the commenter's summary statements and graphs accurately presented the numerical results of carbon calculations I conclude that they understood the information presented. I have also received comments that the information presented was both understandable and helpful.

The remaining comments presented only an unsubstantiated difference of opinion about the significance of the effects and about the approach and presentation of some summary comments. I responded to those comments in the *Gordon Creek Decision Rationale*, April 28, 2009 and in my protest response to Oregon Wild April 26, 2010. Commenters who expressed concerns about the BLM's analysis of net change to carbon storage over time paraphrased BLM's summary and comparative statements in a way that changed the meanings of the statements used in the EA. They then based their disagreement with the BLM's analysis on the wording of the paraphrase, so there is no substantive comment or question for the BLM to respond to.

The commenter presents no evidence that the information excerpted from the WOPR is incorrect, so this is an opinion, not a substantive comment.

The commenter correctly pointed out some numerical inconsistencies, none of which change the essence of the analysis. Multiple runs of carbon calculations for Tables 17 and 18 were made, usually as acreage estimates were refined or input errors were discovered. Some of the numbers displayed were not final calculations, resulting in displayed tonnes that differed by less than one percent (210 tonnes or less). These differences led to some difficulty in duplicating some calculations, but did not change the magnitude, effects or significance of the results.

The EA (p. 112) shows that the no action alternative would result in 21,644 tonnes more carbon sequestered over 30 year analysis period than would be sequestered in the proposed action. The correct number is 21,853 tonnes, calculated as 64,365 tonnes net change to carbon storage (2040) for the No Action alternative (line 14 as labeled) less 42,512 tonnes net change for the Proposed Action. (Transposition of line numbers 15 and 14 noted.). The selected action is a portion of the proposed action. The Commenters provided no analysis to indicate that the BLM's analysis of carbon storage is in error.