

House Mountain Thinning Timber Sale
Final Decision and Decision Rationale

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

T. 8 S., R. 3 E. Sections 31 and 33; WM.
T. 9 S., R. 2 E. Sections 1 and 15; WM.
T. 9 S., R. 3 E. Sections 7, 12 and 13; WM.
Environmental Assessment Number # OR084-04-20
Little North Santiam River and Middle North Santiam River Watersheds
Marion County, Oregon

Responsible Agency: USDI - Bureau of Land Management

Responsible Official: Cindy Enstrom, Field Manager
Cascades Resource Area
1717 Fabry Road SE
Salem, OR 97306
(503) 375-5969

For further information, contact: Carolyn Sands
Cascades Resource Area
1717 Fabry Road SE
Salem, OR 97306
(503) 315-5973



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BLM/OR/WA/PL-08/041+1792

1.0 Introduction

The Bureau of Land Management (BLM) has conducted an environmental analysis for the House Mountain Thinning Timber Sale Project. This analysis is documented as a portion of the Snakehouse project in the *FY 2006 Timber Sale Thinning Environmental Assessment and Finding of No Significant Impact*, EA # OR084-04-20 (EA) and the associated project file. In the EA, the Cascades Resource area staff analyzed the effects of thinning 834 acres of timber stands with an average stand age of 40-80 years (*EA Sections 1.0-4.0, 7.0, and 9.0-14.0*). A Finding of No Significant Impact (FONSI) for EA # OR084-04-20 was signed on July 19, 2005. The EA and FONSI document was then made available for public review from July 20, 2005 to August 19, 2005.

2.0 Decision

I have decided to implement a timber sale for the House Mountain project area consisting of the proposed action as described in EA, pp. 15-21, 82-91, with modifications described in this Decision Rationale (DR sections 2.0, 8.0 -10.0 pp. 3-5, 18-27) and will be called the House Mountain Thinning Timber Sale. This decision is based on site-specific analysis in the EA described above, the supporting project record, public comment, and management recommendations contained in the Little North Santiam (1997) and North Santiam River (2002) Watershed Analyses, as well as the management direction described in the EA section 1.2 and DR section 5.0, which are incorporated by reference in the EA.

The decision is hereafter referred to as the “Selected Action.” Modifications include changes unit acres and unit boundaries based on field verification of the original proposed unit mapping (DR section 9.0 - Maps, pp. 19-25). The following is a summary of the Selected Action. I have decided to:

Timber Harvest

Harvest approximately 523 acres within T. 8 S., R. 3 E. Sections 31 and 33; T. 9 S., R. 2 E. Sections 1 and 15; and T. 9 S., R. 3 E. Sections 7, 12 and 13; WM. This harvest includes:

- Thinning 521 acres. Thinning will take place within the following Land Use Allocations:
 - o 420 acres within the General Forest Management Area (GFMA) of the Matrix Land Use Allocation (LUA)
 - o 101 acres within the Riparian Reserve LUA
- Clearing 2 acres of Right-of-Way within the GFMA

Within the GFMA, units will be thinned by removing suppressed, co-dominant, and occasional dominant trees (thinning from below), leaving residual overstory trees at a uniform stocking level. In all prescriptions, generally the largest trees will be left. An average minimum canopy closure of 40% will be maintained within the Matrix LUA and an average minimum canopy closure of 50% will be maintained in the Riparian Reserve LUA.

An average of 50-120 trees will be retained within the thinning units (EA pp. 105-106).

Logging Systems

- Harvest approximately 450 acres of thinning using ground-based yarding.
- Log and clear approximately 2 acres of road right-of-way using ground based equipment.
- Harvest approximately 71 acres using skyline yarding.

Road Work and Haul:

- Construct approximately 0.4 mile of new road to accommodate logging equipment and log transport within the GFMA. No new road construction will take place within the Riparian Reserve LUA.
- Improve approximately 0.1 mile of unmaintained natural surface road to accommodate logging equipment and log transport within the GFMA.
- The new construction and renovation described above will be barricaded (trench and berm) and stabilized after logging operations. Stabilizing entails installing water-bars or other shaping of roads for drainage and/or placing woody debris, and seeding with native species seed and sterile mulch, along with fertilization to re-establish vegetation (EA p. 19). Seven additional existing spur roads of varying length and condition will be similarly blocked and stabilized.
- Renovate and maintain approximately 19.0 miles of existing rock surfaced road. Renovation could include blading and shaping of roadway and ditches, removing rocks/boulders, clearing brush from cut and fill slopes, applying rock surfacing material to depleted surfaces and cleaning or replacing culverts (EA Pg.16). For this sale, the culvert work consists of replacing twenty-two (22) substandard and/or failing culverts. Excavation needed for the replacement of culverts will take place within the current road prism.

Fuel Treatments

Treat fuels on 80 acres within units 12, 13, 14, 15, 16 and 17. Based on site conditions after harvest, fuel treatments could be either piling and burning, or mastication and scattering.

“Mastication” is breaking slash into pieces generally less than one foot long and scattering these pieces in the stand. Within 30 feet of the edge of each landing all tops, broken pieces, limbs and debris over 1 inch and longer than 3 feet will be piled and covered. Piles will be located 20 feet or more from residual trees. Piles will be burned after thinning has occurred and fall rains have begun.

Other

Block access to skid trails after logging operations have been completed by leaving logging debris to prevent Off Highway Vehicles (OHVs) from driving on skid trails.

Design Features

Implement the Project Design Features described in *EA sections 2.2.2 and 8.1.2.1* (pp. 17-21, 83-84). These design features apply to the Selected Action, are summarized in DR section 10.0, pp. 26-27, and have been included in the timber sale contract.

Summary of the Selected Action

Table 1 summarizes the Selected Action.

Table 1: Summary of the Selected Action

Action			Unit(s)	Total
Timber Harvest (Acres)	Commercial Thinning	General Forest Management Area	1-24	420
		Connectivity		0
		Matrix Land Use Allocation	1-24	420
		Riparian Reserve Land Use Allocation	1,2,3,4,6,7, 8,9,10,11, 12,13,14,15, 17,18,20,21, 22,23,24	101
	Road Right of way clearing		1,5,6,8,9, 14,15,18	2
	Total Acres of Timber Harvest			523
Logging System (Acres)	Ground-Based – Skidding (Includes special yarding and right-of-way)		1-24	452
	Skyline – Uphill, One-end suspension		6,8,14,15, 17,18,19,20	71
Road Work	Road Access	New road construction (miles)	1,5,6,8,9, 14,15,18	0.4
		Improvement, natural surface (miles)	24	0.1
		Road Renovation/ Road Maintenance (miles)		19.0
	Road Stabilization/ Blocking	Constructed road (miles)	1,5,6,8,9, 14,15,18	0.4
		Existing road spurs (number)	12,13,14,15,18, 21,24	6
		Trench and berm road blocks (#)		15
Fuels Treatments (Acres)	Pile Burning (hand pile and machine pile) or Mastication, to be determined based on post-harvest conditions.		12,13,14, 15,16,17	80

3.0 Alternatives Considered

- No Action - No timber harvest or connected actions would take place.
- The EA Proposed Action: The House Mountain Thinning Timber Sale Project is a proposal to thin approximately 834 acres of mixed-conifer stands with an average age ranging from 40-80 years old, with a single 25 acre, previously thinned stand with a 115 year old overstory.
- Selected Action: The Selected Action is a modification of the EA proposed action.

Table 2 of this Decision Rationale (DR Table 2) shows how the Selected Action meets the purpose and need of the project as compared to the no action and any other EA action alternatives. This table is a summary of the table found in *EA section 9.1* (Table 27, pp. 98-100).

Table 2: Comparison of the Alternatives with Regard to the Purpose of and Need for Action

Purpose and Need	No Action	Proposed Action and Selected Action
Develop timber sales that can be successfully offered to the market place.	Does not fulfill. No timber sale results from the No Action alternative.	Fulfills. The Selected Action results in a timber sale that is expected, based on experience with similar projects, to result in a timber sale contract.
Achieve a desirable balance between wood volume production, quality of wood, and timber value at harvest (RMP p. D-3).	Partially fulfills. Over the course of the rotation ¹ , total fiber production would be maintained but total value would likely be lower than with the action alternative since logs at end of rotation would be a smaller diameter than with the action alternatives and there would be no intermediate harvest income.	Fulfills. Maintains volume production over the course of the rotation ¹ . Promotes faster diameter growth by reducing tree densities therefore allowing trees more room to grow. Previous experience with this type of treatment shows that we expect larger diameter logs at the end of the rotation , which typically increases net value. Thinning also increases total harvest value by generating an intermediate harvest income.
Maintain the health and growth of developing stands.	Does not fulfill. Stand health and tree growth rates would begin to decline if stands are not thinned. Competition would result in mortality of smaller trees and some co-dominant trees in the stands.	Fulfills. Stand health and tree growth rates would be maintained as dominant trees are released to grow faster as a result of removing intermediate and some co-dominant trees competing with the dominant overstory for space, light, and nutrients.
Retain elements that provide ecosystem diversity (snags, old growth trees, etc.) so that a healthy forest ecosystem can be maintained with habitat to support plant and animal populations (RMP p. 1, 20)	Partially fulfills. Retains existing elements, but does not enhance conditions to provide these elements for the future stand. Results in continued large tracts of dense, uniform stands with little understory development and smaller trees compared to the action alternative.	Fulfills. Retains the elements described under “no action” on untreated areas of the stands in the project areas and encourages development of larger diameter trees and more open stand conditions in treated areas. This adds an element of diversity to the landscape not provided on BLM lands under the No Action alternative within the planned rotation ¹ .
Increase height and diameter to develop future large coarse woody debris, snag habitat, in-stream large wood and other elements of late-successional forest habitat. (RMP p.1)	Fulfills , but not as soon. Results in numerous small diameter snags and CWD, but delays development of larger ones.	Fulfills. Would meet the Purpose and Need sooner (10-30 years) by concentrating stand growth on fewer stems. See above.
Provide for structural and spatial stand diversity on a landscape level in the long term.	Fulfills by maintaining current trends that would develop diversity slowly.	Fulfills. Thinning has been shown to increase tree diameter growth rates which accelerates development of larger diameter trees, snags and CWD and promotes more rapid understory development in treated stands, compared to untreated stands. These are desirable characteristics of stand diversity. The desirable characteristics of untreated stands are retained in the landscape in untreated stands.
Provide appropriate access for timber harvest, silvicultural practices, and fire protection vehicles.	Fulfills. Existing roads meet this purpose and need.	Fulfills. Would implement maintenance of feeder roads, allowing improved access for management activities and fire control.

Purpose and Need	No Action	Proposed Action and Selected Action
Reduce potential human sources of wildfire ignition by controlling access and treating fuels.	Partially fulfills. Access is adequately controlled by existing gates and berms.	Fulfills. The sale area is behind privately controlled gates. New road construction would be blocked after logging activities.
Reduce adverse environmental effects associated with existing roads within the project areas (RMP p. 11).	Partially fulfills. No immediate potential adverse effects were identified. Would not reduce potential unidentified adverse effects or potential long-term failure of undersized and damaged culverts. Normal scheduled maintenance would continue.	Fulfills. Road maintenance done under the selected action reduces potential long term failure of undersized and damaged culverts and generally reduces or delays development of future problems. Additional problems not noted during proposal development may be found and corrected.

¹ The point where the stand is ready for regeneration harvest

Further comparison of the EA proposed action and the Selected Action are described in DR sections 8.0 and 9.0, pp. 18-25)

4.0 Decision Rationale

Considering public comment, the content of the FY 2006 Timber Sale Thinning EA and the supporting project record, I have decided to implement the Selected Action. The following is my rationale for this decision.

1. No Action: I did not select the No Action Alternative because it does not meet the Purpose and Need directly, or delays the achievement of the Purpose and Need (*EA section 1.3, p. 14*), as shown in DR Table 2, above.
2. The Proposed Action: I did not select units 7B, 7C from the EA Proposed Action because further field reconnaissance determined that the stands currently have a stand structure that would not be as suitable for thinning at this time as initial data analysis indicated.

Variable density thinning and creating clumps and gaps were proposed in the Riparian Reserve LUA (*EA p. 15*). I have decided to defer this treatment at this time, except in Unit 15 as described below. Standard thinning practices will allow for the development of increased growth rates and stand diameters in the proposed units as a result of current treatments and the existing observed variability in adjacent untreated areas will meet the variability objectives at this time.

Unit 15 was marked for thinning to enhance stand structure and promote variability in the Riparian Reserve land use allocation. This stand was previously thinned.

3. Selected Action: I decided to implement the Selected Action, because it:
 - Meets the purpose and need for action described in the FY 2006 Timber Sale Thinning EA section 1.2, as shown in DR Table 2 (DR pp.6-7).
 - Complies with the Salem District Record of Decision and Resource Management Plan, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (*EA section 1.2, p. 13*, as modified by DR section 5.0 pp.8-14).

- Is an economically viable project.
- Prepares the stands within the Riparian Reserve LUA for the creation of clumps and gaps and other aspects of complex stand structure in the future.
- Decreases potential for human caused fire starts and improves fire suppression opportunities by treating slash in selected areas adjacent to property lines or with increased risk of ignition (e.g. adjacent to open roads).
- Incorporates new information on Northern Spotted Owl (DR section 5.0, p.9).
- Will not contribute to the expansion of invasive/nonnative weed populations.
- Will not have significant impact on the affected elements of the environment (EA pp. 2-6, DR section 7.0, pp. 16, 17) beyond those already anticipated and addressed in the RMP EIS.
- Uses the minimum transportation system to facilitate implementation of the project.

5.0 Compliance with Direction

The analysis for the House Mountain Timber Sale, documented in the FY 2006 Timber Sale 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). This project has been designed to conform to the *Salem District Record of Decision and Resource Management Plan*, May 1995 (RMP) and related documents which direct and provide the legal framework for management of BLM lands within the Salem District (EA p. 2). These documents may be reviewed at the Cascades Resource Area office. Compliance with the current direction for the Aquatic Conservation Strategy has been updated and is described in the following paragraphs.

Survey and Manage Species Review

The Secretary of Interior removed the Survey & Manage (S&M) Mitigation Measure Standards and Guidelines from the Bureau of Land Management's (BLM) Resource Management Plans in the area of the Northwest Forest Plan on July 25, 2007 in the *Record of Decision to Remove the Survey and Manage Standards and Guidelines from Bureau of Land Management Resource Management Plans Within the Range of the Northern Spotted Owl* (July 2007). This project is in compliance with this decision.

Northern Spotted Owl (NSO) Status Review:

The following information was considered in this decision: a/ *Scientific Evaluation of the Status of the Northern Spotted Owl* (Sustainable Ecosystems Institute, Courtney et al. 2004); b/ *Status and Trends in Demography of Northern Spotted Owls, 1985-2003* (Anthony et al. 2004); c/ *Northern Spotted Owl Five Year Review: Summary and Evaluation* (USFWS, November 2004); and *Northwest Forest Plan – The First Ten Years (1994-2003)*; d/ *Status and trend of northern spotted owl populations and habitat, PNW Station Edit Draft* (Lint, Technical Coordinator, 2005). Although the agencies anticipated a decline of NSO populations under land and resource management plans during the past decade, the reports identified greater than expected NSO population declines in Washington and northern portions of Oregon, and more stationary populations in southern Oregon and northern California.

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

Aquatic Conservation Strategy Update

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

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

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

The following paragraphs show how the House Mountain thinning project meets the Aquatic Conservation Strategy in the context of PCFFA IV and PCFFA II.

Existing Watershed Condition

The House Mountain Thinning project area is in the Little North Santiam River and Middle North Santiam River watersheds.

Sixty-eight (68) percent of the Little North Santiam River watershed is managed by Federal Agencies (18% BLM and 50% Forest Service), 23 percent is private/industrial, 6 percent is private/non-industrial, and 3 percent is State land (Little North Santiam Watershed Analysis (LNSWA Ch 2, p.6).

- Seral Stages across all ownerships: 6 percent of the watershed is non-forest, 7 percent early grass/forb, 12 percent is open sapling forest, 24 percent is closed sapling forest, 27 percent is mature forest, and 24 percent is old growth forest. (LNSWA Ch 5, p.8)
- Seral Stages across federal lands: less than 1 percent is non-forest, 3 percent is early grass/forb, 8 percent is open sapling forest, 14 percent is closed sapling forest, 34 percent is mature forest, and 35 percent is old growth forest over 200 years of age. Ninety-nine (99) percent of the federal lands are comprised of forests. Currently, approximately 69 percent of the federal ownership in all land allocations within Little North Santiam appears to exhibit late-successional characteristics. (LNSWA Ch 5, p.7)

Within the Federal Riparian Reserve land use allocation 13% is open sapling forest, 53% is closed sapling forest, 37% is late successional forest (mature and old growth). (LNSWA C-7) Sixty-three percent of the forest within the Riparian land use allocation is less than 80 years old.

Six (6) percent of the Middle North Santiam River watershed is managed by Federal Agencies (BLM and Forest Service), 94 % is non-federal land (North Santiam River Watershed Analysis (NSRWA sec. 1, p.3).

- Seral Stages across all ownerships: 53 percent of the watershed is non-forest (agricultural land, residential developments, and municipalities), 12 percent early grass/forb, 2 percent is open sapling forest, 25 percent is closed sapling forest, 9 percent is mature forest, and less than 1 percent is old growth forest. Most of the forest stands within the watershed are 40 to 80 year old (NSRWA sec. 1 p. 7).
- Seral Stages across federal lands: 5 percent is non-forest, 10 percent is early grass/forb, 11 percent is open sapling forest, 24 percent is closed sapling forest, 33 percent is mature forest, and 3 percent is old growth forest over 200 years of age. Ninety-five (95) percent of the federal lands are comprised of forest stands. Currently, approximately 36 percent of the federal ownership in all land allocations within Middle North Santiam appears to exhibit late-successional characteristics. (NSRWA sec. 1 p. 6)

Age class distribution within the Federal Riparian Reserve land use allocation is similar to the age class distribution on Federal lands across the Watershed. Currently, about 36 percent of the Riparian Reserve buffers are in age classes over 80 years of age and approximate late successional forest conditions. Thirty-eight (38) percent of the Riparian Reserve buffers are in closed sapling seral stage between 40 and 80 years of age. About 11 percent are in stands under 40 years of age.

Those House Mountain Units that are 40 to 80 years old are expected to develop more late successional characteristics in the long term (larger diameter trees, multi-layer canopy) EA pp. 27-29.

Review of Aquatic Conservation Strategy Compliance:

I have reviewed this analysis and have determined that the project complies with the ACS on the project (site) scale. The following is an update of how this project complies with the four components of the Aquatic Conservation Strategy, originally documented in the EA, Table 16, p. 50. The project will comply with:

- ***Component 1 – Riparian Reserves:*** by maintaining canopy cover along all streams and the wetlands, which will protect stream bank stability and water temperature. Riparian Reserve boundaries are established consistent with direction from the *Salem District Resource Management Plan* (p. 10). No new road construction will take place with the Riparian Reserve LUA.
- ***Component 2 – Key Watershed:*** The North Santiam River is a Tier 1 Key Watershed, which emphasizes the conservation of at-risk anadromous salmonids, bull trout, and resident fish species. Best Management Practices and other aquatic related project design features incorporated into the selected action will protect these values. Increased tree diameters, in the long term, are expected to result in larger trees for recruitment of large woody debris for fish habitat enhancement.
- ***Component 3 – Watershed Analysis:*** The Little North Santiam Watershed Analysis was completed in 1997 and the North Santiam River Watershed Analysis was completed in 2002. The following Watershed Analysis recommendations apply to the Selected Action.
 - Additional Criteria for Density Management/Thinnings within Connectivity and Riparian LUAs (Little North Santiam Watershed Analysis (LNSWA) Ch.7 , Pg. 6; North Santiam River Watershed Analysis (NSRWA) Sec.3 Pg.8-10)
 - *Maintain average 40 to 50 percent crown closures.*
 - *These projects can best be implemented through commercial timber sales. Logs may be removed provided standing dead/down CWD recruitment goals and ACS objectives are met.*
 - *In stands where late successional characteristics are lacking, treatment to create structure and/or reduce high stocking levels could occur.*
The Selected Action will retain 40-50% canopy closure, implement a timber sale, and reduce stocking levels (EA pp. 15, 106, DR p. 3).
 - Noxious Weeds: *Encourage the development and use of best management practices to reduce the spread of invasive species. Examples include:*
 - *using certified weed free seed on revegetation efforts and*
 - *requiring that ground disturbing equipment is free of mud and plant parts before it breaks ground at a new location in the watershed.* (NSRWA Sec.3 Pg.13)
The Selected Action implements this feature (EA p. 19, DR section 10.0, pp. 26-27)
 - Riparian Condition and LWD on federal lands:
 - *Implement density management /thinning prescriptions to develop and maintain late successional forest stand characteristics. Desirable stand characteristics include larger trees for a large green tree component and recruitment of large standing dead/down coarse woody debris in future stands; multi-layered stands with well developed understories, and multiple species that include hardwoods and other minor*

species. (LNSWA Ch.7 , Pg. 5, 6; NSRWA Sec.3 Pg.6) The Selected Action implements thinning as described above.

- o LWD: *When decayed logs are deficient, compensation in sound logs can be achieved over time. In general, small snags will not persist as long as large snags, nor provide the same wildlife habitat. Leaving trees to grow and become snags later is appropriate in early to mid successional stands.* (LNSWA Ch.7 , Pg. 4, NSRWA Sec.3 Pg.11)
Reducing tree densities through thinning in the Selected Action will allow the remaining trees to grow larger over time, resulting in the recruitment of larger snags (EA pp. 27-29, 41-42)

Component 4 – Watershed Restoration: Thinning in the Riparian Reserve land use allocation would be expected to result in long-term restoration of large conifers and the potential for material that would contribute to in-stream habitat complexity in the long-term.

In addition I have reviewed this project against the ACS objectives at the project or site scale with the following results: The No Action Alternative does not retard or prevent the attainment of ACS objectives 1-9 because this alternative will maintain current conditions. The Selected Action does not retard or prevent the attainment of ACS objectives 1-9 for the reasons stated in the following paragraphs:

- **ACS Objective (ACSO) 1 - Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted:** The thinning will not prevent the attainment of this objective. The thinning in the Riparian Reserve Land Use Allocation (Riparian Reserves) will result in forest stands that exhibit attributes typically associated with stands of a more advanced age and stand structural development (larger trees, a more developed understory, and an increase in the size and quality of snags and down logs) sooner than would result from the No Action Alternative (EA pp. 27, 41-44, 96).
- **ACSO 2 – Maintain and restore spatial and temporal connectivity within and between watersheds:** The thinning will not prevent the attainment of this objective. Implementation of the Selected Action will not eliminate connectivity between project units or adjacent untreated stands under BLM management due to the Selected Action’s enhancement of stand structure development within Riparian Reserves. See ACSO1.
- **ACSO 3 - Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations:** The thinning will not prevent the attainment of this objective (EA pp. 30-34). Under the Selected Action there will be no direct alteration of any stream channel, wetland or pond morphological feature. All operations, equipment and disturbances will be at least 60 feet from all wetlands and perennial stream channels (and 25 feet from intermittent stream channels) Refer to *Sec. 2.2.2 Project Design Features* common to all project areas (EA p. 17-21)

- **ACSO 4 - Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems:** The thinning will not prevent the attainment of this objective (EA pp. 30-34). Stream Protection Zones (SPZs) in Riparian Reserves will be maintained. The temporary roads for the Selected Action are on ridge tops and upper slopes with no hydrologic connections. The Selected Action will be unlikely to have any measurable effect on stream temperatures, pH, or dissolved oxygen because the current shade will be maintained. . Sediment transport and turbidity within the project area are likely to increase over the short term as a direct result of timber hauling and road maintenance on existing roads within the Riparian Reserve LUA. Over the long-term (beyond 3-5 years), current conditions and trends in turbidity and sediment yield will return to pre-project levels (EA pp. 30-34).
- **ACSO 5 - Maintain and restore the sediment regime under which aquatic ecosystems evolved:** The thinning will not prevent the attainment of this objective (EA pp. 30-34). See ACSO 4. In addition, tree removal, road renovation and construction will not occur on steep unstable slopes where the potential for mass wasting adjacent to stream reaches is greatest. Therefore, increases in sediment delivery to streams due to mass wasting are unlikely to result from this action.

Implementing Best Management Practices (BMP) for thinning, yarding, hauling, culvert replacement and road design and use will reduce the potential for detectable sediment delivery to streams as a result of operations. Examples include stream and road buffers, minimum road widths, minimal excavation, ensuring appropriate drainage from road sites, and seasonal limitations on road use and ground-based harvest operations (RMP Appendix C, pp. C-1 to C-9) (EA pp. 17-21) will further reduce the potential for detectable sediment delivery to streams.

- **ACSO 6 – Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing:** The thinning will not prevent the attainment of this objective (EA pp. 31-34).
Ground Water: It is unlikely the proposal will result in any detectable change to local ground water. The proposal will remove less than half the existing forest cover in Riparian Reserve and less than 60 percent in the Matrix portions of the harvest area, and the root systems of the conifers retained will quickly exploit any additional soil moisture availability. road construction will not involve excavation into side slopes where water tables could be intercepted.
Base Flow: It is unlikely the project will result in any detectable change to local base flow, because the project will remove approximately half the existing forest cover, so that the root systems of the conifers retained will quickly exploit any additional soil moisture availability.
Peak flow effects from harvest: Since portions of the project area are in a zone subject to transient snow accumulations in the winter, it can be assumed that the reduction in stand density may result in some small increase in snow accumulation and melting during rain-on-snow (ROS) events. However, due to the small area considered in this action, this effect is not likely to result in detectable changes to peak flows in these watersheds.
Peak flow effects from new road construction: New road construction under the project will be limited to stable slopes and will not require extensive full-bench or cut-and-fill construction. This is unlikely to have a detectable effect on peak flows because there will be no interception of surface or ground water with delivery to streams.

Peak flow effects from roads: All but 0.4 mile of the roads that will be utilized under this project already exist. This action will not alter these roads in a way that will likely reduce or increase any existing effect to peak flows attributable to the current road network, and thus, it will maintain the current condition and trends relative to hydrology and stream flow associated with existing roads.

- **ACSO 7 - Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands:** The thinning project will not prevent the attainment of this objective. There will be no alteration of any stream channel, wetland or pond morphological feature. All operations, equipment and disturbances are kept a minimum of 60 feet from all wetlands and perennial stream channels, and 25 feet from all intermittent stream channels. Thus, the current condition of floodplain inundation and water tables will be maintained (EA p. 131).
- **ACSO 8 – Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability:** The thinning will not prevent the attainment of this objective. See ACSO 1. SPZs will maintain structural diversity of plant communities in riparian areas and wetlands from 25 feet (intermittent streams) to 60 feet (perennial streams) in treatment areas. Thinning in Riparian Reserve LUA outside of the SPZs will help to restore species composition by allowing more understory development and structural diversity by creating horizontal and vertical variations that are currently lacking in the riparian treatment areas (EA p. 27).
- **ACSO 9 - Maintain and restore habitat to support well-distributed populations of native plant, invertebrate and vertebrate riparian-dependent species:** The thinning will not prevent the attainment of this objective. See ACSO 1. The Selected Action will have no adverse effect on riparian dependent species. Although thinning activities may affect invertebrates within the treatment areas, adjacent non-thinned areas should provide adequate refugia for the species (see DR Maps 1, 2). In the long term (10- 20 years), the treatments will restore elements of structural diversity to treatment areas in Riparian Reserves. These attributes will help to provide resources currently lacking or of low quality, and over the long-term, will benefit both aquatic and terrestrial species (EA p. 27-29).

6.0 Public Involvement/ Consultation/Coordination

Scoping A description of the proposal was included in the Salem Bureau of Land Management Project Update which was mailed to more than 1,000 addresses. A letter asking for scoping input on the proposal was mailed on January 2, 2005 to adjacent landowners and individuals who expressed an interest in management activities in the resource area as a whole or in this area.

Letters were also sent to the Confederated Tribes of Grande Ronde; Confederated Tribes of the Warm Springs Reservation of Oregon; Federal, State, County and local government organizations; and Special Interest groups.

Comment Period and Comments

The FY 2006 Timber Sale Thinning EA was mailed to agencies, individuals and organizations. Legal notices were placed in the Molalla Pioneer, Stayton Mail and Albany Democrat Herald newspapers, soliciting public input on the actions, from July 20, 2005 to August 19, 2005. Responses to public comments can be found in DR section 11.0, pp. 27-35.

ESA Section 7 Consultation

1. *US Fish and Wildlife Service*: The House Mountain Thinning project was submitted for ESA Section 7 Consultation during the FY2007/2008 consultation process. *The batched biological assessment for projects with the potential to modify the habitat of the Northern Spotted Owl, Willamette Province, FY 2007-2008 (BA)*, was submitted in July 2006. Using effect determination guidelines, the BA concluded that overall, the House Mountain Thinning project may affect the Northern Spotted Owl due to the modification of dispersal and suitable habitat (BA, pp. 40-41, 44-45).

The Biological Opinion (BO) and Letter of Concurrence (LOC) associated with these thinnings were issued in September 2006 (FWS reference #1-7-06-F-179 and 1-7-06-I-0192). The BO and LOC concurred that these thinnings may affect spotted owls (BO p. 80 and LOC p.39). The BO concluded that these thinnings would not jeopardize the continued survival of the spotted owl (p. 95). None of the units are located in Critical Habitat for the Northern Spotted Owl.

The thinning and connected actions described in the EA have incorporated the applicable management standards that were described in the BA (p.10), BO (Section 1.2, pp.18-19) and LOC (Section 1.2, p.19). In addition, this project will be in compliance with the general standards set forth in the BA (p.6), BO (pp. 17-18) and the LOC (p.18), including monitoring and reporting on the implementation of this project and any adverse effects. In addition, as a design feature of this project, the discretionary Conservation Measure set forth in the BO (p. 97) would be implemented. This includes a seasonal restriction on all units during the critical nesting season to delay disturbance activities later into the nesting season.

2. *NOAA Fisheries (NMFS)*: For action alternatives that would have “no effect” on UWR steelhead trout, UWR Chinook salmon, or LCR Steelhead trout. Consultation with NOAA Fisheries is not required for projects with a “no effect” call. Potential effects of the thinning and connected actions on the listed fish species are related to sediment inputs associated with road construction/ decommissioning and culvert replacement/removal. The Selected Action incorporates very little road construction (0.4 mile, none with hydrologic connectivity) and culvert replacement will take place only in low/no flow seasons (no flow for intermittent streams, within State of Oregon requirements for In-Stream Work). The 60’ stream protection zones on perennial streams and 25’ on intermittent stream channels are expected to prevent any decrease in stream shade that could result in an increase in stream temperature.

The determination of “no effect” is based on the distances from project units to ESA listed fish habitat and on the factors stated above that will prevent increases in sediment input, stream turbidity or temperature to stream reaches potentially occupied by ESA listed fish species (EA p.94).

7.0 Conclusion

Review of Finding of No Significant Impact

I have determined that change to the Findings of No Significant Impact (FONSI – EA pp. 2-6) covering the House Mountain Thinning Timber Sale is not necessary because I've considered and concur with information in the EA and FONSI and this Decision Rationale. The comments on the EA were reviewed and no new information was provided in the comments that lead me to believe the analysis, data or conclusions are in error or that the Selected Action needs to be altered. The Selected Action will not have effects beyond those already anticipated and addressed in the RMP EIS.

Supplemental or additional information to the analysis in the RMP/FEIS in the form of a new Environmental Impact Statement (EIS) is not needed for the reasons described in the Finding of No Significant Impact (EA p. 3) and in the following paragraphs. Effects of the Selected Action are similar to or less than the effects described in the EA due to fewer acres being thinned, the beneficial effects of additional fuel treatments, and road work within the scope of the EA proposed action. The following describes the changes in effects between the EA proposed action and the Selected Action.

- a. *Fuel Treatments:* These fuel treatments were selected based on proximity to private land and assessment of risk factors including potential sources of ignition, slope, aspect, wind patterns and access for fire control. Within the fuel treatment area, treating surface fuels on 80 acres will reduce the potential of rapid fire spread through these acres and also create an area where a surface fire could be more easily suppressed.

Piling and burning will result in small areas of burnt ground which are expected to recover within 1 year since piles will be burned in the fall after vegetation is thoroughly wet. The impact to mycorrhizae is considered small since the impact area is small enough that mycorrhizal regrowth can take place within a short timeframe (1-5 years) and the impacted area should have no effect on the trees which are left after the thinning. Burning also results in a small impact to air quality. Since the burning is done in the fall when conditions are favorable under Smoke Management Guidelines, the impact is reduced.

Mastication (mulching or grinding) will leave the fine fuels on the ground which will decompose quickly (1-3 years). The fuel arrangement of the biomass remaining after this type of treatment is not conducive to rapid spread or high intensity. If a fire starts in, or enters into, the fuel treatment area, the low intensity would not cause stand level mortality and would be relatively easy to control.

- b. *Right-of-way clearing:* Right-of –way clearing would have the same effect as the road construction since it occurs within the same areas. The area would shift from 2 acres of 40-80 year old forest to 2 acres cleared of vegetation for the life of the timber sale (1 – 4 years). After the completion of logging operations, vegetation will be re-established with native seed. Past right-of-way clearings associated with thinning timber sales within the area have shown natural reforestation of disturbed sites within approximately 2-10 years after the completion of a timber sale.

- c. *Dropping EA units 7Band C:* Effects associated with these units are described in the EA No Action Alternative. There will be no adverse effects to dropping these units because the stands are not ready to thin at this time.
- d. *Shifting of unit boundaries:* Effects would remain the same because:
- The forest types within the units remain the same (DR section 9.0 maps, pp. 19-25).
 - The overall sizes of the Selected Action units are similar to the EA unit (DR Map 2).
 - Connected actions associated with the thinning, road work, timber haul, fuel treatments, will remain the same as with the EA Proposed Action.
 - See DR **section 8.0**, pp. 18-19.
- e. *Deferring clumps and gaps within Riparian LUA.* See DR **section 4.0**, p. 7.

Administrative Review Opportunities

The decision described in this document is a forest management decision and is subject to protest by the public. Consistent with 43 CFR Subpart 5003-Administrative Remedies, the notice of a timber sale, when published as a legal ad in a newspaper of general circulation, shall constitute the decision document for purposes of protest and appeal. Protests of this decision may be made within 15 days of the publication of the House Mountain notice of sale in the *Stayton Mail* newspaper. The notice will be published on July 30, 2008. To protest this decision a person must submit a written protest to Cindy Enstrom, Cascade Field Manager, 1717 Fabry Rd SE, Salem, Oregon 97306 by the close of business (4:00 p.m.) on August 14, 2008. The planned sale date is August 27, 2008

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).

Implementation

If no protest is received within 15 days after publication of the House Mountain Timber Sale Notice, this decision will become final. For additional information, contact Carolyn Sands (503) 315-5973 or Rudy Hefter (503) 375-5671, Cascades Resource Area, Salem BLM, 1717 Fabry Road SE, Salem, Oregon 97306.

Approved by: Cindy Enstrom
Cindy Enstrom
Cascades Resource Area Field Manager

July 29, 2008
Date

8.0 Comparison of the Selected Action with the EA Proposed Action

- The Selected Action implements units 921A,B; 15A,B,C,E; 7A,D; 13A,B,C,D; and 33B,C,H,P,U of the EA proposed action (EA pp. 103). Seventy-one acres were dropped from The Proposed Action by dropping units 7B, C and 15D and by refinement of the remaining unit boundaries during final unit layout. This acreage was recorded with a GPS mapping system.

Canopy closure descriptions of the selected units remain the same as in the EA proposed action.

See DR sections 2.0-4.0, and 7.0, pp. 3-18.

DR Tables 3 and 4 compare the EA Proposed Action and the Selected Action.

Table 3: Crossover Table between EA Units and Selected Action Units

Legal T-R-S	EA Unit #	Selected Action Unit #	Acres				Remarks
			EA Total	Selected Action			
				Total	Matrix	Riparian Reserve	
8S-3E-31	31B	1	88	9	8	1	
	31A	2		49	39	10	
	31D	3		18	6	12	
	31E	4		5	3	2	
8S-3E-33	33B	5	101	8	8	0	New Road 8-3E-33.9
	33C	6		54	43	11	
	33H	7		28	22	6	
	33P	8		13	9	4	New Road 8-3E-33.8
	33U	9		6	4	2	New Road 8-3E-32.5
9S-2E-1	1A	10	55	23	22	1	
	1B	11		25	23	2	
9S-2E-15	15B	12	107	25	21	4	
	15C	13		3	2	1	
	15A	14		19	14	5	New Road 9-2E-15.4
	15E	15		46	42	4	New Road 9-2E-15.5
	9S-3E-7	7D		16	52	7	7
7A		17	32	27		5	
9S-3E-12 & 13	13A	18	189	61	46	15	New Roads 9-3E-13.10 & -13.11
	13D	19		2	2	0	
	13C	20		19	10	9	
		21		7	4	3	
	13B	22		5	3	2	
		23		3	2	1	
		24		54	53	1	Rd. Improvement 9-3E-13.8
Total			592	521	420	101	

¹ Preliminary mapping used for EA analysis by the Interdisciplinary Team (IDT) was based on information available at that time in the GIS data base and initial reconnaissance.

² The Selected Action units are based on final unit boundary layout based on further field reconnaissance. Selected acres have been computed using Global Positioning System surveys of actual treatment boundaries. Matrix acres include the road right-of-way acres for new construction and road improvement.

Table 4: Comparison of the Selected Action with the EA Proposed Action by Action

Action			EA Proposed Action (Snake House Project Area)	House Mountain Selected Action	Implemented by Snake Cr. Thinning T.S.	Total Implemented
Timber Harvest (Acres)	Commercial Thinning	GFMA	594	420	113	533
		Connectivity	48	0	31	31
		Matrix LUA	642	420	144	564
		Riparian Reserve LUA	172	101	53	154
	Density Mgt. in LSR		20	0	0	0
	Road Right of way clearing*		0	2	1	3
	Total Acres of Timber Harvest		834	523	198	721
Logging System (Acres)	Ground-Based - Skidding		619	452	210	662
	Skyline – Uphill, One-end suspension		215	71	0	71
Road Work	Road Access	New road construction (miles)	1.0	0.4	0.3	0.7
		Road Improvement (miles)	0.6	0.1	0.2	0.3
		Maintenance/Renovation (miles)	42.5	19.0	16.9	35.9
	Road Stabilization/Blocking	New road construction (miles)	1.0	0.4	0.3	0.7
		Existing (Number of roads)	One listed.	6	1	7
	Drainage	Culvert Replacement (Number)	Not Addressed	23		
Fuels Tx.	Pile Burning (hand pile and machine pile) or Mastication (Acres)		152	80	98	178

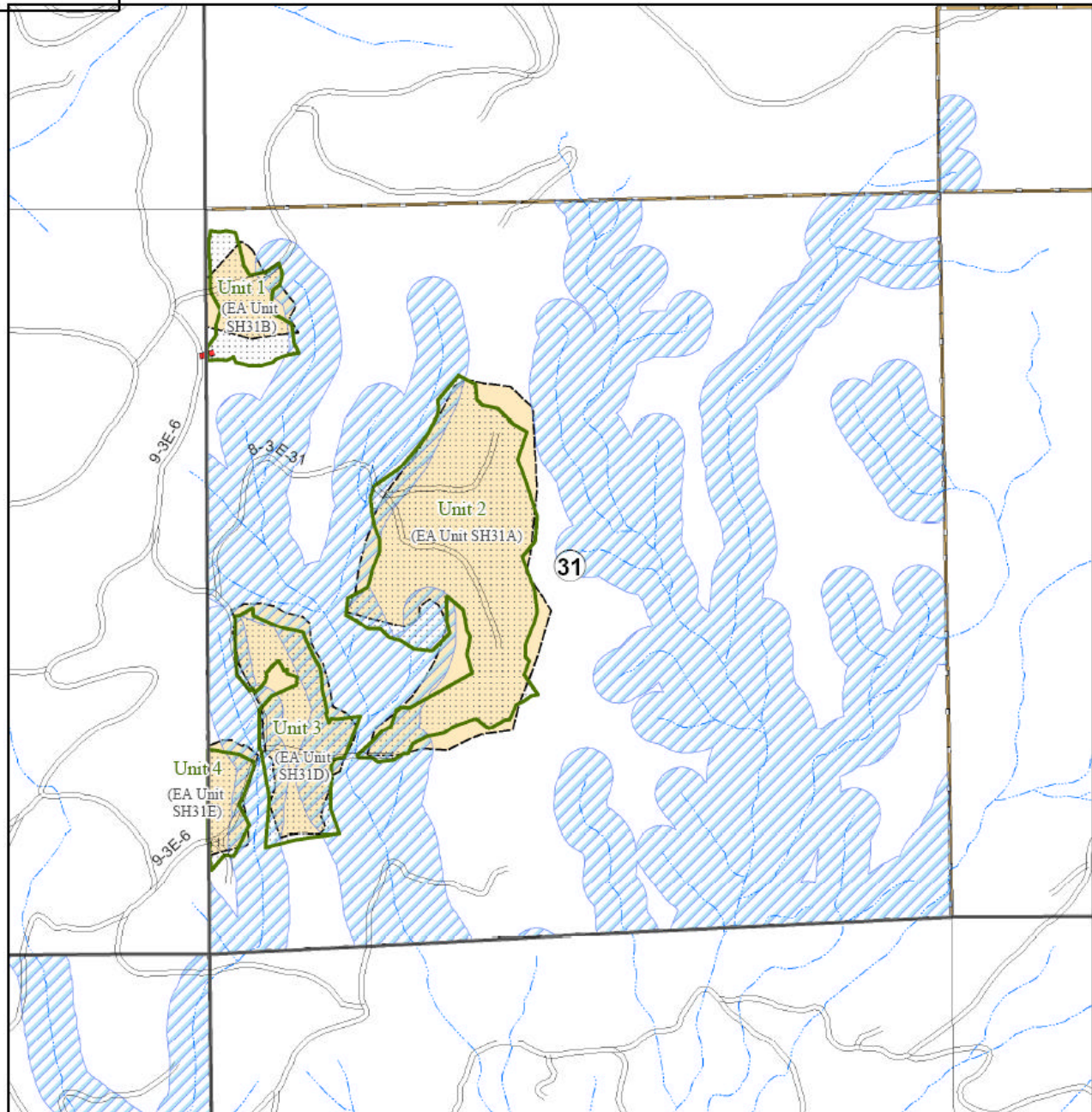
*The right-of-way clearing was not described in the EA. However a right-of-way is timber sale contract standard for all new road construction.

9.0 Maps

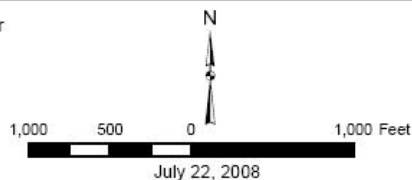
Maps are found on the following 6 pages.

House Mountain Thinning Selected Action

T8S R3E



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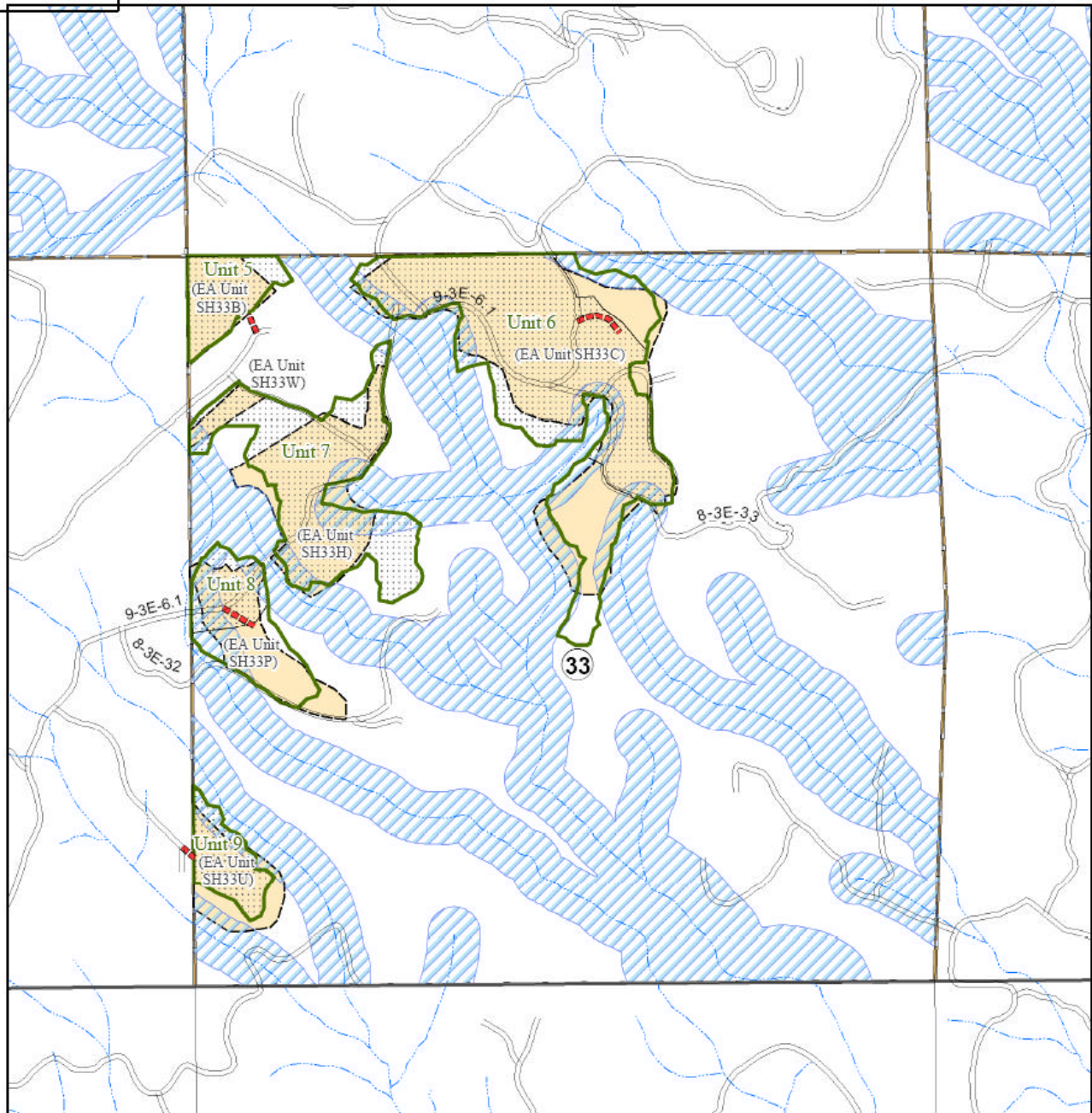


- Selected Action Units
- Ground Based Yarding
- Skyline Yarding
- EA Proposed Action Units
- Fuel Treatment Area
- Right-of-Way, Road to be Constructed
- Existing Road
- ~ Stream
- ~~~~~ Federal Riparian Reserve

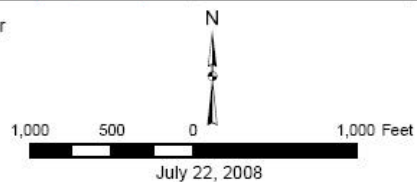
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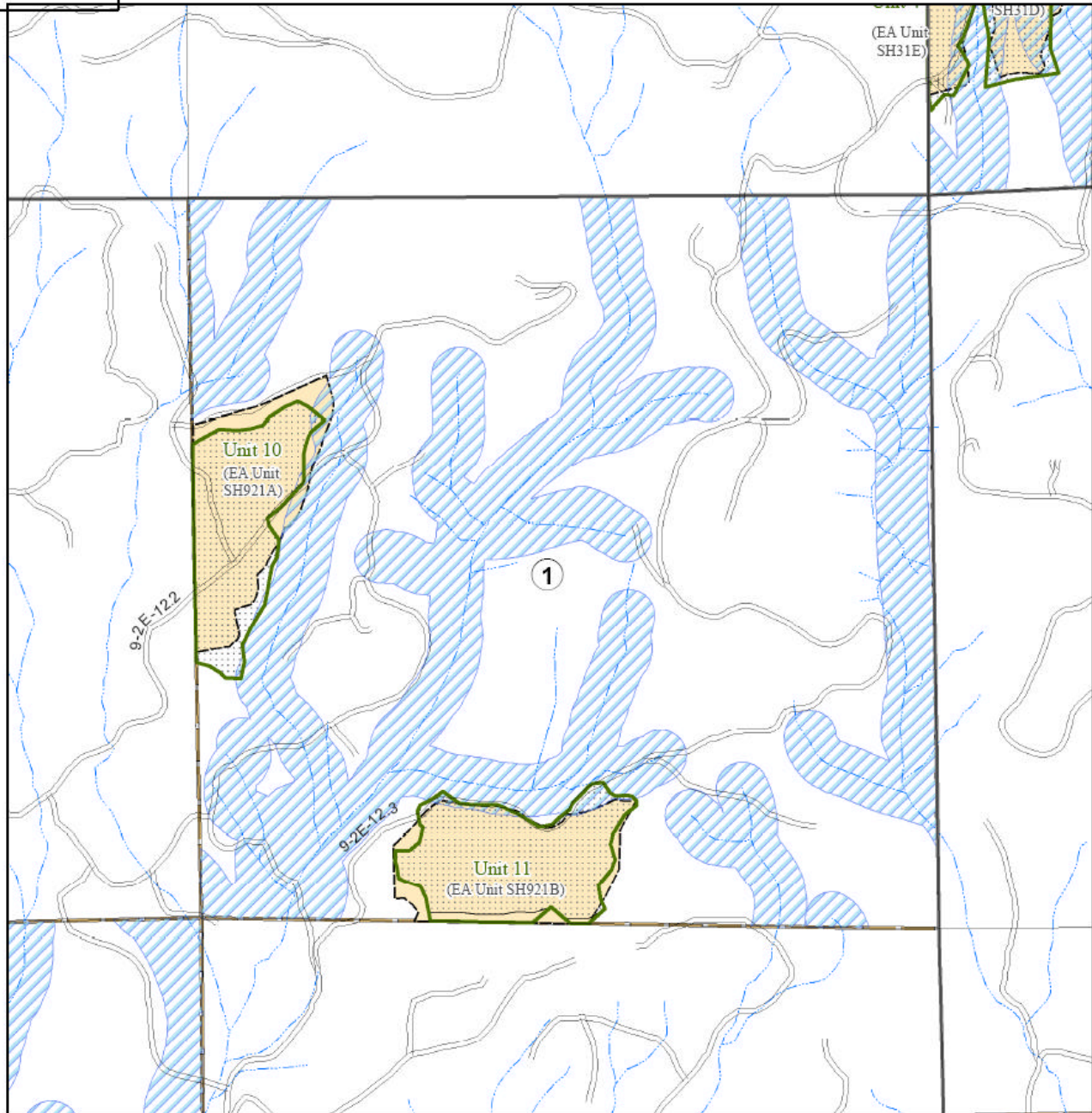


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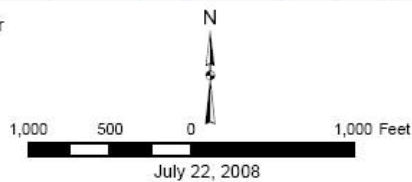
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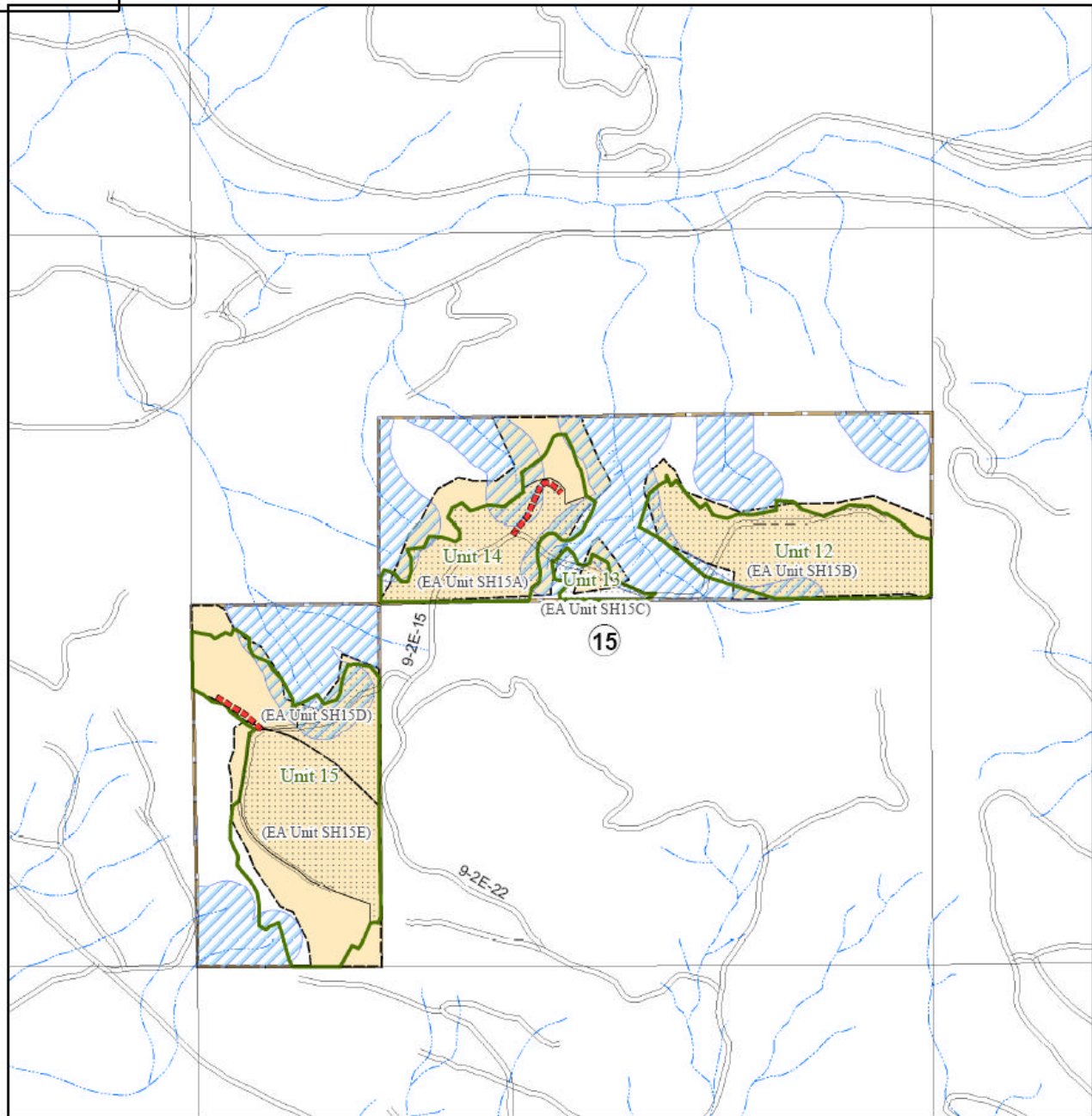


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- Stream
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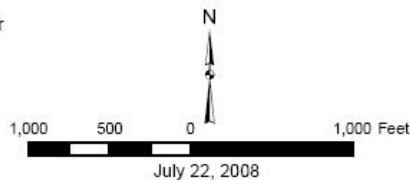
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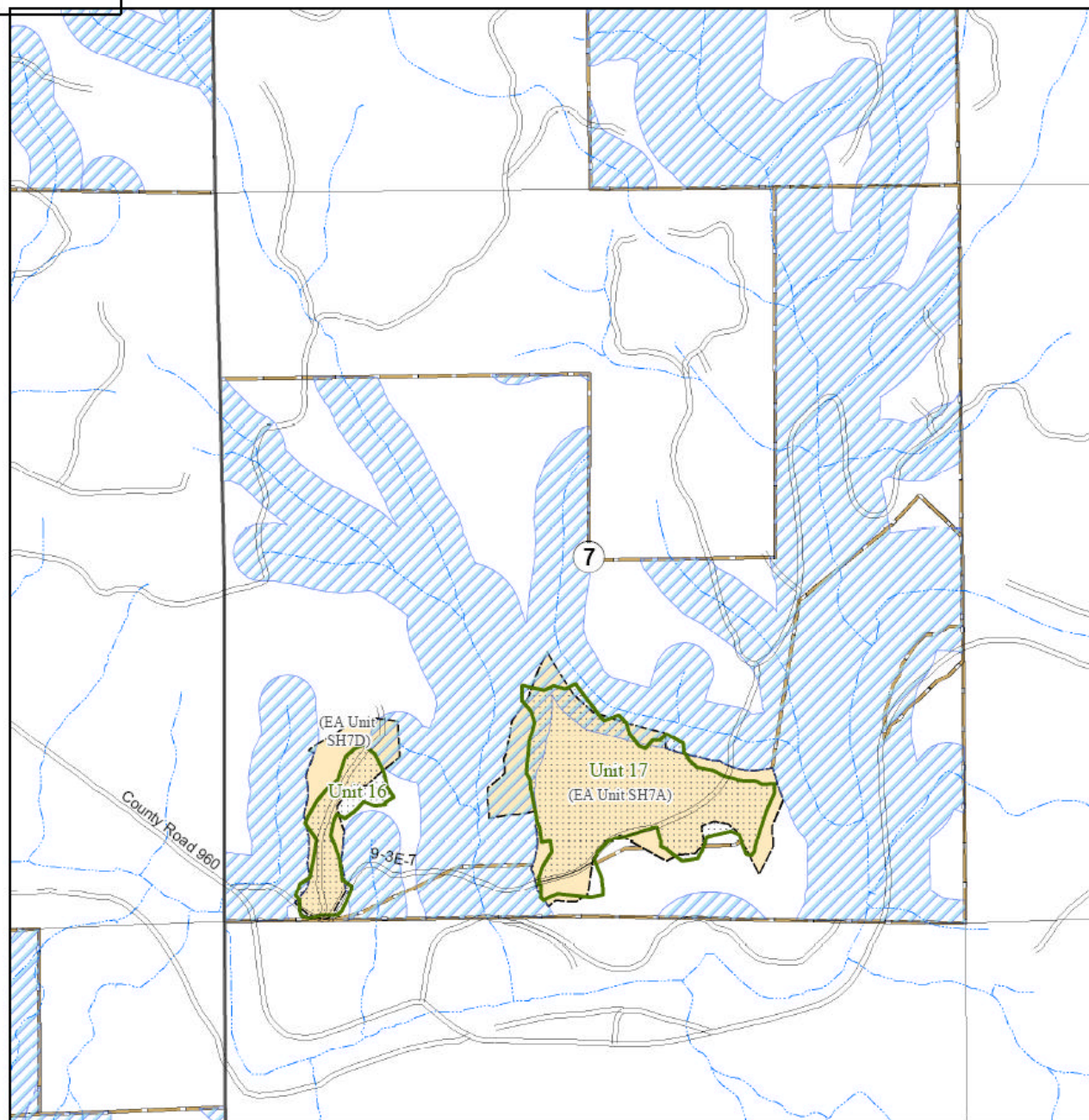


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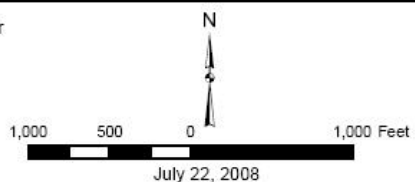
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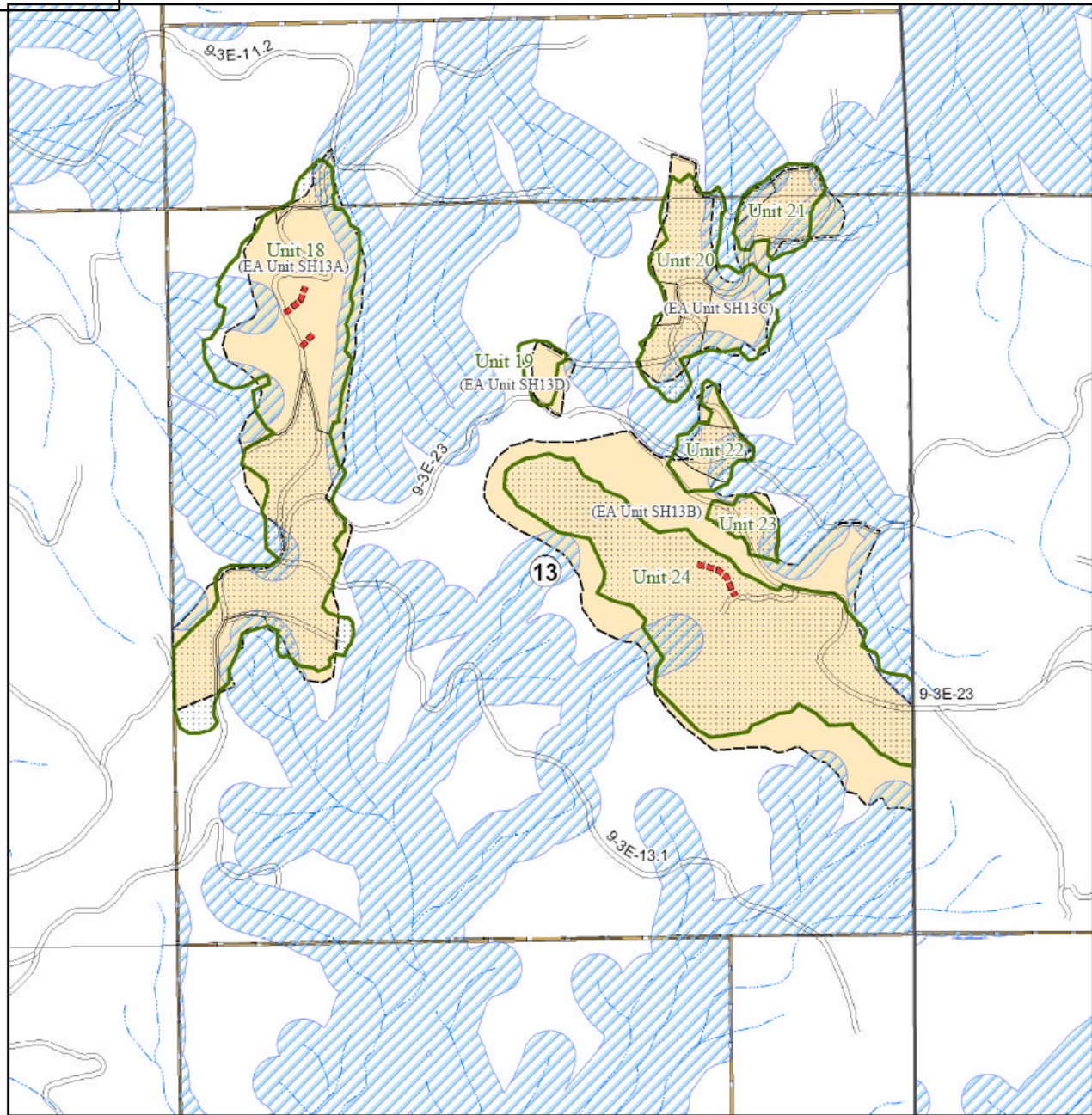


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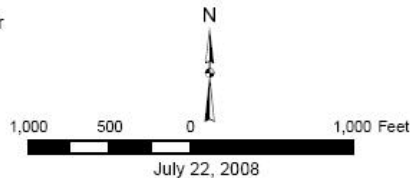
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10.0 Project Design Features

This section describes the project design features that apply to the Selected Action. Where the design feature is identical to the design feature prescribed in the EAs, the EA reference is provided. Project design features for the EA proposed actions and alternatives are described in EA *section 2.2.3*, EA pp. 18-21 and EA *section 8.1.2.1* (EA pp. 92). Design features are organized by resource management objectives.

- 1. Soil Productivity:** Design features described in the EA apply to the Selected Action. Examples include: a) using currently available equipment and practices that limit soil compaction to less than 10 percent of the area and minimize soil disturbance and erosion potential; b) preventing erosion by logging design, practices and post harvest treatment of disturbed areas; c) limiting ground based operations to relatively dry soil conditions; d) limiting new skid trails to slopes less than 35 percent; e) burning piles when soils are wet and less susceptible to heat damage.
- 2. To protect hydrologic functions, aquatic habitat and fisheries:** Design features described in the EA apply to the Selected Action. Examples include: a) maintaining areas of undisturbed vegetation between streams and harvest areas, also known as stream protection zones (SPZ); b) constructing, improving, renovating and stabilizing roads during dry conditions; c) stabilizing, and controlling access to all new roads upon project completion; d) placing erosion control measures on roads left open over the winter; e) restricting hauling to times and road conditions that reduce the risk of sediment entering streams.
- 3. To protect and enhance the residual stand, stand diversity, and wildlife habitat components:** Design features described in the EA apply to the Selected Action. Examples include: a) retaining old growth, snags, minor conifer tree species, hardwoods, and most cull and deformed trees; b) retaining existing CWD intact whenever feasible; c) maintaining minimum canopy closures of 40 percent in Matrix and 50 percent in Riparian Reserve; d) restricting operations during the spring growing season when the bark of retained trees is easily damaged.
- 4. To protect against expansion of invasive and non-native plant species:** Design features described in the EA apply to the Selected Action. Examples include: a) cleaning equipment to prevent importing off-site plants; b) using only native species seed and sterile mulch to stabilize disturbed soil.
- 5. To minimize disturbance to BLM Special Status Species and other Species of Concern:** Seasonal restrictions on operations apply to the Selected Action, EA *section 7.1.2.2.*, p. 83. In addition, the seasonal restrictions to protect soil (see 1, above) and to protect the residual stand (see 3, above) tend to delay operations until later in the season, reducing potential disturbance to undiscovered nesting birds.

Table 5: Seasonal Restrictions to Minimize Disturbance

Species	Restriction	Dates	Units	Remarks
Northern Spotted Owl	Habitat modification activities (falling, yarding, road construction/decommissioning)	Critical nesting period March 1 – July 15	All	May be waived if surveys indicate no NS owl presence within 0.5 mile, standard contract practice.

Species	Restriction	Dates	Units	Remarks
Red-tailed hawk	Same as above.	Nesting season, March 1 – July 31.	12 & 15	May be waived if surveys indicate no RT hawk presence within 0.5 mile, standard contract practice.
Peregrine Falcon	All logging and road work activities.	Nesting season, February 1 – July 15.	1,2,3 & 4	May be waived if surveys indicate no Peregrine falcon presence within 1.0 mile, standard contract practice.

Other: Design features described in the EA apply to the Selected Action. Examples include: shutting down or restricting operations after finding plant or animal populations that require protection.

6. **To reduce fire hazard risk and protect air quality:** Design features described in the EA apply to the Selected Action. Examples include: a) treating activity fuels (woody debris that could contribute to fire spread) adjacent to private property lines; b) burning in compliance with the Oregon State Smoke Management Plan; c) closing or gating roads to reduce fire risk on a site-specific basis. Most of the roads in the Contract Area are currently gated.

Removal of fuels accumulated at landings, such as for biomass fuel for cogeneration plants, was not addressed in the EA but may become feasible by the time operations are done under this contract. Removal of these fuels instead of burning those same piles would achieve the same fire hazard reduction as burning in the wet season, with less smoke production.

7. **To protect cultural resources:** Design features described in the EA apply to the Selected Action. Examples include: shutting down or restricting operations after finding cultural resources that require protection.
8. **Summary of seasonal restrictions and permitted operational periods:** Seasonal restrictions described in the EA (pp. 18-19, 83) apply to the Selected Action. Examples include: a) restricting falling and yarding during the bark slippage period; b) restricting tractor operations to avoid soil damage; c) restricting road construction and renovation to dry conditions as an erosion control measure and to avoid soil damage adjacent to the road.

11.0 Response to EA Comments

The FY 2006 Timber Sale Thinning EA was mailed to agencies, individuals and organizations. Legal notices were placed in the Molalla Pioneer, Stayton Mail and Albany Democrat Herald newspapers, soliciting public input on the actions, from July 20, 2005 to August 19, 2005. One comment letter was received from ONRC addressing the Snakehouse (which includes House Mountain) timber sale project. The major concerns raised in the comments have been consolidated and summarized. The BLM did not find any of the comments to be substantive.

11.1.1 Aquatic Systems, Hydrology, Riparian Reserves, Fisheries

1. *The EA p 14 description of the purpose of riparian reserves fails to account of the need to maintain the current functionality of riparian and aquatic systems. One of your evaluation criteria should be whether any short-term degradation of ACS objectives is off-set by long-term benefits brought about by the proposed action. Some fear thinning will increase the risk of premature landsliding while the trees are still small, and end up delivering fewer and smaller trees than if left unthinned. Others think the increase risk of slides from partial removal is minimal and these are an area where thinning should be targeted. Please discuss this question in the NEPA analysis. (ONRC) The impacts of this (sedimentation, mass wasting, habitat for an array of species, including Special Status Species) were not fully disclosed (in RR treatments). (Bark) Steep slope area(s) should be deferred because they are “potentially unstable” and should be included in the riparian reserve system. (ONRC)*

Response to #1: The EA shows that the proposed action maintains current functionality of riparian and aquatic systems by retaining shade on streams, retaining 50% canopy closure within riparian reserves (EA p.15), maintaining owl dispersal habitat (EA p. 5), retaining a forest environment (photos 1-4, EA p. 28), maintaining water temperatures, physical integrity of the stream channels, stream flows (EA p. 30-31) and avoiding unstable slopes (EA p. 32). Results from previous thinnings have shown an increase in tree diameters because of more spacing as a result of thinning. More space between trees allows the remaining trees more room to grow and results in an overall increase in tree diameters over the next 20 years.

The ACS objectives were examined at the site scale (DR pp. 11-14) and based on that evaluation the level of short term degradation would be off-set by long term benefits brought on by the proposed action because thinning near or adjacent to perennial streams is not expected to have adverse effects on the water quality and aquatic habitat within those streams. All perennial streams have Stream Protection Zones (SPZ) of a minimum of 60' width, generally wider, to ecological or slope breaks. Near-stream ground disturbance will be at such a minor level that the undisturbed vegetation in the SPZ is expected to absorb any sediment generated. Based on the location of the new road proposed for construction, none have the potential to intersect stream channels or cause stream sedimentation.

In addition, *EA Section 14.2.1* discusses that dry season hauling would minimize sediment entering streams. Therefore it is unlikely that this proposal will lead to a measurable change in sediment regime, including increases in sediment delivery to streams, stream turbidity, or the alteration of stream substrate composition or sediment transport regime.

EA section 3.2.2 states that tree removal, and road renovation and construction would not occur on steep unstable slopes where the potential for mass wasting adjacent to stream reaches is high. Therefore, increases in sediment delivery to streams due to mass wasting are unlikely to result from these actions.

2. Design Features: *The agency cannot assume that the implementation of BMPs will sufficiently mitigate any problems that the proposed project will have on aquatic systems...Despite the lengthy praise given to BMPs in the EA, there is no proof of “demonstrated ability” of BMPs to be successful in diminishing harm. (Bark) In order to mitigate potential fire hazards, the EA/FONSI requires that pile burning take place during the wet season only. This stipulation is in direct opposition to BMPs insisting that any sediment-causing activities occur during dry months only. How do you plan to uphold both stipulations simultaneously? (Bark)*

Response to #2: Best management practices (BMPs) applied to timber harvest operations and related forest management activities are the primary means of achieving state water quality standards on forestlands. To review an example, the reader can see the following EPA web site: <http://www.epa.gov/owow/nps/forestrygmt/>. BMPs are continually being evaluated both for implementation and effectiveness by federal and state agencies, researchers and private land owners. There are numerous examples in the scientific literature of studies in which BMPs have been evaluated for effectiveness at controlling non-point pollution; several of these articles were cited in the specialist report to the EAs.

For a recent example of BMP effectiveness at controlling sediment related water quality impacts the reader is directed to Effectiveness of Timber Harvest Practices for Controlling Sediment Related Water Quality Impacts (Rashin et al., Journal of the American Water Resources Association 42(5):1307-1327. “Stream buffers were effective at preventing chronic sediment delivery to streams and physical disturbance of stream channels.” (From the abstract).

Pile burning does not cause sediment. Pile burning may result in exposed soil surfaces. However, exposed soil surfaces following pile burning are unlikely to result in sediment delivery to local streams, even during the rainy season because pile burning takes place after an adequate amount of rain has fallen in order to prevent the fire in the pile from spreading. In our numerous years of burning piles in the Cascades we have not observed any areas where erosion occurred because a pile was burned. There is generally unburned or charred debris (10-20% of the original pile) left on site that helps to contain any movement of ash or soil. More than 85 percent of the acres to be treated are on slopes less than 35 percent.

3. Fish: *Threatened anadromous fish populations must consider the impervious surface areas outside of project units and factor in sedimentation from this surrounding land. Sedimentation from surrounding development must be factored into the effects determination. Until this is accounted for, project activities cannot proceed. (Bark)*

Response to #3: The main impervious surface areas in the vicinity of the House Mountain units, outside of the project units are the roads. Since timber hauling is limited to periods of dry road conditions, road related sediment inputs to streams are expected to be negligible (EA p. 35). Cumulative effects of the project are described in *EA Section 3.2.2.2*. The Selected Action incorporates very little road construction (0.1 mile), all on flat or very gently sloping ground, none with hydrologic connectivity and culvert replacement will take place only in low/no flow seasons.

The 60' stream protection zones on perennial streams and 25' stream protection zones on intermittent streams are expected to prevent any decrease in stream shade that could result in an increase in stream temperature.

The design features for thinning, hauling, road construction/maintenance and culvert replacement will prevent sedimentation that would have more than a negligible effect on fish or fish habitat, and to prevent increases in water temperature or increases in stream turbidity in the Little North Santiam River and North Santiam River (*EA pp. 86-87*). Failure to implement the thinning of riparian stands and culvert replacements would result in the anticipated beneficial effects on aquatic habitat not being realized (*EA p. 87*).

11.1.2 Soil Productivity/ Fuels Treatments

4. Organic soil components: *There are specific problems with the EA/FONSI's total lack of information on organic soil components....*

Response to #4: Organic soil components and soil organisms are included in the effects to soils, *EA section 3.2.4*. *EA Section 3.2.4.2* addresses the cumulative effects of the proposed action on soil. Efforts to minimize any soil disturbance or compaction are outlined in *EA Section 2.2.2*.

5. Ground based yarding: *Machine piling of fuels and pile burning can have serious adverse impacts on soils.*(ONRC)

Response to #5: *EA section 2.2.2* discusses design features to minimize soil productivity loss by ground based logging. Effects to soils are described in *EA section 3.2.4*.

Machine piling that occurs at landing sites will have no effect on soils beyond that of the road and landing itself. Machine piling (one of three potential options for fuel treatment – mastication, hand pile/burn and machine pile/burn) in the units would be done while operating on a slash mat (pile to the sides and behind the machine path) which our experience has shown does not compact dry soils. By burning slash piles during the cool, wet fall weather the amount of heat that is produced is reduced. Mastication (the mechanical grinding or mulching of fuels) is also ground-based but it does not employ heavy equipment and will not mix fuels into the soil. These treatments will not exceed soil compaction or disturbance guidelines that are a part of BMPs.

6. Soil mycorrhizae: *Without a discussion of the impacts to soil mycorrhizae, both Bark and the decision maker are precluded from making an informed decision regarding the proposed project, and the USFS cannot assert that there will be no permanent impairment of the soil. (Bark) The EA/FONSI fails to address how past logging has affected mycorrhizae in areas within the analysis area. (Bark)*

Response to #6: Mycorrhizae is considered a component of soil and is addressed in the EA as soil. Mitigation methods have been taken into account to reduce impact such as compaction and erosion (EA Section 2.2.2). In addition, Mycorrhizal fungi are not listed as a Special Status Species or a Special Attention Species therefore does not require additional survey or management. Impacts would be within the RMP standards of no more than 10 percent compacted area.

11.1.3 Late Seral Habitat, Northern Spotted Owl, Snags and Coarse Woody Debris (CWD)

7. Owl Habitat: *The project will result in 1,882 acres of (northern spotted owl) Dispersal Habitat downgraded, including the loss of 171 acres of NRF suitable habitat, which will no longer support nesting, roosting, and/or foraging behavior. (Bark) All stands that are late Successional old growth; in other words 80 years or older, should be excluded entirely from this project, staying completely out of LSOG stands.*

Response to #7: Timber stands within the House Mountain timber sale are 40-80 years of age with the exception of twenty-five acres in unit 15 which is a 115 year old stand that has previously been thinned. Unit 15 is located in General Forest Management Area (GFMA), and thinning this stand is in compliance with the Salem District RMP. Unit 15 is not located in Critical Habitat and the associated Biological Opinion concluded that this thinning would not jeopardize the continued survival of the spotted owl (p. 95).

8. *New information on the Threatened northern spotted owl indicates that there are significant new uncertainties for the owl that have not been fully considered at the regional or local scale. (ONRC)*

Response to #8: New information on the northern spotted owl has been reviewed. The conclusions of this review are described in DR section 5.0, pp. 8-14.

9. Design Features: *The Proposed Action fails to adhere to conservation stipulations enacted for the protection of the northern spotted owl and therefore should be withdrawn. ..Furthermore, this project very poorly adheres to BMPs concerning spotted owl protection. During the critical nesting period, While there might not be a nest located at the time of the survey, allowing logging and hauling could assure that there would not be nests there in the near future due to disturbance. (Bark) Just because FWS does not require surveys for Threatened spotted owls, NEPA has an independent mandate to become well-informed of the actual consequences of major federal actions. Before deciding to log suitable habitat the agency must conduct protocol surveys for spotted owls and their prey major species. (ONRC) Further, we understand that the agency took advantage of its new authority to reach an effects determination without consulting the US Fish and Wildlife Service.*

Response to #9: The Selected Action follows current management direction with regard to northern spotted owl. A seasonal restriction will be implemented during owl nesting season to further reduce risks of affected potential breeding owls (DR section 10.0, pp. 26-27). BLM did consult with US Fish and Wildlife Service on effects determinations. Consultation for this project is described in DR section 6.0, pp. 14-15.

10. Snags: We agree that large snags (>20" dbh) snags are the most critical to retain, but smaller snags are also ecologically valuable and efforts should be made to protect all snags >10" to the extent possible. The agency must avoid any reduction of existing or future snags and logs (including as part of this project) until the applicable management plans are rewritten to update the snag retention standards. (Bark) Snags should be carefully inventoried by species, size, decay status, quality, and location during project planning, and they should be treated as "special habitats" and given special protection during project planning and implementation (i.e. keep workers out of the vicinity of snags so that OSHA doesn't order them cut). (Bark)

Response to #10: Most wildlife species that utilize snags are associated with snags greater than 14.2 inches, and about a third of these species use snags >29" dbh (Rose et. al., 2001). Table 37 of the EA summarizes the CWD and snags within the project area. Design features common to all project areas would retain existing large snags (>20" dbh) and old growth trees (EA Section 3.2.5.1, pp. 41-44).

Any snags cut or incidentally knocked down, including those snags under 20" dbh, would be left on site as down logs and CWD, which is also valuable wildlife habitat and important for nutrient cycling. In addition, by accelerating the growth of the residual trees left after treatment, larger material would be available sooner (than without thinning) to contribute additional large snags to the future stand. The BLM is not obligated to save all snags. The project meets the standards and guidelines set forth in the RMP. Changing stand retention guidelines is outside the scope of this project.

11.1.4 Other Forest Habitat

11. Microhabitat Drying: The EA/FONSI predicts that microhabitat drying will persist unabated for 10-20 years after thinning, at which time it would only begin to decrease. However, as explained in the EA, future harvest activities may restart as soon as the canopy closes (resulting in more microhabitat drying)...

Response to #11: Some microhabitat drying could occur at the forest floor as canopies are opened-up, however, this would be minimal due to the high green tree retention after thinning (EA p. 43). In all of the units, 60 to 120+ trees per acre would be retained and 40 to 50% canopy closure would remain, which would provide shade.

11.1.5 Other Species of Concern/ Survey and Manage Species

12. The EA claims to protect BLM Special Status plant and animal species and relies upon statutes and regulations listed on page 3, including the 2004 Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines ("2004 SEIS") Now that the survey and manage ROD has been declared illegal by Judge Pechman, the BLM should survey for red tree voles and other survey and manage species at least in all stands older than 80 years old. (ONRC)

Response to #12: The Secretary of Interior removed the Survey & Manage (S&M) Mitigation Measure Standards and Guidelines from the Bureau of Land Management's (BLM) Resource Management Plans in the area of the Northwest Forest Plan on July 25, 2007.

11.1.6 Road Building And Road Renovation

13. *Management should focus on thinning stands that are accessible from existing roads. If young stand thinning requires construction of temporary roads, the agency should do an analysis that illuminates how many acres of thinning are reached by each road segment so that we can distinguish between short segments of spur that allow access to large areas (big benefit, small cost) and long spurs that access small areas (small benefit, big cost). This can help inform the decision-maker's balancing of the costs and benefits of thinning and roading. (ONRC) The agency assumes that temporary and semi-permanent new roads will have no effect because they are temporary. The agency has shown no scientific evidence for this assumption...The NEPA analysis must account for this (described in text) increased risk of temporary roads compared to permanent roads. (ONRC)...Temporary roads still cause serious adverse impacts to soil, water and wildlife, and spread weeds...Decommissioning such roads is not entirely successful and the soil compaction effects can last for decades.....The agency should consider avoiding building spurs by treating some areas non-commercially (e.g. thin lightly, create lots of snags, and leave the material on site). (ONRC) The NEPA analysis must address the significant cumulative watershed effects caused by past, present and foreseeable future road construction. (ONRC)*

Response to #13: EA Section 2.2.1 and 2.2.2 and DR pp. 4-5 discuss road work associated with this project. Effects associated with new road construction are described in the EA pp. 30-33, 95. Under the Selected Action approximately 19 miles of road would be renovated / maintained with less than a mile (0.1) of new natural surface road construction and 0.1 mile of improvement of a natural surface road taking place. The temporary roads in the Selected Action are on ridge tops and upper slopes with no hydrologic connections. Project design features such as constructing roads in dry seasons, decommissioning roads, re-seeding, and use of erosion mats to stabilize soil will reduce the risk of effects to soil and aquatic systems. With regard to invasive species, all ground disturbing machines are required to be cleaned so as not to spread off site soil, plant parts and seeds (EA p. 19). Since the road system is behind locked gates that will further reduce the potential for spreading invasive species. EA Section 3.2.2.2 addresses cumulative effects common to all project areas. Within this section new road construction and existing road use are reviewed for possible cumulative effects specifically pertaining to watershed hydrology, and water quality.

11.1.7 Other Comments regarding Fuels Treatments

14. *Paired with intense recreational use, increased likelihood of unauthorized access to roads, and human presence--the most common source of fire starts-- and this project will result in a more hazardous, not less hazardous, fire situation across the landscape. (Bark)*

Response to #14: House Mountain is not an intense recreational use area because it is

behind locked gates. Lack of access limits the probability of human fire starts, therefore there is no evidence that this project would result in a more hazardous fire situation.

The primary purpose of a fuel treatment is not to stop fires, but to change the behavior of a fire entering a fuel-altered zone, thus lessening the impact of that fire to an area of concern. This change in fire behavior is often quantified as a reduction in flame length, intensity, or rate-of-spread, and manifested as a change in severity or growth of the fire. This is achieved by fragmenting the fuel complex and repeatedly disrupting or locally blocking fire growth, thus increasing the likelihood that suppression will be effective or weather conditions will change. (Stratton, 2004)

11.1.8 Cumulative Effects Analysis

15. *The EA does not actually analyze the cumulative impacts of this project and other past, current, and foreseeable future projects, including timber sales, livestock grazing, herbicide use, mining projects, off-road vehicle use, and other recreation and management activities on the watershed (Bark). In order for the finding of no significant impact to meet the fifth stipulation listed in the EA/FONSI, future anticipated thinning projects must be factored in the cumulative effects determination. (Bark)*
The EA fails to disclose the watershed consequences at all spatial scales, as necessary for informed decision-making and as required by NEPA. Adequate cumulative effects analysis cannot be achieved with so many projects spanning such a wide range in various conditions. (Proctor)

Response to #15: The Interdisciplinary Team (IDT) evaluated the project areas in context of past, present and reasonably foreseeable actions [40 CFR 1508.27(b) (7)] (EA p. 4). Cumulative effects to resources are addressed on pages 4-5, 22-25, 33-35, 39, 44, 49, 117, 119 of the EA.

11.1.9 Invasive Weeds

16. *This EA provides very little in the way of mitigation, requiring only “Ground disturbing equipment would be cleaned as needed to be free of off-site soil, plant parts and seed (e.g. noxious weeds) prior to entering the project area” (EA, 19). (Bark)*

Response to #16: BLM in the Cascades Resource Area has not experienced any substantial increase in non-native invasive plant species (weeds) following commercial thinning treatments or road construction. Native forested stands such as those being proposed for treatment keep the existing weed species on the site at manageable levels that do not have a negative impact on the area’s productivity. No loss of site productivity has been identified in the project area. BLM is concerned about the introduction of invasive weed species that are currently not found in the project area that could negatively affect site productivity. The current risk of additional invasive weed species is low because gated road systems limit vehicular access, a primary source of weed introduction. Limited access due to the road system being behind locked gates, requiring ground disturbing equipment to be cleaned, and planting sites disturbed by timber sale activities (e.g. landings, skid trails) are effective ways to prevent the spread of invaders from one area to another.

11.1.10 Mitigation Measures

17. *Where an environmental assessment relies on mitigation measures to reach a finding of no significant impact, that mitigation must be assured to occur and must “completely compensate for any possible adverse environmental impacts.” Cabinet Mountains Wilderness/Scotchman's Peak Grizzly Bears v. Peterson , 685 F.2d 678, 682 (D.C. Cir. 1982). Until the BLM is able to substantiate its proposed mitigation measures – i.e., that they are appropriate, will be implemented, and will be effective – the agency must withdraw the proposed project.*

Response to #17: For this project, mitigation measures are not being applied after significant effects have been determined. Instead, the project has been designed to meet the standards and guidelines of the Resource Management Plan. These standards and guidelines are designed to reduce the risk of effect to resources. The project design features incorporated into the development of this project tie directly to the RMP standards and guidelines and the results of ESA consultation (e.g BMPs, seasonal restrictions).

11.1.11 Multi-project EA

18. *This practice of large-scale NEPA analyses should be reserved for truly non-controversial projects, such as those in which focus exclusively on stands younger than 80 years old, minimal road construction, and using variable density thinning prescriptions. Since this project includes some controversial aspects, we are not highly supportive of the merged analysis in this case. (ONRC) Although the proposed actions may be similar for each of the 4 projects, their geographic range precludes the likelihood of similar environmental impacts. (Bark)*

Response to #18: All aspects of the proposal are consistent with an existing EIS (the Salem RMP). With regard to effects to aquatic systems, there is no physical mechanism for the proposed action in one watershed to translate across a topographic divide and directly affect a channel in a separate watershed EA p. 30). Though the EA analysis covers four project areas scattered over a large area, any decision for individual project areas is independent of the others. The House Mountain project would thin stands from 40-80 years old plus one stand (25 acre part of unit 15) which is 115 years old (120 year age class)(DR pp. 5 and 8).