



United States
Department of
Agriculture

Forest
Service

September 2008



Environmental Assessment

Traverse Creek Thin Project

Middle Fork Ranger District, Willamette National Forest
Lane County, Oregon



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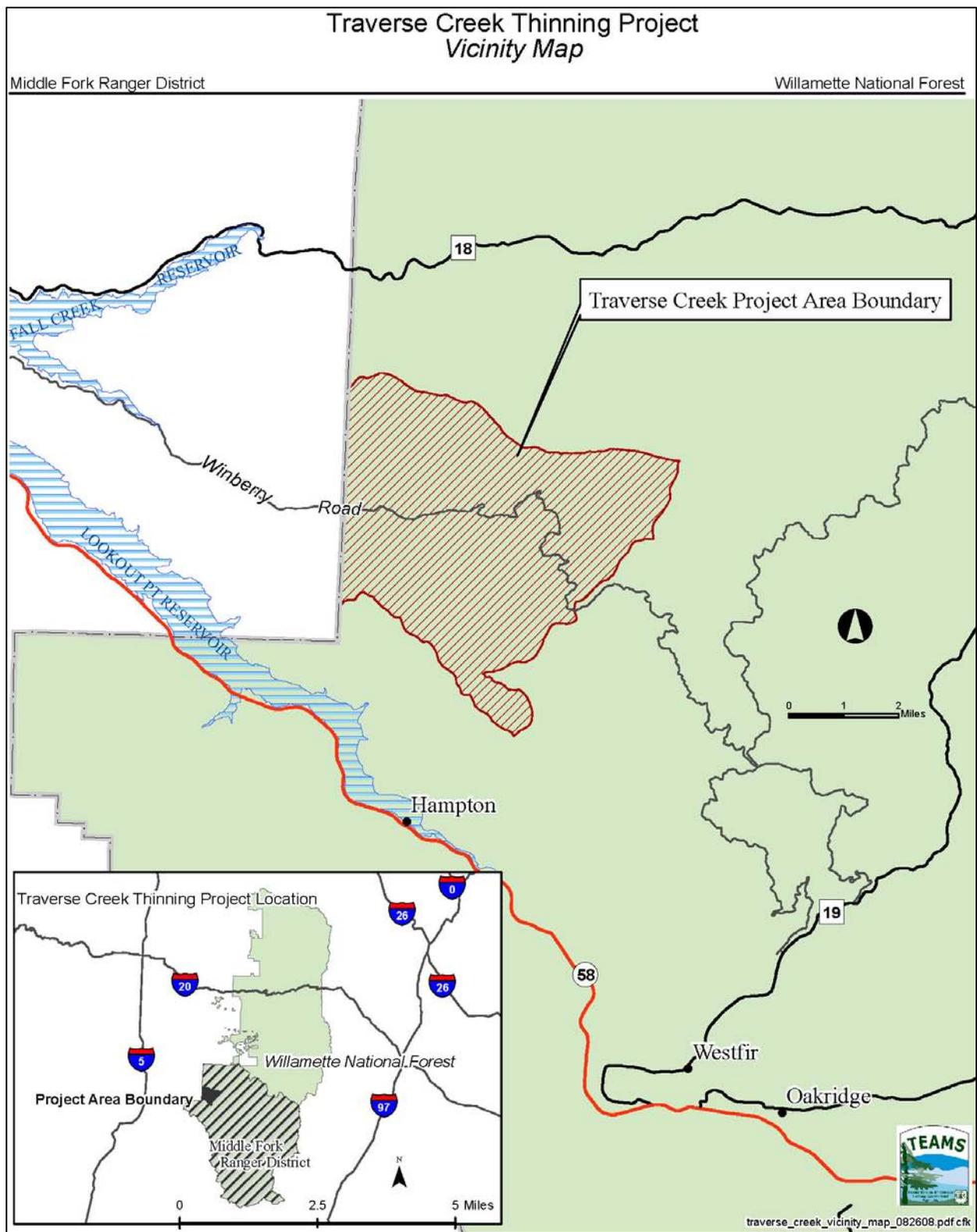


Figure 1. Vicinity map showing location of the Traverse Creek Thin project area

Chapter 1 – Purpose and Need

Document Structure

The Forest Service has prepared this environmental assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This environmental assessment (EA) discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into the following sections:

Chapter 1 – Purpose and Need: The chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency’s proposal for achieving that purpose and need. This chapter also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2 - Alternatives, including the Proposed Action: This chapter provides a more detailed description of the agency’s proposed action as well as alternative methods for achieving the stated purpose. The alternatives were developed based on significant issues raised by the interdisciplinary team, from public comments, or from consultation with other agencies. This chapter also includes a listing of possible mitigation measures associated with the alternatives. Finally, this chapter provides a summary table of the environmental consequences associated with each alternative.

Chapter 3 - Environmental Consequences: This chapter describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each resource area, the current condition of the resource is described first, followed by the effects of each alternative.

Consultation and Coordination: This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

Appendices: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Middle Fork Ranger District Office in Westfir, Oregon.

Background

The planning process for the Traverse Creek Thin Project was started in 2007. The project is located in the Winberry Creek watershed. Winberry Creek is a tributary to Fall Creek, in the Middle Fork Willamette River subbasin (Figure 1). The Traverse Creek Thin Project planning area encompasses the Brush, North Winberry, Monterica, and Lower South Fork Creek subdrainages approximately 10 miles east of Lowell, Oregon. The legal description of the area is T. 19 S., R. 2 E., Sections 16-36, of the Willamette Meridian.

Purpose and Need for Action

The purpose of this project is to commercially thin, young timber stands in the Winberry Creek drainage. The majority of project area (12,088 acres of the total 14,000 acres) is designated as Management Area 14A - General Forest and Matrix in the Willamette National Forest Land and Resource Management Plan (LRMP; USDA Forest Service 1990) as amended by the Record of Decision for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (Northwest Forest Plan; USDA Forest Service and USDI Bureau of Land Management 1994b). The timber stands located within these land allocations have the objective to produce a sustainable yield of timber based on the growth potential of the land that is compatible with multiple-use objectives and meets the environmental requirements for soil, water, air and wildlife habitat quality. Matrix is where most of the scheduled timber harvest that's contributing to the probable sale quantity is conducted on suitable forest lands. The desired future condition is to maintain the growth and health of these stands, which provides prevention and protection against insects, diseases, and wildfires. Commercial thinning is one of the proposed stand treatments in the LRMP used to accomplish these objectives. Commercial thinning is scheduled to control stocking levels, when stand diameter and basal area make it economically feasible (MA-14a-13). Commercial thinning would also diversify the species composition and stand structure, while providing for an intermediate harvest of merchantable size trees for commercial timber products.

There is a need to provide for or accelerate the development of various stand structures or components such as ground vegetation, secondary canopies, large complex crowns, and/or appropriately large sources of dead and/or down tree habitat in order to fully accomplish the Northwest Forest Plan objectives for Matrix and Riparian Reserve lands (pages B-5, 6 and 9). Such diversification of these habitats would serve to maintain and enhance populations of animals and plants that require multi-storied conifer stands and coarse woody material.

Recent research (Carey et al. 1999, Tappeiner et al. 1997) has identified the need for silvicultural treatments in these stand-types to accelerate the development of late-successional forest characteristics. Although located within the Matrix Lands of the Northwest Forest Plan, carrying out these types of treatments here would increase future management options on the landscape level. Desired conditions for late-successional forest characteristics include the development of large trees, multi-storied canopies, horizontal patchiness, and species diversification. The existing conditions of these stands are a result of previous intensive timber management regimes. The stocking levels and structure of these stands exhibit symptoms that could delay the development of late-successional forest characteristics. Thinning treatments could ensure the health and improve the growth of these stands, diversify the stand structure, and accelerate their development of late-successional forest characteristics.

There is also a need to reduce open-road density, which is high in the planning area. Closure of roads would reduce disturbance to big game and decrease open road density to within LRMP standards and guideline levels. According to the big game habitat effectiveness analysis contained in the Winberry and Lower Fall Creek Watershed Analysis (USDA Forest Service and USDI Bureau of Land Management 1996), the three big game emphasis areas in the project area have road density values above the maximum densities specified in the LRMP. Reduction of the road system in this area is recommended in both the Forest Roads Analysis Report (USDA Forest Service 2003) and the Middle Fork Ranger District Supplemental Road Analysis (USDA Forest Service 2004). The closure of roads would provide the opportunity to store the roads in a

hydrologically stable condition. The reconstruction and maintenance of roads would provide an opportunity to repair ditches and cutslopes failures along roads that may be contributing sediment into the streams, and replace culverts that are migration barriers for aquatic species.

There is also a need to improve and increase the amount of big game foraging habitat. The watershed analysis is over 10 years old (USDA Forest Service and USDI Bureau of Land Management 1996) and forage levels in these three big game emphasis areas are close to falling below standard and guideline levels. There is an opportunity to improve big game habitat effectiveness in this planning area by coordinating forage improvement projects with the commercial thinning and road closures.

Proposed Action

The Middle Fork Ranger District proposes to commercially thin 35- to 60-year-old timber stands in the lower Winberry Creek area. The timber sales are planned to be sold over a period of about 3 to 5 years starting in 2009. The following activities would take place:

- Commercial, variable density thinning of about 2,564 acres of second growth timber stands yielding about 40 million board feet of timber products
- Fuel treatment of about 2,450 acres by whole-tree yarding and grapple piling and burning along some roads.
- Maintenance of roads to access units and improve water quality
- Construction of temporary roads to access units or utilizing the roadbed locations of temporary roads from previous entries
- Closure of roads after the timber sales to reduce open-road density and improve big game habitat quality and water quality
- Harvesting includes dominant-tree-release gap openings up to 1 acre to improve big game foraging values

Decision Framework

The responsible official for this proposal is the district ranger of the Middle Fork Ranger District, Willamette National Forest. After completion of the EA, there will be a 30-day public comment period. Based on the response to this EA and the analysis disclosed in the EA, the responsible official will make a decision and document it in a Decision Notice. The responsible official can decide to:

- Select the proposed action, or
- Select an action alternative that has been considered in detail, or
- Modify an action alternative, or
- Select the no-action alternative

The scope of the project and the decisions to be made are limited to whether these stands need to be commercially thinned, what type of log-yarding system would be used to remove the trees, which roads need to be maintained or reconstructed to access the treatment units, which roads would be closed after the project, how to manage post-harvest fuel loading, how to restore or mitigate detrimental soil conditions, what mitigation measures would be necessary to reduce adverse effects of the project, the list of prioritized other resource projects that would be funded, and what to monitor during and after implementation of the Traverse Creek Thin Project.

Planning and Management Direction

Development of this EA follows implementing regulations of the Forest and Rangeland Renewable Resources Planning Act of 1974; Title 36, Code of Federal Regulations, Part 219 (36 CFR 219); Council of Environmental Quality, Title 40; CFR, Parts 1500-1508, National Environmental Policy Act (NEPA).

Many federal and state laws, including the National Forest Management Act (NFMA), Endangered Species Act, Clean Air Act, Clean Water Act, and National Historic Preservation Act of 1966 also guide this analysis along with executive orders and federal regulations.

A summary of how this project and the design of alternatives comply with laws, orders and regulations can be found in Appendix A.

Willamette National Forest Land and Resources Management Plan (LRMP)

The project implements the direction of the LRMP as amended by the Northwest Forest Plan. Northwest Forest Plan land allocations amended the LRMP management areas in 1994. The Northwest Forest Plan supersedes any direction in the LRMP, unless the LRMP management area and or standards and guidelines are more restrictive.

Management goals and objectives, descriptions of each area, and applicable standards and guidelines can be found in the LRMP, Chapter IV, and the Northwest Forest Plan, Attachment A to the Record of Decision. Figure 2 displays the location of the management areas and Table 1 presents acreages and percentages of the management areas within the project area. Proposed activities would occur in the General Forest and Riparian Reserves management areas.

Table 1. Acres and percent of Willamette LRMP management areas within the project area

Management Areas	Management Area Code	Acres	Percent of Project Area
General Forest	14A	12,088	86
Late successional reserve-100-acre	16B	677	5
Wildlife habitat-pileated woodpecker	9B	332	2
Wildlife habitat-marten	9C	199	2
Wildlife habitat-special areas	9D	722	5
Developed recreation – F.S. site	12A	19	-
Totals		14,037	100

The project area is allocated to six management areas (Figure 2). The dominant allocation is General Forest, which makes up a majority of the project area. There are also some smaller inclusions of management areas throughout the project area such as three Wildlife Habitat allocations for pileated woodpecker, martens and special areas; and 100-acre Late Successional Reserves.

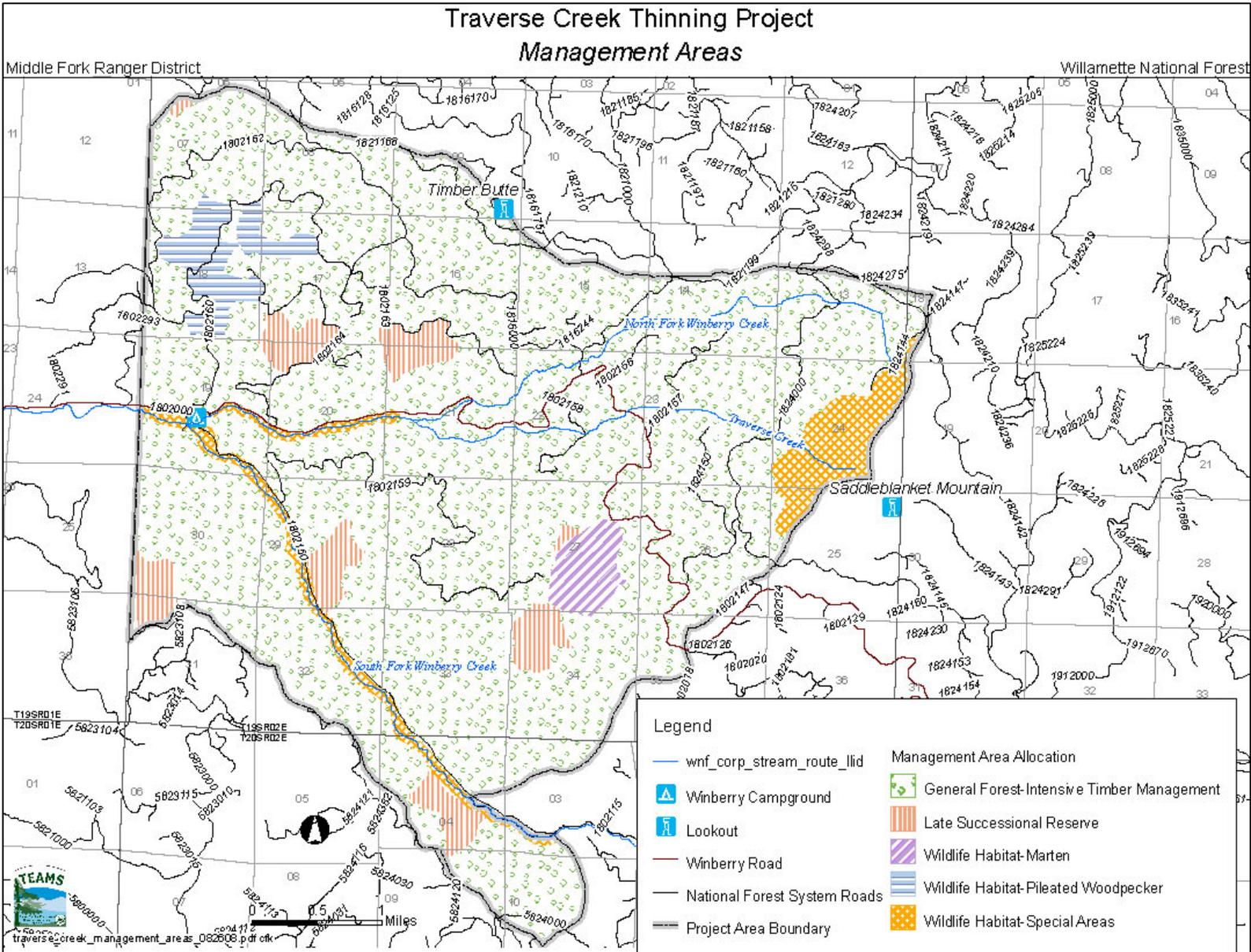


Figure 2. Map of LRMP management areas for Traverse Creek Thin project area

General Forest (Management Area - 14A)

The General Forest designation has the primary objective of producing an optimum and sustainable yield of timber based on the growth potential of the land that is compatible with multiple-use objectives and meets environmental requirements of all resources (USDA Forest Service 1990, pp. IV 227-230). The General Forest management area makes up about 2,190 acres, or 85 percent of the total project area. The other management area standards and guidelines that relate directly to the purpose and need for the proposed action include:

MA-14a-13 – Commercial stocking level control, based on DBH and basal area, should begin when economically feasible. The first entry could be delayed until the average stand diameter is about 12 inches. It is recommended that a 20-year interval be planned between thinning. Generally, scheduling will be predicated on two commercial thinnings in the Douglas-fir-Hemlock and Douglas-fir-True Fir strata. The scheduled thinning and stocking levels specified will be based upon site-specific data obtained by appropriate stand examination procedures.

MA-9D - This management area is to protect or enhance unique wildlife habitats and botanical sites that are important components of healthy, biologically diverse ecosystems. They include special or unique wildlife and botanical resources such as dry meadows, cliffs, caves, talus, mineral springs, wet meadows, marshes, and bogs. The project encompasses 722 acres of MA-9D, or 3 percent of the total project area. The following management area standard and guideline relates directly to the purpose and need for the proposed action, which includes improving biodiversity and future wildlife habitat:

MA-9d-09 - Vegetative treatments, including commercial harvests, should be permitted if necessary to meet established wildlife objectives. Specific MAs for wildlife include Northern Spotted Owl Habitat Area (MA-9a), Pileated Woodpecker Habitat Area (MA-9b), Marten Habitat Area (MA-9c), Special Habitat Area (MA-9d), and Riparian Areas (MA-15). Sustained timber production is not a management area objective.

MA-12a - Direction is to provide a range of recreation opportunities dependent on developed facilities. Winberry Campground, Saddleblanket Lookout, and Timber Butte Cabin are within the project area. A number of trails are in or near the project area.

Eight standards and guidelines address water quality in management areas other than riparian; 41 for MA 15 (riparian); and 8 specific to water quality.

LRMP Standards and Guidelines

LRMP Forestwide (FW) standards and guidelines can be found on pages IV-73 to IV-80 and General Forest management area standards and guidelines on pages IV-227 to IV-230. The following standards and guidelines are the most pertinent to the proposed action:

- FW-181: Regulated timber harvest shall occur only on suitable lands for timber production and NFMA Section 6 (g) (2) (A))
- FW-182: Timber should not be harvested until it has reached or surpassed 95 percent of culmination of mean annual increment (CMAI) in cubic feet. (Exception made for commercial thinning and to meet other resource objectives)
- FW-192: Prior to removal of woody plants to increase growth of timber crop trees, a prescription shall be developed that ensures no native species should be eliminated from the site.

Standards and guidelines for wildlife are presented at the Forest level (LRMP, FW-121 to FW-174) or management area level.

Twenty-eight separate standards and guidelines including Federal and State statute and regional guidelines address road construction and maintenance, streamside protection, and management of mass movement. There is also a Forestwide standard to address watershed enhancement.

Soil and water quality standard and guidelines are found in FW-079 to FW-114.

Standards and guidelines for the identification and protection of cultural and historically significant resources include FW-263 to FW-274. The management process described in these forestwide standards includes the formal consultation process with Oregon State Historic Preservation Officer (SHPO), and as necessary, the Advisory Council on Historic Preservation (ACHP) (FW-267).

Tiered Documents and Local Assessments

Willamette Land and Resource Management Plan as Amended

This EA is tiered to the *Final Environmental Impact Statement (FEIS) for the Land and Resource Management Plan –Willamette National Forest* (USDA Forest Service 1990a) and the *Final Supplemental Environmental Impact Statement on the Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl* (also known as the “Northwest Forest Plan”; USDA and USDI 1994). Also incorporated by reference are the *Willamette National Forest Land and Resource Management Plan* (LRMP; USDA Forest Service 1990) as amended by the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl* and *Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl* (USDA Forest Service 1994). The Willamette LRMP as amended provides a forest-level strategy for managing land and resources and the Northwest Forest Plan provides a regional strategy for management of old-growth and late-successional forest ecosystems on federal lands. The plans provide direction, land allocations or management areas, and standards and guidelines for the management of National Forest lands within the project area.

Soil Laws and Regulations

36 C.F.R. 219.14(a) directs the Forest Service to classify lands under their jurisdiction as not suited for timber production if they fall into any of four categories 1) Non-forest, 2) Irreversible soil or watershed damage (from NFMA 6(g)(3)(E)(i), 3) No assurance of reforestation within five years, and 4) Legislatively or administratively withdrawn.

Executive Orders

Executive Order 11988 requires government agencies to take actions that reduce the risk of loss due to floods, to minimize the impact of floods on human health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

Executive Order 11990 requires government agencies to take actions that minimize destruction, loss, or degradation of wetlands. Streamside Riparian Reserves, seeps and other wet habitats are assessed too.

Forest Service Policy

The Forest Service Manual (FSM) directs the agency to “*identify and prescribe measures to prevent adverse modifications or destruction of critical habitat and other habitats essential for the conservation of endangered, threatened, and proposed species*” (FSM 2670.31 (6)). The Forest Service Manual also directs the Regional Forester to identify sensitive species for each National Forest where species viability may be a concern. Under FSM 2670.32, the manual gives direction to analyze, if impacts cannot be avoided, the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole.

Forest Service Manual 2670 directs the agency to ensure the viability of sensitive botanical species and to preclude actions that would contribute to the federal listing of a species. To ensure compliance with this direction, a biological evaluation is required for forest management activities that may alter habitat for proposed, endangered, threatened, or sensitive species (FSM 2671.44) in order to determine the possible effects of the proposed activities on these species.

Forest Service Manual R-6 Supplement No. 2500.98-1 (Title 2520 – Watershed Protection and Management; USDA Forest Service 1998) clarifies direction for planning and implementing activities in areas where soil quality standards are exceeded from prior activities; redefines soil displacement; provides guidance for managing soil organic matter and moisture regimes.

Other Direction

Additional management direction is provided for the conservation of migratory landbirds. This direction is consolidated in the Forest Service Landbird Strategic Plan and further developed through the Partners in Flight Program.

Management objectives for deer and elk habitat apply to specific mapped “Big Game Emphasis Areas” (BGEA) within the Willamette National Forest. Effects to these species will be discussed.

The LRMP has a provision; “*special wildlife and plant habitats not currently identified in non-harvest management areas shall be maintained. This should include the ecotone and a buffered area sufficient to maintain the microclimate of the site*”. The Willamette National Forest Special Habitat Management Guide (Dimling and McCain 1992) outlines habitat types and their importance to wildlife species, describes how to map habitats, and provides a methodology to delineate the buffer to maintain microclimate.

The Pacific Northwest Region entered into an agreement with the State of Oregon adopting “General Water Quality Best Management Practices” (BMPs) in November 1988. These BMPs were integrated into the LRMP as management direction. Specific information on how to correctly integrate BMPs into the NEPA process is found in Appendix H of the LRMP FEIS. Best management practices are practices or combinations of practices determined by the State after problem assessment, examination of alternative practices and appropriate public participation, to be the most effective, practicable means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals (Federal Register, Volume 40, No.230 dated 11/28/75).

The Willamette National Forest Integrated Weed Management Environmental Assessment (USDA Forest Service 2007) amended the LRMP and tiers to the Region 6 Final Environmental Impact Statement for Preventing and Managing Invasive Plants (R6 FEIS and ROD; USDA Forest Service 2005a and 2005b). The Willamette Integrated Weed Management program goals are to

contain established infestations and to eradicate new invader infestation a 753 weed sites on 9,700 acres on the Forest.

Other Management Information

The Interagency Winberry and Lower Fall Creek Watershed Analysis (1996) is incorporated by reference. The analysis will provide site-specific information that will help prepare prescriptions that will move the area toward the desired future condition.

The Willamette National Forest Road Analysis Report (USDA Forest Service 2003) and the Middle Fork Ranger District Supplemental Road Analysis (USDA Forest Service 2004) is incorporated by reference. The forest road analysis provides the responsible official with information needed to identify and manage a minimum road system that is safe and responsive to public needs and desires, is affordable and efficient, has minimal adverse effects on ecological processes and ecological health, diversity, and productivity of the land, and is in balance with available funding for needed management actions. The District road analysis evaluated each individual road segment on the District with criteria relating to terrestrial, aquatic, administrative, and public use factors. Based on the rating system, road closure recommendations for the District's transportation system were made. Copies of these documents are available at the Middle Fork Ranger District office in Westfir, Oregon.

Public Involvement

Public scoping was conducted by mailing a letter to 15 organizations, 5 individuals, and four Tribes, all of whom have shown interest in Middle Fork District projects in the past. The letter explained the purpose and need for the project, provided a vicinity map of the project area, and solicited comments on the proposed action. The primary comment period was July 30 to September 1, 2007. Two comment letters were received resulting from this mailing. Follow-up letters dated January 2, 2008 specifically designed to seek Tribal input were sent to the four Tribes.

The Traverse Creek Thin Project has been discussed during the 2008 Program Review with the Confederated Tribes of the Grand Ronde and Siletz. No comments have been received specific to the Traverse Creek Thin Project.

The Traverse Creek Thin Project was listed in the Willamette National Forest's Schedule of Proposed Action (SOPA) starting in the Summer Quarter of 2007. The SOPA is mailed out to a Forest mailing list of people interested in the management activities of the Forest. The SOPA provides one of the means of keeping the public informed of the progress of individual projects. The SOPA is also made available to the public on the Willamette National Forest website.

Two written comment letters and a phone call were received as a result of these notifications. Copies of the letters and documentation of phone conversations can be found in the Public Involvement section of the Analysis File. The following is a listing of individuals and organizations who submitted comments and a brief summary of the comment topics raised specific to the Traverse Creek Thin Project.

Table 2. List of commenters and summary of comment topics

Commenter	Comment Topic Summary
Oregon Wild	Supports variable density thinning and other actions that will create diversity and move the managed stands toward mature characteristics. Minimize gap opening size (¼ to ½ acre) Supports closing roads and other actions to benefit wildlife such as snag creation and large woody debris recruitment; and seasonal logging restriction and restrictions on logging in critical wildlife habitat. Minimize site-disturbing activities to protect soil, water and wildlife. Protect roadless area mapped by Oregon Wild
American Forest Resource Council	Supports project but expand opening size to 3-5 acres for big game forage. Keep roads open for recreation and fire control access. Maximize cost efficiency of project by minimizing harvesting and post harvesting costs such as fuel treatments.

The interdisciplinary team reviewed the comments and incorporated the concerns into the issues where applicable. Information related to these concerns was either addressed in the discussion of the issues and environmental consequences or can be found throughout the different sections of the EA or analysis file.

A public notice will be published in the local newspaper requesting comments on the proposed actions and EA. The comment period will be for 30 days. A letter will also be sent to the individual and organizations who have previously submitted comments to notify them that the EA is available for review and a second chance to comment on the project.

The responsible official will review all the comments along with their supporting reasons before making the final decision. The final decision on the selected alternative along with the rationale for that decision will be documented in a Decision Notice. The notice of the decision will be published in The Register Guard newspaper of Eugene, Oregon and sent out to the people who have submitted comments.

Additional information on public involvement can be found in the Chapter 4 section of this document, Consultation and Coordination. Copies of these various documents and their attached mailing lists can be found in the analysis file under Public Involvement.

Issues

Issues are points of concern about environmental effects that may occur as a result of implementing the proposed action. They are generated by the public, other agencies, organizations, and Forest Service resource specialists and are in response to the proposed action.

Significant issues describe a dispute or present an unresolved conflict associated with potential environmental effects of the proposed action. Significant issues are used to formulate alternatives, prescribe mitigation measures, and focus the analysis of environmental effects. Significant issues are also determined based on the potential extent of their geographic distribution, duration of their effects, or intensity of interest or resource conflict, if not mitigated or otherwise addressed. The significant issues for this project were identified by the interdisciplinary (ID) team after scoping and preliminary analysis the project area and reviewing all the public comments. The significant issues were approved by the Responsible Official.

Significant issues are tracked through issue identification (Chapter 1), alternative development and description (Chapter 2), and Environmental Consequences (Chapter 3). Evaluation criteria have been identified for the all the issues and are used to compare alternatives (Table 6 in Chapter 2).

In addition to the significant issues other issues were raised by the public or Forest Service resource specialists. These issues were determined to be non-significant because of one of the following reasons: 1) outside the scope of the proposed action, 2) already decided by law or regulation, LRMP, or other higher level decision, 3) irrelevant to the decision to be made, or 4) conjectural and not supported by scientific or factual evidence. These issues are less focused on the elements of the purpose and need and did not influence the formulation of alternatives. Many of the non-significant issues are also included in the environmental effects analysis (Chapter 3) because of the relation to meeting LRMP standards and guidelines, laws, regulatory or policy direction, or relevant to resource analyses.

Significant Issues

The following issues were identified as the significant issues for the project area. These significant issues will be addressed through the development of a range of reasonable alternatives that meet the purpose and need for the proposed action. Alternatives are generally formulated by unit placement, unit design, or amount thinned to meet evaluation criteria of significant issues. The planning team studied, developed, and documented appropriate alternatives, and discussed in detail the significant issues in the environmental assessment as required by the National Environmental Policy Act of 1969 (NEPA).

Project Cost

There is a concern that costs associated with project implementation could be prohibitively high. High project costs could suppress bid prices or discourage some potential bidders. Costs of concern include road construction, reconstruction and closures, slash treatments, and logging requirements.

Evaluation Criteria:

- Miles and cost of temporary road construction
- Miles and cost of road maintenance
- Miles and cost of road reconstruction
- Miles of excavator piling along roads
- Acres of excavator piling in harvest units
- Acres of yarding tops and limbs
- Number and type of road closures
- Acres and type of slash treatment
- Harvesting operating season

Response: *This issue was determined to be significant because cost of management activities before, during, and after timber harvesting operation can affect the economic viability of the project. The road maintenance, temporary road construction, methods for managing activity fuels (including yarding of slash), road closures, logging operating season and other associated activities have costs that bidders consider against the perceived value of timber offered for sale. The amount or methods of carrying out such activities can vary while still accomplishing the*

necessary resource protections and improvements. Therefore, alternatives may vary in the amount, type, timing, or methodologies used to accomplish these activities.

Because differences in road management between alternatives have a major effect on cost, see the “Roads” section in Chapter 3 for cost differences between alternatives.

Gap Openings

There is a concern that ¼- to ½-acre gap openings are too small to create or sustain sufficient forage value. It is suggested that the typical gap size up to 1 acre be allowed. Others believe gap size should be 3 to 5 acres to maintain big game forage for the long term. Also in question is the number and location of gaps.

Evaluation criteria:

- Size of individual gaps
- Total acres as gaps
- Percentage of treatment area harvested as gaps

Response: *This issue is significant because the public identified a range of gap size preferences. Gap size and distribution affect how well the project purpose and need are met. Smaller gaps leave less of a management footprint, yet create vegetative diversity in the overstory and ground vegetation. Larger gaps create more big game species forage, sustain forage longer than do smaller gaps, and accentuate vegetative diversity. The overall acreage of gaps harvested may also influence the total volume of timber harvested.*

The differences in how the alternatives utilize gaps are discussed in the Chapter 2 description of alternatives and in the “Vegetation and Fuels” section of Chapter 3.

Road Density

Some believe that the current road density is too high and are concerned that new roads will be constructed, increasing the present road density. Others are concerned that too many roads may be closed and would limit access.

Evaluation Criteria:

- Change in road density following project compared to before project (miles/sq mile)
- Miles of new temporary road construction
- Miles of new closures due to this project
- Miles and duration of seasonal road closures

Response: *This issue is significant because the public identified a concern that the current road density is too high and may be increased, and that current road density may be decreased by road closures at the end of the project. High road densities are also identified in the purpose and need for the project. Those who wish to see road densities reduced tend to be concerned about roads channeling sediment into streams. Water quality, is particularly sensitive to the number of stream crossings. Also, they believe habitat destruction and fragmentation, edge effects, and exotic species invasions can be increased or aggravated by roads.*

Those who wish to see road densities maintained and support road construction emphasize that adequate road access is necessary for sportsman, fire control, and to support other management

activities. Further, seasonal road closures could contribute to these same concerns and limit logging access in some areas.

The description of alternatives in Chapter 2 states the difference in road density between in alternatives, especially Table 5 on page 23. The Roads section of Chapter 3 further elaborates on this topic.

Non-significant Issues

Vegetative Treatments

There is concern that the project could affect old growth, snags and coarse woody debris. There are concerns by others that thinning would be excluded in riparian areas.

Evaluation Criteria:

- Acres of old growth affected
- Density of snags (trees/acre)
- Volume of coarse woody debris (tons/acre)
- Dimension and restrictions of riparian buffers

Response: *This issue was not considered significant either because the resources identified would not be affected or the LRMP specifies adequate management direction to address these concerns. All harvesting would be in young, second growth stands. No harvesting would occur in old growth stands so concerns for protecting old growth trees and snags are met by not treating such stands. The proposed action would meet LRMP standards for density of snags and desired coarse woody debris (CWD) volume. Snag density and CWD volume proposed can be viewed in the Chapter 2 description of the proposed action (Alternative 2). The effects of the proposal on these resources can be viewed in Chapter 3 in the Vegetative and Fuels section.*

Riparian buffers limit where and how much harvesting may be done near streams. This issue is not considered significant because riparian buffer standards, including no-harvest buffers, would be agreed upon through the consultation process with fishery regulatory agencies and agreements to manage existing shade under the Clean Water Act. Actual dimension and specific requirements of each buffer would be determined for stream segments in each harvest unit. The prescriptions would include a no harvest zone adjacent to the stream, which varies in widths depending on the class of the stream and intensity of thinning proposed. Design criteria and mitigation measures address this issue in Chapter 2. The effects of the proposed action and the other alternatives on riparian management are addressed in Chapter 3. The option for no commercial harvest in the Riparian Reserves is available to the Responsible Official in the no action alternative.

Big Game Habitat Quality

Commercial thinning may affect quality and function of deer and elk habitat by changing the amount of forage, hiding, and thermal cover. Road management activities may affect open road densities either beneficially, by closing roads to decrease habitat disturbance or negatively, by increasing open road densities and habitat disturbance.

The three Big Game Emphasis Areas (BGEAs) that cover the analysis area are the Brush Creek, North Fork Winberry, and Lower South Fork Winberry/Monterica BGEAs. The watershed analysis for these areas is over 10 years old and forage levels in these three BGEAs are close to falling below standards and guidelines levels. There is an opportunity to improve big game

habitat effectiveness in this planning area by coordinating forage improvement projects with the commercial thinning and road closures. Management of these BGEAs is based on a set of habitat effectiveness objectives as identified in the LRMP standards and guidelines. The habitat effectiveness objectives for each variable should be within the range of 0.2 to 1.0 (see “Evaluation Criteria” below and Table 8 of the Wildlife Specialist Report and Biological Assessment/Evaluation located in the project record). Where existing habitat conditions result in values below this range, an increasing trend should be established through project implementation.

Proposed treatment units were clearcut between 1949 and 1972. The analysis area consists of contiguous blocks of even-aged stands of trees, interspersed with some old growth stands.

Evaluation Criteria:

- Habitat effectiveness, measured as decimal percentage for each of the following variables:
 - Forage quality
 - Cover quality
 - Open roads
 - Size and spacing of cover and forage
 - Overall Habitat Effectiveness index
- Acres thinned and percentage of elk emphasis areas
- Acres of improved quality foraging areas created

***Response:** This issue was not considered significant because all action alternatives would be designed to meet the LRMP standards and guidelines for low and moderate rated big game emphasis areas (BGEA) (FW-135 – 146, 150-153). Commercial thinning in general has minimal impacts on big game and both proposed action alternatives establishes a trend to improve or maintain the “overall” Habitat Effectiveness Value for the given BGEAs. Project design would include road closures and creation of small openings (gaps) that would improve big game forage values. A forage seed mix would be used to seed some road segments when they are closed and put into long-term storage. The brief discussion of this issue can be found in the Chapter 3 – Environmental Consequences under Deer and Elk (Big Game).*

Fuels Management

Commercial thinning may affect the amount and distribution of fuels within a stand and could alter the effects of wildland fires on the landscape. Thinning commonly creates a fine fuel loading (0-3 inches) that exceeds LRMP standard and guidelines. Fuel prescriptions to reduce management activity-created fuels have been difficult and costly to implement under certain thinning prescriptions. This project could yield excessive fuel loads over large areas increasing risk of fire, fire intensity, rates of spread, risk to firefighter’s safety, suppression cost, and potential for resource damage.

Evaluation Criteria:

- Post-treatment fuel loading (0-3 inch) tons per acre
- Acres of fuel reduction treatments in high risk or priority areas in the landscape

Response: *This issue was not considered significant because it is addressed by the LRMP standards and guidelines (FW-252) for 0-3-inch, management- created fuels (maximum acceptable; 7-11 tons/acre; USDA Forest Service 1990). All alternatives are designed to meet the LRMP standards and guidelines. The percent of management activity-created fuels will be the difference between the action alternatives. The focus of fuel management will be on the standard and percent of fuel reduction, more than the methods to accomplish desired fuel condition. However, treatment methods will also be discussed. The alternatives will present different short-term risk scenarios and cost of treatments. The discussion of this issue can be found in Chapter 3 – Environmental Consequences under Fire and Fuels.*

Water Quality/Stream Conditions

Commercial thinning and associated road management activities may affect water quality and the aquatic habitat. Timber harvest and roads interact and influence the production of sediments. Roads can intercept subsurface flow. Routes flow more quickly to adjacent stream channels potentially increasing peak flows.

Evaluation criteria:

- Miles of road maintenance
- Miles of temporary road construction
- Miles of roads closed and put into long-term storage

Response: *This issue was not considered significant because all alternatives would meet Clean Water Act regulations, and LRMP standards and guidelines. All action alternatives include the same mitigated measures such as the Riparian Reserve prescriptions and incorporate other Best Management Practices to maintain or reduce any impacts to within legal level. Mitigation measures address this issue in Chapter 2. The effects of the proposed action and the other alternatives are addressed in Chapter 3 in the Soils, Hydrology and Fisheries section.*

Threatened, Endangered and Sensitive (TE&S) and Old Growth Species

Thinning and associated road management activities may affect a variety of wildlife, fish and botanical threatened and sensitive species and their habitats within and adjacent to the project area. These activities may remove or degrade forest or aquatic habitat and create noise above ambient levels, which may disturb species at critical periods in their life cycles. TES species that are either known or likely to occur or have habitat that may support their existence in the project analysis area include: northern spotted owls, northern bald eagles, Harlequin duck, American peregrine falcon, Baird's shrew, Pacific shrew, Fisher, Pacific Fringe-tailed bats, OR slender salamander, Cascade Torrent salamander, Crater Lake tightcoil. Sensitive plant species found in treatment units include old-man beard (*Usnea longissima*) and Pacific felt lichen (*Peltigera pacifica*) and habitat exists for others.

The LRMP management indicator species for old growth include pine marten, pileated woodpecker, and northern three-toed woodpecker.

Evaluation Criteria:

- Effects determination
- Acres of short term (vs. long term) downgraded suitable owl habitat

Response: *This issue was not considered significant because all alternatives would meet the law (Endangered Species Act), regulations, and LRMP standards and guidelines. All actions that*

modify or disturb forest habitat would be required to follow conservation and protection guidelines provided by the LRMP and other consulted federal agencies. While there is a potential for short term adverse effects due to the disturbance, impacts to habitat are essentially the same for both of the action alternatives. Disturbance impacts are mitigated in the action alternatives with the same measures that have been commonly prescribed and used on other timber projects for several years. These mitigation measures are listed in Chapter 2. The effects of the proposed action and the other alternatives on TES species are addressed in Chapter 3.

Invasive weeds

Commercial thinning and associated road management activities may contribute to the spread of invasive weeds in the project area. The spread of invasive weeds displaces native plants, which may have an effect on biotic communities.

Evaluation Criteria:

- Acres of ground disturbance
- Miles of road work associated with harvest activities

Response: *This issue was not considered significant for designing alternatives because specific mitigating measures would be used in all action alternatives to prevent expansion of existing invasive weed populations. See Mitigation Measures in Chapter 2. The effects of the proposed action and other alternatives on invasive weeds are discussed in Chapter 3 under Vegetation and Fuels section.*

Unroaded Areas

Commercial thinning and associated management activities could compromise values of unroaded lands identified near proposed treatment areas.

Evaluation Criteria:

- Roadless area distance from project activity

Response: *This issue was not considered significant for designing alternatives because neither action alternative proposes entry into the unroaded area identified, therefore there are no effects and it will not be discussed further.*

Recreation

Commercial thinning and fuel treatments may decrease the current recreation opportunity spectrum (ROS) class acreages found in the project area.

Evaluation Criteria:

- Impacts to the ROS class are measured by determining whether the implementation of an alternative moves the land towards (meets), away from (does not meet), or keeps (no change) the area in its current ROS class designation.

Response: *This issue will be analyzed because the LRMP as amended sets ROS standards that must be met by projects that may modify recreation opportunities. This issue was not considered significant for designing alternatives because mitigations measures would be used to ensure that action alternatives maintain recreation opportunities in accordance with LRMP ROS standards.*