CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

Document Structure

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

- ***Chapter 1. Purpose of and Need for Action****:* 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 section 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. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- ***Chapter 3. Affected Environment and Environmental Consequences***: This chapter describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area.
- ***Chapter 4. Consultation and Coordination****:* This chapter provides a list of preparers and agencies consulted during the development of the environmental impact statement. It also includes a distribution list for the EIS.
- ***Index****:* The index provides page numbers by document topic.
- ***Appendices****:* The appendices provide more detailed information to support the analyses presented in the environmental impact statement.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Supervisor's Office.

Background

The Klamath National Forest (Forest) completed the development of the Klamath National Forest Land and Resource Management Plan (*Forest Plan*) in 1995, which established guidance for management of the public lands within the Forest boundary. A number of analyses were completed identifying opportunities for implementing the provisions of the *Forest Plan*. Using this information, specific actions were designed to lead to achievement of the goals and desired conditions in the *Forest Plan*. A large number of stands in the Salmon River drainage were identified as needing treatment to move them towards the desired vegetative condition. Specialists in a wide array of disciplines visited these sites and worked together to develop a proposal consistent with all Forest Plan standards and guidelines. Many stands were not included in the proposal due to various resource and economic concerns; refer to Appendix D for information on those stands.

Purpose and Need for Action

The purposes of the proposed action are to maintain stand health by leading stands into a resilient condition where they can provide a sustained yield of wood products, reduce the risk of these stands to catastrophic fire, maintain unique wildlife habitats, provide an economical, safe, and environmentally sensitive transportation system. The need for treatment was identified when the existing condition was compared with the desired condition as outlined in the *Forest Plan*. The comparison of existing and desired conditions and identification of opportunities (needs) is summarized in **Table 1**. The vegetation management needs or opportunities are taken from the *North Fork Salmon Watershed Assessment (North Fork WA)* dated 1995, *Upper South Fork of the Salmon River Ecosystem Analysis* (*Upper South Fork WA)* dated 1994, and *Lower South Fork of the Salmon River Ecosystem Analysis (Lower South Fork WA)* dated 1997, which are sometimes referred to as Watershed Analyses (WAs). Road treatment needs were taken from the Roads Analysis Process.

Often a suite of activities, such as timber harvesting, prescribed burning, site preparation and associated cultural treatments, are necessary to achieve a single need, such as develop a sustainable timber program.

The *North Fork WA*, *Upper South Fork WA*, and *Lower South Fork WA* are incorporated by reference and available at the District. These WAs describe current conditions, reference conditions, and important interactions of the aquatic, terrestrial and human elements. They provide a means for understanding the ecosystem processes within the Salmon River Watershed.

The Klamath National Forest Forestwide Roads Analysis Process (2002) is incorporated by reference and available on the Forest Web page. The Salmon River Ranger District conducted a *Roads Analysis Process* at the watershed scale for the North Fork, Upper South Fork and Lower South Fork Watersheds to supplement the *Klamath National Forest Forestwide Roads Analysis*, which is incorporated by reference and available at the District. Together these documents identify access needs, environmental concerns, and maintenance level objectives for all system roads in these watersheds. This information was used to determine if roads should be added to the permanent transportation system or decommissioned after use and to determine if road maintenance levels should be changed.

Table 1: Existing Condition, Desired Condition, and Opportunities		
Existing Condition	**Desired Condition**	**Opportunity**
Current risks to forest health include vegetative stocking density, insects, and disease.	Stands are healthy and resilient to wildfire, insects, and disease. They provide a range of habitats for species and human social amenities.	Thin dense stands to improve stand health, vigor, and sustainability. Actively pursue removal of insect/diseased and dead/ dying trees (*North Fork WA*, p. 6-3).
Areas with low to moderate conifer mortality have been identified in the watershed. This condition increases fuel loadings and fire behavior potential.	Conifer mortality is maintained to near endemic levels (<5% of any given stand).	Use salvage sales, thinning from below, underburning, etc. where appropriate to reduce inter tree competition and fire hazards (*Lower South Fork WA*, p. 6-4).
A combination of overstocking, long-term drought, insects, and diseases have contributed to increasing tree mortality.	Stands are healthy and resilient to wildfire, insects, and diseases.	Reduce stocking levels to improve forest stand health and vigor, reduce ladder fuels and future ground fuel accumulations (*Upper South Fork WA*, p. 108).
Accumulation of both natural- and human-caused fuels now exists at levels that increase potential for stand-replacing fire events.	Stands are resistant to stand-replacing fire events.	Reduce fuel loading of both natural- and human-created slash to reduce potential of stand replacing fire events (*Upper South Fork WA*, p. 108).
High fire behavior potential is predicted for 49,000 acres (38%) of the watershed.	The amount of high fire behavior potential and the size and severity of future fires in the watershed is reduced.	Develop and implement fuels and vegetation management plans to reduce the likelihood of the stand being lost to wildfire (*North Fork WA*, p. 6-4).
Many areas of late-successional habitat have high fuel loadings and high fire behavior potential. These factors impact health and ability of larger trees to survive large-scale disturbance.	Late-successional habitat is resistant to large-scale disturbance and is perpetuated over time.	Utilize thinning from below, and/or any other silvicultural techniques to enhance late-seral habitat and provide wood products as a by-product (*Lower South Fork WA*, p. 6-5).
Thirty-seven percent of NFS lands fall within land allocations that have a timber yield expectation.	To have a sustainable long-term flow of timber commodities, commensurate with site capabilities and administrative constraints.	Develop an environmentally sustainable timber program based on site potential and management constraints (*Lower South Fork WA*, p. 6-8).
Allowable sale quantity is limited for various administrative and legal reasons.	Allowable sale quantity is designed to maintain the desired conditions of the watershed with ecologically sustainable commodities program.	Develop a 5-year wood fiber plan that addresses the desired condition and Forest Plan's projections for a sustainable timber program (including green stand treatments) (*North Fork WA*, p. 6-5).
Currently there are limited opportunities for employment in the wood fiber business.	Job opportunities related to wood fiber production.	Provide a programmed, non-declining flow of timber products (*Upper South Fork WA*, p. 112).

Proposed Action

The action proposed by the Salmon River Ranger District of the Klamath National Forest (Forest) is to harvest timber and conduct associated activities on 744 acres in 39 units; to treat fuels on an additional 131 acres in 9 stands, to conduct habitat improvement activities, and to implement road actions. All acreages and road mileages are approximate.

The timber harvest would use a combination of commercial thinning, group selection, green tree retention, seed tree/sanitation, and salvage prescriptions. Helicopter, cable, and tractor logging systems would be utilized. Associated activities would include reforestation by planting trees, precommercial thinning, browse protection, hand grubbing and chainsaw release of planted trees, gopher control, mastication (grinding up) of non-commercial trees, and fuel treatment. A combination of hand piling, prescribed burning, yarding and removal of unmerchantable material, and tractor piling would be used to treat fuels created by harvest activities. Selected Riparian Reserves (RRs) would be thinned; this entry is designed by the watershed and fisheries specialists to move the RRs towards their desired condition and would only occur in low risk areas.

Existing roads would be used for the project with no new road construction. Road 39N27 would be stormproofed. Roads 39N22A and 37NO2B would be changed to Maintenance Level 1 (closed to road use, except for maintenance) after project completion. One unclassified road (existing road not on the transportation system) would be improved to standard and added to the road system. Six unclassified roads would be decommissioned; three of these would be used in the project prior to decommissioning. Roads would receive maintenance as necessary for logging and haul.

Mastication would be used to reduce fuels on the additional 131 acres. Habitat improvement activities include underburning oak stands on 50 acres with low intensity fire, repairing a fence, repairing the outlet to a pond, and improving two water developments.

The proposed activities would likely occur within three to five years of the decision being made.

The project is located in the Salmon River Watershed near the towns of Sawyers Bar, Forks of Salmon, and Cecilville, approximately 55 miles southwest of Yreka, California. The legal description is as follows: Mount Diablo Meridian – Township 40N, Range 11W, Section 32; T40N, R12W, Sections 35 and 36; T39N, R11W, Sections 5, 6, and 36; T39N, R12W, Sections 1, 3, 10, 11, 31, and 32; T38N, R11W, Sections 1, 8, 18, 29, 32, 33, and 34; T38N, R12W, Sections 4, 5, 6, 7, 8, and 36; T37N, R11W, Sections 3, 4, 10, and 11; T37N, R12W, Section 1; Humboldt Meridian –T10N, R8E, Section 33; T9N, R8E, Section 5.

Decision Framework

Given the purpose and need, the deciding official reviews the proposed action, the other alternatives, and the environmental consequences in order to make the following decision: whether to approve the Proposed Action or an alternative design that would move the area toward the desired condition, or to not implement a project at this time.

Management Direction

National Forest management is guided by various laws, regulations, and policies that provide the framework for all levels of planning. This includes Regional Guides, Forest Plans, and site-specific planning documents such as this environmental impact statement. These higher-level documents are incorporated by reference and can be obtained from Forest Service offices.

The Klamath National Forest Land and Resource Management Plan (Forest Plan) provides guidance for managing National Forest System lands within the Forest. Guidance from the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (NW ROD)(April 13, 1994) is incorporated in the Forest Plan. The Forest Plan was amended by the Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standard and Guidelines on January 12, 2001, by the Record of Decision To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines on March 22, 2004, and by the Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests Within the Range of the Northern Spotted Owl on March 22, 2004. The Record of Decision To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines is under litigation filed on April 13, 2004 in the Western District of Washington.

The *Forest Plan* provides two types of management direction, Forestwide direction and Management Area direction. Forestwide direction, which applies to all management areas, is located on pages 4-3 through 4-66. (Note: All page references in this document refer to the version of the *Forest Plan* that includes all amendments as of 11/21/01 and can be found on the following Forest web page: http://www.r5.fs.fed.us/klamath/mgmt/lmp/index.html)

The first Forestwide goal for Timber Management on page 4-8 of the *Forest Plan*: "Implement silvicultural prescriptions consistent with desired ecological processes and management objectives" applies to this proposal. The Aquatic Conservation Strategy Objectives (ACSOs) on page 4-6 are also pertinent to this proposal. The proposal is located within the Salmon River Watershed, which is a Key Watershed.

Management areas have distinct management goals, management requirements, and desired conditions. The proposal lies within a number of Management Areas (MAs) including MA 10 - RRs, MA 13 - Designated and Recommended Recreational Rivers, MA 15 - Partial Retention, and MA 17 - General Forest. **Table 3** in Chapter 2 provides information on which MAs are associated with each unit or stand.

MA 10 allows vegetation management activities as necessary to achieve desired conditions and to attain Aquatic Conservation Strategy Objectives (ACSOs).

The NW ROD identified a Matrix category of land allocations, which includes lands outside of reserves and withdrawn areas. Matrix lands include a scheduled yield component as part of their management objective. MAs 13, 15, and 17 are included in the Matrix category. Less than 21% of the Forest is within Matrix land allocations.

Table 2 displays a summary of the primary management direction for each MA, pertinent to this proposal as well as the *Forest Plan* pages containing the complete direction for each area.

Table 2: Pertinent Management Direction		
Management Area	**Pages in Forest Plan***	**Primary Direction Pertinent to This Proposal**
Riparian Reserves MA 10	4-106 through 4-114	Goal: Be consistent with Aquatic Conservation Strategy Objectives. S&G MA10-2: Identifies interim RR widths. S&G MA10-42: For each existing or planned road; minimize road and landing locations in RRs, minimize disruption of natural hydrologic flow paths, including diversion of streamflow and interception of surface and subsurface flow; restrict sidecasting as necessary to prevent the introduction of sediment to streams. S&G MA10-54: Apply silvicultural practices to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives.
Recreational Rivers MA 13	4-120 through 4-122	Goal: Protect and enhance the outstandingly remarkable values while providing for public recreation and resource uses that do not adversely impact or degrade those values. S&G MA13-15: Timber harvesting and a full range of silvicultural uses are allowed under standard restrictions to protect the immediate river environment and other values. S&G MA13-16: Schedule moderate timber yields, compatible with area goals.
Partial Retention MA 15	4-126 through 4-127	Goals: Maintain stand health while providing an attractive landscape where management activities remain visually subordinate to the character of the landscape. Manage for a sustained yield of wood products. Maintain stand health as well as resilience to wildland fire, insect, disease, and other damage. S&G 15-1: Design management activities to meet a Partial Retention Visual Quality Objective. S&G 15-11: Schedule moderate timber yields compatible with area goals. S&G MA15-12: Use silvicultural treatments compatible with area goals. S&G MA 15-13: Timber salvage of trees killed by wildfire, pest infestation, or other natural processes should be implemented in a manner consistent with maintaining the resource management goals of the area. Minimize the loss of timber value where possible.
General Forest MA 17	4-131 through 4-132	Goals: Provide a programmed, non-declining flow of timber products, sustainable through time. Maintain stand health and resilience. Maintain stocking control levels and high growth rates. S&G 17-7: Schedule moderate timber yields compatible with area goals. S&G MA17-8: Promote conifer growth and stocking control. S&G 17-11: Silvicultural practices may include site preparation, reforestation, seedling protection, release and weeding, precommercial thinning, and commercial thinning. S&G 13: Stand treatment should be prioritized by where the greatest increase in conifer growth and yield can be obtained or where the presence of disease and insect problems jeopardize meeting resource objectives. S&G 17-14: Where existing or potential insect and disease problems jeopardize meeting resource objectives, implement aggressive, cost-effective suppression strategies. Prevention activities to minimize adverse effects to stocking levels shall be a priority.
* Page numbers refer to version of Forest Plan on web, which includes all errata and amendments as of 11/21/01		

Public Involvement

Scoping is defined as ``...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). Among other things, the scoping process is used to invite public participation, to help identify public issues, and to obtain public comment at various stages of the analysis process.

Notice of the proposal first appeared in the Fall 2002 Schedule of Proposed Actions for the Klamath National Forest, dated October 8, 2002. The schedule is updated four times a year, posted on the Forest Web Page, and mailed to those who have requested a paper copy. A scoping letter dated January 16, 2003 was mailed to 82 people, groups, and agencies. The scoping letter was sent to those who expressed interest in the proposal, who owned property adjacent to the project area, and to agencies with responsibilities for local resource management. The scoping letter requested input by February 7, 2003. Thirteen comment letters were received in response to the initial scoping. These comment letters identified issues, expressed opinions, expressed concerns that appropriate procedures be followed, or asked questions about the proposal.

Based on the information received from the public and on preliminary analyses, it was determined that there was the potential for significant adverse effects, as defined by NEPA. The Forest Supervisor decided that it would be most efficient to prepare an EIS. A Notice of Intent to prepare an EIS was published in the Federal Register on April 7, 2003. This notice requested comments on the project within two weeks of the publication of the Notice of Intent in the Federal Register. A legal notice was published on April 10, 2003 in the Siskiyou Daily News, the Forest's paper of record, informing the public that an EIS would be prepared. Comments were received from 22 groups and individuals as part of the scoping process for the Meteor Project. Letters were received from 18 groups and individuals, e-mails were received from two, and telephone calls were received from ten. Some group representatives and individuals commented multiple times. One commenter was in favor of the project. Thirteen commenters expressed opposition to the project; twelve of these were modified form letters. The telephone calls were primarily requests for information. The comment letters expressed opinions, identified issues, requested that appropriate procedures be followed, or asked questions about the proposal. No new issues were identified. A summary of these comments and how the Forest Service used them in the planning process can be found in Appendix C.

Beginning in June 2003, a number of calls and letters were received from individuals opposing timber sales in the Salmon River Watershed. Two petitions with 66 names, 36 letters and postcards, and 14 phone messages were received; some people commented more than once. Some of these included generic comments; all issues had previously been identified during the earlier scoping efforts.

Consultation was initiated with the Karuk Tribe of California at the October 2002 monthly meeting and continued throughout the analysis process. Consultation with the Quartz Valley Reservation, the Yurok Tribe, and the Hoopa Tribe was initiated through letters mailed on January 16, 2003, that described the proposal.

Representatives of the United States Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration – Fisheries (NOAA Fish)(previously National

Marine Fisheries Service) were actively involved in the design of the proposed action and consultation has continued throughout the planning process.

Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to address. Refer to Issues Section.

Copies of the Draft EIS and/or summaries were mailed to agencies and to members of the public on November 6, 2003. The Environmental Protection Agency published a Notice of Availability for the Draft EIS in the Federal Register on November 21, 2003. The minimum 45-day comment period was measured from the publication of the Notice of Intent, ending on January 5, 2004. The public and agencies had more than the minimum 45 days to comment as the documents were mailed two weeks prior to the Notice of Intent publication.

The Forest received 74 comment letters on the Draft EIS; 60 were modified form letters. Comment letters were received from one Federal agency and one State agency. Only 12 of those who sent comment letters had been involved during scoping and received a copy of the Draft EIS and/or Summary; this includes the two agencies. Six letters were from environmental groups. The other 66 letters were from one or more individuals. Fifty-nine comment letters stated opposition to Meteor or supported the No Action Alternative, and one supported a sale.

Comments were primarily that the Forest Service had not adequately analyzed the effects of the proposed action, commenters did not believe the results of the analysis, or commenters did not like the way previous comments were treated. No new alternatives, issues, or methodology were suggested. The Forest Service response consisted of pointing out where the topics were discussed in the Draft EIS, providing additional literature citations to support conclusions, explaining why the comments did not warrant further response, and clarifying minor points. Refer to Appendix F – Response to Comments for detailed responses.

A few errata were corrected in the Final EIS. New management direction was added to the Final EIS due to two Forest Plan amendments. One alternative, proposed in a telephone call after the comment period ended, was added to the Alternatives Not Considered in Detail Section in the Final EIS; it was not feasible given the vegetation types and age in the project area. Some analyses were updated; however, the Final EIS is substantially the same as the Draft EIS.

The *Public Involvement File for the Meteor Timber Sale* contains documentation of the efforts made to involve interested members of the public, appropriate agencies, and tribal members in the planning process and the results of those efforts. The file is incorporated by reference and available in the project file.

Issues

Issues are points of discussion, debate, or dispute about the environmental effects. The Forest Service separated the issues for this proposal into two groups: significant and non-significant issues. Significant issues were identified because of their extent, the duration of the effects, or the intensity of the resource conflict.

Reasons issues are categorized as non-significant may include: 1) they are outside the scope of the proposed action; 2) they are already decided by law, regulation, Forest Plan, or other higher level decision; 3) they are irrelevant to the decision to be made; or 4) they are conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…" A list of non-significant issues and reasons regarding their categorization as non-significant may be found in Appendix C. Many of these non-significant issues are addressed in Chapter 3, as they are procedures required by law and regulation.

The Forest Service identified six issues as significant for this proposal. The wording of some of these issues has been refined since the preliminary issues that were included in the Notice of Intent. The six significant issues are listed below, along with the indicator(s) used to assess them:

Jones Gulch Stability: Timber harvest in conjunction with past cumulative effects in the upper Jones Gulch Drainage could trigger slope failure in the dormant landslide area below.[1]

- The key indicators used to analyze this issue are: 1) Mass Wasting Model, and 2) Results of slope stability investigation/evaluation.

Cumulative Watershed Effects: Timber harvest, fuel reduction, and road activities, could cause soil erosion or trigger slope failure, which could increase sediment in streams, contributing to cumulative effects to water quality.

- The key indicators used to analyze this issue are: 1) Intensity of proposed treatments, and 2) Cumulative Watershed Effect (CWE) modeling.

Anadromous Fish Habitat: Timber harvest, fuel reduction, and road activities could affect the habitat of anadromous fish.

- The key indicators used to analyze this issue are: 1) Habitat indicators of Temperature, Turbidity/Sediment, Large Woody Debris, Stream Bank Condition, Disturbance History, and 2) Compliance with *Aquatic Conservation Strategy* (ACS) objectives.

Riparian Reserve Issue: Logging in RRs could cause erosion and result in sedimentation in streams.

- The key indicators used to analyze this issue are 1) A discussion of increased landslide risk, 2) a discussion of the likelihood of large woody material reaching streams, and 3) a discussion of floodplain connectivity.

Critical Habitat Entry in the Matrix: Timber harvest and underburning could reduce the quantity and quality of habitat providing for northern spotted owl (NSO) nesting, roosting, foraging, and dispersal activities in Critical Habitat in the Matrix.

[1] Jones Gulch is a subwatershed in the Kanaka-Olson 7th field watershed.

- The key indicator used to analyze this issue is NSO Critical Habitat acres lost or removed.

Wild and Scenic Rivers Issue*:* Units located along segments of the Wild and Scenic River (WSR) System could adversely affect WSR values.

- The key indicator used to analyze this issue is a narrative discussion of the effects on the "outstandingly remarkable" values.

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CHAPTER 2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

Introduction

This chapter describes and compares the alternatives considered for Meteor. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative (such as helicopter logging versus the use of skid trails) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (such as the amount of erosion caused by helicopter logging versus skidding).

Alternative Development Process

A large number of stands were considered for treatment. Stands found to have resource issues were not included in the potential stands for the Meteor proposal; refer to Appendix D. Potential stands received intensive reconnaissance from a wide variety of specialists to be sure that the treatments proposed were consistent with *Forest Plan* standards and guidelines and would lead to achievement of the desired conditions. Many design features were included to reduce potential effects. The Wildlife Biologist identified opportunities for wildlife habitat improvement. The Hydrologist, Geologist, and Fisheries Biologist identified opportunities for moving towards the desired conditions in RRs.

Stability in the Jones Gulch area and entry in Riparian Reserves were identified as significant issues during the development of the proposed action, so Alternative 3 was developed in response to those issues.

Alternatives Considered in Detail

The Forest Service developed three alternatives, including the No Action and Proposed Action alternatives, in response to issues raised by the public.

Alternative 1 – No Action

With the No Action alternative, current management plans would continue to guide management of the project area. No harvesting, cultural activities, fuel reduction activities, habitat improvement activities, or roadwork would be implemented to accomplish project goals.

Alternative 2 - The Proposed Action – Preferred Alternative

Alternative 2 would include timber harvest and associated activities on 744 acres in 39 units; fuel treatment activities on an additional 131 acres in 9 stands, some habitat improvement activities, and road actions (all acreages and road mileages are approximate). The Hydrologic RRs (RR associated with stream courses) in Units 77 (between the Highway and the County

Road), 123 and 134 would be thinned from below. Geologic RRs (RR associated with unstable land) in Units 68, 85, 86, 88, 119, 120, 121, 124, 132, 133, 137, 141, 152, and 256 would be thinned from below. The thinning prescriptions would decrease the basal area, but leave all trees with dominant and codominant crowns. The objective is to develop and maintain good crowns and root systems in these areas.

Tables 3, 4 and 5 display information specific to each proposed activity. The second to last column in each table indicates the information that applies to Alternative 2. The last two columns in each table allow an easy comparison between Alternatives 2 and 3. For locations, refer to **Map** Section.

Timber harvest prescriptions

- A Thinning prescription would be used on 299 acres within 19 units. One unit would also have sanitation in the prescription.
- A Group Selection prescription would be used on 331 acres within 14 units.
- A Green Tree Retention prescription would be used on 31 acres within 5 units (2 of these units would also be thinned, the units are double-counted, but the acres are not).
- A Seed Tree/Sanitation prescription would be used on 33 acres within 2 units.
- A Salvage prescription would be used on one 50-acre unit.

Associated activities on the above units

- Reforestation by planting seedlings would occur on 108 acres.
- Precommercial thinning would occur on 92 acres.
- Browse protection using tubing would occur on 101 acres.
- Hand grubbing would occur on 104 acres to release planted trees from competing vegetation.
- Hardwood felling would occur on 28 acres.
- Chainsaw release around planted seedlings would occur on 122 acres.
- Gopher damage control using strychnine baiting would occur on 55 acres.
- Sanitation of understory mistletoe-infected trees for disease control would occur on 72 acres.
- A masticator would be used on 44 acres to grind up non-commercial trees, brush, and slash.

Logging systems for the above units

- Helicopter would be used on 540 acres.
- Cable systems would be used on 130 acres.
- Tractor systems would be used on 74 acres.

Fuel treatment for the above units

- Hand pile and burn residual slash would be used on 360 acres.
- Prescribed underburning would be used on 311 acres.
- Jackpot burning would be used on 67 acres.
- Tractor piling and burning the residual slash would be used on 6 acres.

Fuel treatment on additional stands

- A masticator would be used to grind up non-commercial trees and brush on 131 acres[2].

Habitat Improvement

- Low intensity fire would be used to underburn oak stands on 50 acres.
- The fence at Mud Lake to the north of Unit 88 would be repaired and the outlet to the pond below Unit 88 on Road 39N21A would be repaired.
- Two water developments would be improved in Unit 133.

[2] The scoping letter and letters sent to the Tribes said 168 acres, which is an estimate of the total acres of the stands proposed for treatment. The masticating equipment would only be operated on slopes less than 45%. The actual acres to be treated within those stands is estimated as 131 acres. The Notice of Intent included the updated estimate of 131 acres.

Road Actions

- Road 39N27 would be stormproofed (9.25 miles).
- Road 39N22A would be changed from Maintenance Level 2 to Maintenance Level 1.
- Road 37NO2B would be used in this project, then changed from Maintenance Level 2 to Maintenance Level 1.
- Unclassified Road 39N34.3 (0.04 miles) would be improved to standard and added to the road system.
- Unclassified Road 39N27.10 would be decommissioned from the pond down (0.31 miles decommissioned, 0.04 miles added to system to access a water source),
- Two unclassified roads would be used in this project, and then decommissioned: 39N41.3 (1.10 miles), and 39N21.1 (0.05 miles).
- Three unclassified roads would be decommissioned: 39N21.6 (0.18 miles), 39N21A.1 (0.54 miles), and 39N22A.2 (0.08 miles).
- Roads would receive maintenance as necessary for logging and haul.

Alternative 3

Alternative 3 would include timber harvest and associated activities on 650 acres in 34 units; fuel treatment on an additional 41 acres in 3 stands, and the same habitat improvement and road actions as Alternative 2 (all acreages and road mileages are approximate). It would be similar to Alternative 2, but would not propose treatments in the units in the Jones Gulch drainage nor would it propose fuel treatment in that area. It would not propose thinning in RRs. **Tables 3, 4 and 5** display information specific to each proposed activity. The last column in each table indicates the information that applies to Alternative 3. The last two columns in each table allow an easy comparison between Alternatives 2 and 3. The same maps are used for Alternatives 2 and 3. Please use tables to determine differences.

Timber harvest prescriptions

- A Thinning prescription would be used on 299 acres within 19 units. One unit would also have sanitation in the prescription.
- A Group Selection prescription would be used on 275 acres within 12 units.
- A Green Tree Retention prescription would be used on 21 acres within 3 units (2 of these units would also be thinned, the units are double-counted, but the acres are not).
- A Seed Tree/Sanitation prescription would be used on 5 acres within 1 unit.
- A Salvage prescription would be used on one 50-acre unit.

Associated activities on the above units

- Reforestation by planting seedlings would occur on 78 acres.
- Precommercial thinning would occur on 92 acres.
- Browse protection using tubing would occur on 71 acres.
- Hand grubbing would occur on 74 acres to release planted trees from competing vegetation.
- Hardwood felling would occur on 28 acres.
- Chainsaw release around planted seedlings would occur on 113 acres.
- Gopher damage control using strychnine baiting would occur on 30 acres.
- Sanitation of understory mistletoe-infected trees for disease control would occur on 72 acres.

- A masticator would be used on 27 acres to grind up non-commercial trees, brush, and slash.

Logging systems for the above units

- Helicopter would be used on 466 acres.
- Cable systems would be used on 116 acres.
- Tractor systems would be used on 68 acres.

Fuel treatment for the above units

- Hand pile and burn residual slash would be used on 350 acres.
- Prescribed underburning would be used on 247 acres.
- Jackpot burning would be used on 53 acres.

Fuel treatment on additional stands

- A masticator would be used to grind up non-commercial trees and brush on 41 acres.

Habitat Improvement

- Low intensity fire would be used to underburn oak stands on 50 acres.
- Two water developments would be improved in Unit 133.

Road Actions

- Road 39N27 would be stormproofed (9.25 miles).
- Road 39N22A would be changed from Maintenance Level 2 to Maintenance Level 1.
- Road 37NO2B would be used in this project, then changed from Maintenance Level 2 to Maintenance Level 1.
- Unclassified Road 39N34.3 (0.04 miles) would be improved to standard and added to the road system.
- Unclassified Road 39N27.10 would be decommissioned from the pond down (0.31 miles decommissioned, 0.04 miles added to system to access a water source),
- Two unclassified roads would be used in this project, and then decommissioned: 39N41.3 (1.10 miles), and 39N21.1 (0.05 miles).
- Three unclassified roads would be decommissioned: 39N21.6 (0.18 miles), 39N21A.1 (0.54 miles), and 39N22A. (0.08 miles).
- Roads would receive maintenance as necessary for logging and haul.

Table 3: Summary of Unit Information for Alternatives 2 and 3

Unit	Acres	Rx	Logging System	Fuel Rx	Land Allocation	7th Field Watershed	Alt. 2	Alt. 3
68	18	GTR/Thin	Helicopter	Underburn	GF, RR	St. Claire Creek	X*	X
69	20	Thin	Helicopter	Underburn	GF	St. Claire Creek	X	X
70	14	Thin	Helicopter	Underburn	PR, GF	St. Claire Creek	X	X
71	11	Thin	Helicopter	Underburn	PR	St. Claire Creek	X	X
77	21	Thin	Cable/ Tractor	Handpile	Rec, RR	Gooey-Ketchum	X*	X
82	14	GS	Helicopter	Handpile	GF	Crawford Creek	X	X
83	15	GS	Tractor	Underburn	GF	Crawford Creek	X	X
84	8	Thin	Cable	Handpile	GF	Crawford Creek	X	X
85	19	Thin	Helicopter	Underburn	Rec, PR, RR	Rays-Gibson	X*	X
86	30	GS	Helicopter	Handpile	Rec, PR, RR	Rays-Gibson	X*	X
88	10	GS	Cable	Handpile	PR, RR	Kanaka-Olsen	X*	

Table 3: Summary of Unit Information for Alternatives 2 and 3								
Unit	**Acres**	**Rx**	**Logging System**	**Fuel Rx**	**Land Allocation**	**7th Field Watershed**	**Alt. 2**	**Alt. 3**
108	36	GS	Helicopter	Underburn	PR	Kanaka-Olsen	X	
113	18	Thin	Helicopter	Handpile	GF	East Fork Knownothing Creek	X	X
114	16	Thin	Cable	Handpile	PR, GF	Negro-Hotelling	X	X
116	12	Thin	Helicopter	Handpile	GF	Methodist Creek	X	X
119	6	Thin	Helicopter	Handpile	PR, Rec, RR	Cody-Jennings	X*	X
120	9	GS	Helicopter	Handpile	GF, RR	Methodist Creek	X*	X
121	6	GTR	Helicopter	Handpile	GF, RR	Methodist Creek	X*	X
122	15	Thin	Helicopter	Handpile	GF, PR	Methodist Creek, Cody-Jennings	X	X
123	26	Thin	Helicopter /Tractor	Jackpot Burn	GF, PR, RR	Methodist Creek, Cody-Jennings	X*	X
124	15	Thin	Helicopter/ Cable	Underburn	GF, PR, RR	Methodist Creek, Cody-Jennings	X*	X
126	17	GS	Helicopter	Underburn	PR	Cody-Jennings	X	X
128	12	GS	Helicopter	Handpile	PR	Cody-Jennings	X	X
130	9	Thin	Cable	Underburn	PR	Cody-Jennings	X	X
131	50	Salvage	Helicopter	Handpile	GF	Methodist Creek	X	X
132	73	GS	Helicopter /Tractor	Handpile	PR, GF, RR	Tanner-Jessups, Eddy Gulch	X*	X
133	21	Thin	Helicopter	Underburn	PR, RR	Rays-Gibson	X*	X
134	20	Thin	Helicopter	Underburn	GF, RR	Cecil Creek	X*	X
137	20	GS	Helicopter	Underburn/ Hand Pile	PR, Rec, RR	Timber-French, Cecil Creek	X*	X
138	13	Thin	Tractor	Underburn	PR, Rec	Rays-Gibson	X	X
139	5	ST	Tractor	Underburn	Rec	Rays-Gibson	X	X
141	32	GTR/ Thin	Helicopter	Underburn	PR, Rec, RR	Rays-Gibson	X*	X
152	18	GS	Helicopter	Handpile	GF, RR	Methodist Creek	X*	X
190	28	ST/San	Helicopter	Underburn	PR	Kanaka-Olsen	X	
255	4	GTR	Cable	Jackpot Burn	PR	Kanaka-Olsen	X	
256	37/27 **	GS	Helicopter	Jackpot Burn	PR, RR	Shiltos-Kelly, Kanaka-Olsen	X*	X
258	10	GS	Cable	Handpile	PR	Shiltos-Kelly	X	X
259	30	GS	Cable	Handpile	PR	Tanner-Jessups	X	X
261	6	GTR	Tractor	Tractor Pile	PR	Kanaka-Olsen	X	

Rx = Prescription, GS = Group Selection, GTR = Green Tree Retention, Thin = Commercial thinning, San = Sanitation, PR = Partial Retention MA15, GF = General Forest MA17, RR = Riparian Reserves MA10, Rec = Recreational River MA13.

* A forest health prescription of thinning from below would be applied to the RRs in these units in Alternative 2; RRs in all other stands in Alternative 2 and in all stands in Alternative 3 would not be entered for timber harvest, so acreage would be slightly less than the value shown. All acreage figures are estimates.

** First acreage figure is for Alternative 2, second is for Alternative 3.

Table 4: Acres of Associated Activities for Alternatives 2 and 3												
Stand	**Acres**	**PCT**	**Chain -saw**	**Grub**	**Browse**	**Gopher**	**Plant**	**Hard-woods**	**San**	**Masti-cator**	**Alt. 2**	**Alt. 3**

Table 4: Acres of Associated Activities for Alternatives 2 and 3												
Stand	Acres	PCT	Chain -saw	Grub	Browse	Gopher	Plant	Hard-woods	San	Masti-cator	Alt. 2	Alt. 3
68	18		5	5	5		5	5			X	X
69	20										X	X
70	14										X	X
71	11										X	X
77	21										X	X
82	14		2	2	2		2				X	X
83	15	15		3			3				X	X
84	8										X	X
85	19	8									X	X
86	30	10		7	7	7	7	7			X	X
88	10			2	2	2	2			5	X	
108	36		4	4	4		4				X	
113	18										X	X
114	16										X	X
116	12										X	X
119	6										X	X
120	9			2	2		2	2			X	X
121	6		4	4	4	4	4	4			X	X
122	15										X	X
123	26									7	X	X
124	15										X	X
126	17		4	4	4		4				X	X
128	12		5	2			2		5		X	X
130	9	4									X	X
131	50		40								X	X
132	73	20	40	10	10	10	10	10		15	X	X
133	21										X	X
134	20										X	X
137	20	10		7	7		7		10		X	X
138	13								13		X	X
139	5			5	5	5	5			5	X	X
141	32	15		12	12		12		15		X	X
152	18		4	4	4	4	4		11		X	X
190	28			14	14	14	14			12	X	
255	4		4	4	4	4	4				X	
256	37/27*		6/5*	6/5*	6/5*		6/5*				X	X
258	10			2			2		8		X	X
259	30	10	4		4		4		10		X	X
261	6			5	5	5	5				X	

Abbreviations: PCT = Precommercial Thinning, San = sanitation of understory mistletoe-infected trees.
* First acreage figure is for Alternative 2, second is for Alternative 3.

Table 5: Summary of Stand Information for Alternatives 2 and 3						
Number of Stands	**Acres**	**Activity**	**Land Allocation**	**7th Field Watershed**	**Alt. 2**	**Alt. 3**
6	90	Masticate	PR, RR	Kanaka-Olsen	**X**	
3	41	Masticate	PR, GF	Cody-Jennings, Methodist	**X**	**X**
3	50	Oak Underburning	Rec, PR	Timber-French	**X**	**X**
Abbreviations: PR = Partial Retention Visual Quality Objective Management Area 15, GF = General Forest Management Area 17, RR = Riparian Reserves Management Area 10, Rec = Recreational River Management Area 13.						

Design Features Common to Alternatives 2 and 3

The following design features are common to both Alternatives 2 and 3. Any differences between alternatives are highlighted in the text.

Mastication

Some of the above listed treatments would use masticating equipment to grind up vegetative material. This is a track-mounted excavator that has a brush cutting attachment mounted in place of a bucket. This power-driven rotary head has the capability of grinding small trees, brush, and downed woody material up to 18 inches in diameter. This machine would be used in the thinning of small trees growing in dense stands, and in the treatment of ground fuels. The results are scattered, assorted wood fragments that serve as a mulch for soil cover, reduction of ladder fuels, and the redistribution of ground fuels that reduces or eliminates the need for burning.

This machine has 30-inch wide tracks that exert 8 pounds or less of ground pressure per square inch. Maximum machine width would not exceed 11 feet and could operate on slopes up to 45%. With a 25-foot reach and the ability to rotate 360°, this machine can cover a wide area from one setting and reach out between trees that are closer than 6 feet apart. This equipment would have minimal ground disturbance as it travels over the wood fragments it has created. This type of machine would be utilized to precommercial thin and treat fuels on selected portions of Units 88, 123, 132, 139, and 190 for an estimated total of 52 acres in both Alternatives 2 and 3. It would be used to treat fuels in six stands in the Jones Gulch area and three stands in the Methodist Creek area for an estimated total of 131 acres in Alternative 2. It would be used to treat three stands in the Methodist Creek area for an estimated total of 41 acres in Alternative 3. It would be allowed in RRs. Project design standards in the Biological Assessment and Evaluation for Pre-commercial Thin and Release Action and Fuel Hazard Reduction Actions on the Klamath National Forest (USDA FS 2001a) would be followed to protect the aquatic resource.

Road Maintenance

Road maintenance (pre-haul, during haul, and post-haul) would occur as needed on all road segments designated for log haul. Vegetation removal (brushing for sight clearance), blading, ditch cleaning, slide/slump removal, and dust abatement would be included when and where needed. Work could also include stormproofing, which consists of construction of rolling dips, repair of slope failures, and outsloping. All road maintenance would be consistent with the *NMFS Biological Opinion and Conference Opinion for Road Maintenance, Trail Maintenance, Watershed Restoration, and January 1997 Flood Damage Response Actions*

(July 17, 1997). This document provides a discussion of the effects of road maintenance, is filed in the Project Record, and is incorporated by reference.

Gopher Baiting

On the areas proposed for gopher baiting in each action alternative, strychnine-treated grain would be used in a below-ground application. Gopher probes would be used in this treatment, with baiting in the fall if adjacent to suitable NSO habitat. Treatment would be as needed for up to 5 years after reforestation activities. The gopher baiting would be consistent with the *Granite Gopher Baiting Environmental Assessment* (1998). Monitoring would be conducted according to Appendix A of the *Scott River District Gopher Baiting BA* (August 16, 1999).

Resource Protection Measures for Alternatives 2 and 3

The Forest Service also developed the following resource protection measures, which are an integral part of the action alternative proposals, to mitigate potential impacts. The discussions below apply to both Alternatives 2 and 3, unless there are differences and then the differences are stated in the description.

Air Quality

Coordination with Local Air District: Smoke Management Plans would be submitted to the Siskiyou County Air Pollution Control District for each Burn Plan.

Dust Abatement: Dust abatement plans are a standard component of timber sale and construction contracts, roads specified for dust abatement are identified. Specified earth and rock-surfaced roads would be treated with water or water-based treatments prior to and during log hauling.

Burn Plans: Burn Plans would be designed so that burning occurs under conditions that reduce the biomass that is consumed while achieving burn objectives. This is generally accomplished by burning at high fuel and duff moisture levels, which limits the burning of large stumps and coarse wood, while consuming concentrations of smaller-sized fuel. Contingency actions would be developed and used, if smoke impacts occur or meteorological conditions change or go out of prescription. Ignitions would be slowed or stopped, when meteorological conditions change, causing intrusions of smoke into sensitive areas. This might also include burning on low visitor use days in the spring and avoiding burning on high use weekends. Spot weather forecasts in the project area would be used to ensure favorable “within prescription” weather conditions for the burn and for smoke transport. Burning would occur during favorable weather conditions when smoke is transported away from sensitive locations. Spring burning has advantages of higher fuel and ground moisture, atmospheric instability, and good transport winds. Fall and winter burning can restrict emissions and smoke to the ground level if burning takes place under the inversion layer. Handpile and tractor pile burning above fall or winter inversion layers can direct smoke away from sensitive locations.

Yarding Unmerchantable Material: Unmerchantable material would be yarded in selected units to reduce the intensity of fire in prescribed burning units and make it easier to hand pile. This technique reduces the pre-burn fuels loading through increased utilization; refer to *Yarding Unmerchantable Material* below.

Tractor piles and Hand piles: Piles would be constructed and prepared so they will burn with a minimum of smoke. Techniques include covering piles to keep them dry and construction

methods to limit soil incorporation into the piles; also refer to *Tractor Piling* later in this section.

Naturally Occurring Asbestos

Rock Sources: A Geologist and Engineering representative would evaluate all rock sources for naturally occurring asbestos. Testing for asbestos, obtaining permits, and notification of appropriate state and local agencies would occur as necessary.

Road Work: Upon award of the timber sale contract, the Contract Inspector, Project Engineer, and Geologist would review all units, landings, quarry sites, and roads to be used in the project, checking them against the bedrock map which identifies ultramafic rock. Appropriate asbestos toxic control standards, as described in the Geologic Report, would be applied to those lands underlain by ultramafic-bearing rock.

Watershed Health and Fisheries

Best Management Practices (BMPs): BMPs are water quality maintenance and improvement measures developed in compliance with the Clean Water Act, certified by the State Water Resources Control Board and approved by the Environmental Protection Agency. The BMPs appropriate for the action alternatives are listed in Appendix B.

Wet Weather Operation Standards (WWOS): WWOS would be applied to protect the transportation system, maintain water quality, and preserve the soil resource. The *Wet Weather Operations Standards and Field Guide,* revised May 16, 2002, is incorporated by reference and on file in the project record. The WWOS were developed by the Forest, in conjunction with the USFS Pacific Southwest Region and a representative from the North Coast Water Quality Control Board. The standards are intended to provide more specific information to assist field employees in determining when activities are at risk of not meeting BMPs. The goal of the *WWOS* is to avoid "excessive damage," which should not occur if the standards are being met. The guidelines would be used to determine if conditions are favorable for wet weather or winter operations, and to provide guidance as to when conditions warrant suspension of operations, when operations may begin or resume, or when and what remedies may be appropriate.

Coarse Woody Debris: In Green Tree Retention Units 121, 139, 255, 261, and in Green Tree Retention or Group Selection portions of Units 120, 137, 141, and 152, the unmerchantable (cull) portion of felled trees (preferably the butt log) when greater than 20 inches in diameter and greater then 10 feet in length would be left to increase coarse woody debris in Alternative 2. Alternative 3 would be similar, but would not include Units 255 or 261. One to two logs per acre distributed across each unit would be left rather than concentrations of coarse woody debris.

Slope Restrictions for Equipment: Tractor yarding and piling equipment would be restricted to slopes less than 35%. On slopes greater than 35%, tractor-logging equipment would be restricted to approved skid trails on ridges and flatter areas with endlining used between the skid trails. The Masticator would be restricted to slopes less than 45%.

Tractor Piling: Tractor piles would be made with a dozer using a brush blade. The brush blade teeth should not touch the soil unless soil scarification is needed for site preparation purposes. This should prevent soil from being incorporated into the pile. Only material 3 inches and larger would be piled to prevent unnecessary soil disturbance. Some of the

smaller material would likely be crushed into the soil by the dozer tracks. Dozers would operate only when the soils are dry down to 10 inches.

Skid trails and Landings: Existing skid trails would be reused whenever practical. Existing skid trails can include existing constructed skid trails (full bench). No new constructed skid trails would be allowed under any circumstances. The WWOS would be used to determine when to operate equipment on skid trails. Existing landings would be used; maintenance would be conducted as necessary.

Yarding Unmerchantable Material: Unmerchantable material would be yarded in selected units to reduce the intensity of fire in prescribed burning units and make it easier to hand pile. All material in excess of the one to two logs per acre needed for coarse woody debris in the specified units could be removed.

Riparian Reserves: RRs, including stream courses, springs, and unstable areas as identified in the *Forest Plan* in Standard and Guideline MA10-2, would be flagged on the ground and/or designated on sale area maps, and avoided with the exception of those identified above in the Design Feature section. The exceptions, RRs with the forest health prescription in Alternative 2, would be designated on the ground through tree marking. With the exception of Unit 77, no tractor yarding equipment would be allowed within any RR buffer or the feature it protects. Cable yarding corridors would not be allowed to go through RRs, unless a field assessment by an Earth Scientist and Logging Systems Specialist determines that this can be accomplished without damage to residual trees. Prescribed fire would only be allowed to back into RRs and only under conditions that result in an overall low intensity burn. No ignition would be permitted within RRs. Project design standards as outlined in the Biological Assessment and Evaluation for Pre-commercial Thin and Release Actions and Fuel Hazard Reduction Actions on the Klamath National Forest (USDA FS 2001a) would be followed. Unstable lands (including active landslides, inner gorges, and toe zones) would be identified and evaluated during preparation of the site burn plan, and prescriptions would be adapted, where necessary, to achieve site-specific objectives for Geologic RRs. With Alternative 2, the Hydrologist would coordinate with the timber layout crew to assure proper application of thinning marking prescriptions in Hydrologic RRs and the Geologist would do the same for Geological RRs. In Alternative 2, all RRs would be helicopter logged, except the one in Unit 77 that would be tractor and cable yarded.

Mastication: The masticator would not be allowed within 50 feet of perennial or intermittent channels more than a foot wide or within 100 feet of any stream more than a foot wide. In addition, the masticator would not be allowed within the break in slope per the Biological Assessment and Evaluation for Pre-commercial Thin and Release Actions and Fuel Hazard Reduction Actions on the Klamath National Forest (USDA FS 2001a).

Aquatic Period of Operations: Operations would be allowed from April 15 through October 15; this restriction is to protect the aquatic resource. This period may be extended on either end of the season based on a long-term dry weather forecast, the ability to winterize activities at the end of every day, recommendation from a Fisheries Biologist and/or Hydrologist, and authorization by the District Ranger. No new operations would be allowed to start outside the Aquatic Period of Operations.

Water Drafting: The amount of fine sediment generated and transported from work sites would be minimized by implementing dust abatement measures (BMP 2.23) following these guidelines:

- Water drafting would take place in designated drafting sites developed for this purpose.
- Water would be drafted in anadromous fish bearing streams following NOAA Fish *Water Drafting Specifications* (USDC NMFS 2001) including but not limited to:
  i. Operations would use a fish screen with openings no bigger than 3/32-inch diameter for round holes or square openings on the diagonal; slotted openings would have a maximum width of 1/16 inch;
  ii. Fish screen would be placed parallel to flow;
  iii. Pumping rate would not exceed 350 gallons per minute and 10% of the flow of the stream; and
  iv. Pumping would be terminated when tank is full.

Hazard Tree Removal: Hazard tree removal is a non-discretionary action to meet Occupational Safety and Health Act standards for hauling, landing use, tree falling, and associated project actions. Klamath Hazard Tree Guidance dated February 6, 2001 (USDA Forest Service 2001d), would be followed for the removal of any hazard trees. Provisions in the NOAA Fish Letter of Concurrence Regarding Hazard Tree Removal dated August 1, 1997 (USDC NMFS 1997c) would be followed for any hazard trees removed from RRs.

Wildlife

Northern Spotted Owls

Seasonal Restrictions for NSO Habitat: The Timber Harvest Contract would include a seasonal restriction from February 1 through September 15 for Units 68 and 86. Three survey visits would be conducted in these two units the year of action, prior to implementation of harvest activities. If surveys confirm that there are no owls nesting in (or within ¼ mile) of these units, timber harvest and associated activities may proceed without a seasonal restriction.

Noise Disturbance Restriction: Timber harvest, fuels treatment, and post-sale silvicultural activities would include a seasonal restriction from February 1 through July 9 for all activities generating noise above ambient levels within ¼ mile of a known, active NSO nest or within ¼ mile of unsurveyed suitable nesting/roosting habitat (habitat with high probability of NSO). This would include Units 69, 70, 71, 77, 88, 108, 113, 255, 256, 258, 259, and 261 for Alternative 2. It would include Units 69, 70, 71, 77, 113, 256, 258, and 259 for Alternative 3. Seasonal restrictions would be removed if three protocol surveys completed the year of the activity found no nesting owls within ¼ mile of planned actions. Seasonal restrictions for noise disturbance during road and watershed restoration work would apply to activities using mechanized equipment within ¼ mile of suitable NSO or goshawk habitat. Restrictions may be removed if surveys are completed and no nesting birds are found, or if field reconnaissance determines there is no habitat, or if activities occur in areas with high ambient noise levels. Roads 39N27, 39N27.10, 39N41.3 (1st ½-mile), and 39N21.1 would be seasonally restricted from February 1 through July 9 for NSO**.**

Smoke disturbance: No more than 50% of the suitable NSO habitat within a 7th field watershed would be underburned within a given year. Seasonal restrictions for burning would be applied to Units 68, 69, 70, 71, 108, 126, 255, and 256 in Alternative 2. Seasonal restrictions for burning would be applied to Units 68, 69, 70, 71, 126, and 256 in Alternative

3. In unsurveyed "high probability" habitat and known NSO activity centers, no burning would occur between February 1 and July 31 unless spring surveys are conducted during the year of activity (three visits prior to action, starting after March 1 with visits at least 5 days apart) and no birds are found. If NSOs are detected during any survey effort, no activity would occur within ¼ mile of activity centers between February 1 and July 31 or activity may occur in spring within suitable habitat if surveys determine Non-nesting Status for known activity centers the year of action and smoke is managed as follows: When burning in spring in suitable habitat, smoke is managed so that light to moderate, dispersed smoke may be present within a canyon or drainage, but dissipates or lifts within 24 hours. Burning or fuels hazard reduction projects in non-habitat or in "low probability" suitable NSO habitat may occur at any time of year.

Gopher baiting: The probe method of below ground gopher baiting would be used within ¼ mile of suitable nesting/roosting NSO habitat. This applies to Units 86, 88, 121, 132, 152, 255, and 261 in Alternative 2. It applies to Units 86, 121, 132, and 152 in Alternative 3. Standard specifications for strychnine baiting application and post-treatment monitoring would be followed. Post-treatment monitoring for spilled grain and above ground carcasses would occur on 10-15% of the total acres baited each year (for methods, refer to the BA for Gopher Control Projects on Scott River Ranger District, August 16, 1999). Monitoring results would be summarized annually and included in the FWS year-end report for Meteor.

Table 6 summarizes the resource protection measures for TES species protection. All potential units are listed; however Alternative 3 would not include Units 88, 108, 190, 255, the western portion of 256, or 261.

Table 6. Summary of Resource Protection Measures for TES Species Protection

Activity	Project Component	Species Protected	Protection Measure
Timber Harvest	Units 68 and 86	NSO	Surveys required.
Timber Harvest	Units 71 and 119	Goshawk	Seasonal Restriction from March 1 through August 31.
Use of heavy equipment with noise above ambient levels	Units 69 70, 71, 77, 88, 108, 113, 256, 258, 259, and 261. Roads 39N27, 39N27.10, 39N41.3 (1st ½ mile) and 39N21.1	NSO	Seasonal Restriction from February 1 through July 9 or surveys the year of action.
Use of heavy equipment with noise above ambient levels	Road 39N34.3	Goshawk	Seasonal Restriction from March 1 through August 31.
Fuels Treatments	Units 68, 69, 70, 71, 108, 126, 255, and 256.	NSO	Seasonal Restriction from February 1 through July 9 or surveys the year of action.
Gopher Baiting	10-15% of treated units: 86, 88, 121, 132, 152, 255, and 261	NSO	Use probe method of application and monitor for spilled grain and carcasses.

Other Species

Northern Goshawk Seasonal Restrictions: Seasonal Restrictions from March 1 through August 31 would apply for harvest activities occurring within ½ mile of active goshawk nests and for noise generating activities within ¼ mile of active goshawk nests. This applies to

Units 71 and 119. Road 39N34.3 would be seasonally restricted between March 1 and August 31 for goshawks.

Del Norte salamander: Although no longer a S&M species, known sites in Units 132 and 259 would be protected by the following measures: A minimum of 60% canopy closure would be left within one tree-length (170') of the contiguous habitat (not the animal's exact location), larger hardwoods do count towards canopy closure. A timber harvest yarding system that will do the least ground disturbance (skyline or helicopter) would be used. A seasonal restriction would be applied from October 1 through May 30 to reduce adverse effects when the salamanders are on the surface. This date is flexible depending on the yearly weather conditions. Winter activity may be allowed if the ground is frozen or covered by snow. These conditions need to be reviewed by the local biologist before relief on the seasonal restriction is given. The project design standards for other species would benefit this species as well.

Klamath shoulderband (Helminthoglypta talmadgei): Although no longer a S&M species, known sites within Units 82, 83, 84, 113, 114, 116, 119, 122, 123, 124, 126, 128, 130, 133, 134, 137, 141, and 152 would be protected by maintaining sufficient canopy cover, restricting heavy equipment use, and protecting key habitat features. Key habitat features include talus areas, hardwoods, dry/rocky aspects, overstory canopy and herbaceous ground cover.

Spring Burn: Unit 126 would be burned in the spring to reduce fire intensities as there is heavy fuel loading in the southern end of the stand.

Noxious Weeds

Equipment Cleaning: Timber Sale Contract clause C6.36 - Equipment Cleaning, would be included in the contract. This provision requires the cleaning of equipment prior to its entry onto National Forest System lands. The equipment must be free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. The known knapweed site in Unit 77 would be within a no treatment buffer; no blading would be allowed along the road adjacent to the knapweed site in Unit 77.

Rock Sources: Only existing rock sources would be used. Prior to using any portion of the rock pit on Road 40N42, a Botanist must give clearance that the noxious weed, spotted knapweed, is not present in that particular area.

Water Sources: Water sources, especially at the lower Methodist Creek site, would be rocked for weed and erosion control per BMP 2.21. Rock used for this purpose should originate from weed free areas. Potential rock sources for this project should be surveyed before use.

Weed–free Seed: To prevent the introduction of weed species, all materials used in the decommissioning of roads will be certified weed free, including seed and straw.

Road Grading: Road grading in the Methodist/Hotelling area would be done before seed set to try and limit the seed spread from the current year. When blading Road 39N26, the small population of spotted knapweed adjacent to unit 77 would be flagged, and no blading would be permitted in the vicinity of the population to avoid moving knapweed seed that may be dormant in the soil.

Inventory and Monitoring: The on-going inventory and monitoring of noxious weeds will continue in the project area, as it does in other parts of the District. New locations or species of concern would be incorporated into mitigation measures as necessary.

Scenery

Leave Trees: Distribution of leave trees would generally replicate the irregular spacing and species diversity of naturally-occurring local forest conditions. Leave trees would be retained in key locations or openings shaped as agreed to by the Silviculturist and Landscape Architect to achieve scenery objectives in specified units. This would apply to Units 86, 88, 130, 137, 141, 190, and 256 in Alternative 2. It would apply to Units 86, 130, 137, and 141 in Alternative 3.

Foreground views to Unit 77: Skid roads in the foreground views along the East Fork Salmon River Road would be located out of sight. Leave tree marking would not be visible from the road. Stumps (less than 6 inches high), slash, and other unnatural-appearing tree removal evidence would remain subtle or invisible, as viewed from the road.

Openings: Created openings created within view of sensitive roads, rivers, and trails should have shapes, locations, and edge characteristics reflecting naturally occurring forest canopy patterns. This would apply to Units 86, 88, 137, 141, 190, 256, and 261 in Alternative 2. It would apply to Units 86, 137, 141, and 256 in Alternative 3.

Heritage Resources

Heritage Resources: Contract Provision C6.24 (Protection of Cultural Resources), which is required in all timber sale contracts would protect known cultural sites and any sites discovered during project implementation. Known historic or prehistoric sites, buildings, objects, and properties related to American history, architecture, archaeology, and culture are protected through this contract provision. The Forest Service is required to modify or cancel a contract to protect an area, object of antiquity, artifact, or similar object. The contract provision requires the contractor to promptly report any new discovery. This contract provision would be used to prevent ground disturbance in known sites.

Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives are outside the scope of providing a sustained yield of wood products, reducing the risk of catastrophic fire in these stands, maintaining unique wildlife habitats, and providing an economical, safe, and environmentally sensitive transportation system. Others may have been duplicative of the alternatives considered in detail. Others have components that would cause unnecessary environmental harm. Others are not feasible. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

No-Harvest, Restoration Only Alternative

This alternative would not meet the need to maintain stand health and develop resilient stands. The stands identified for timber harvest need to have commercial-sized trees removed to reduce stocking levels, remove existing and imminent mortality, regenerate them, and reduce fuel loading. If stocking levels are not controlled, standing fuels are not removed, high risk trees are left on the site; the stands would remain susceptible to insect and diseases, leading to future mortality and fuel build-ups. If fires ignite, there is a high risk that these stands would burn at a high intensity causing stand replacement. This alternative does not meet the need to contribute to a sustained yield of wood products.

Chemical-Free Alternative

This alternative would not meet the need to maintain stand health by leading stands into a resilient condition where they can provide a sustained yield of wood products. Regeneration was identified as the appropriate action for achieving this in certain stands. Experience and monitoring over the years has found that certain types of stands require gopher baiting to achieve regeneration that meets the reforestation criteria of NFMA. Gopher baiting has been analyzed in many assessments, including the Granite Gopher Baiting EA (USDA FS 1998b), the Scott River Gopher Control EA (USDA FS 2000b), and the Gopher Baiting BA (USDA FS 1999b). The Granite Gopher Baiting EA assessed this activity and found it to be a very low intensity treatment with low risk to human health and safety. Past analysis, monitoring, and studies of gopher baiting show little risk of secondary poisoning of non-target species (refer to Granite Gopher Baiting EA; Scott River Gopher Control EA; Gopher Baiting BA; Wildlife BA, page 23; Bulkin and others 1997; Nolte and Wagner 2001; Cuenca 2003). Gopher baiting only removes a small proportion of the population in limited areas during the critical regeneration period. Due to gopher's high birth rate, they would re-colonize these areas within several years time. The alternative treatment of gopher trapping has been found to be less effective and cause more environmental harm. A Gopher Monitoring Report from the Rogue River National Forest (Bulkin and others 1997) found more non-target kills for trapping gophers than for baiting, as well as greater expense for trapping.

Alternative That Does Not Impact "Areas With Watershed Concerns" Or Subwatersheds That Are Cumulatively Impacted, Northern Spotted Owl Habitat Or Late-Successional/Old Growth Forests

Part of this alternative is duplicative of Alternative 3. Alternative 3 does not propose any harvest or associated vegetation treatment in Kanaka/Olsen and proposes only one cable thinning unit in Negro/Hotelling, these are the two areas identified as AWWCs. An alternative that avoids NSO habitat and late-successional stands would not meet the need to maintain stand health by leading stands into a resilient condition where they can provide a sustained yield of wood products. These areas are Matrix land; refer to Chapter 1, Management Direction.

Comprehensive Road Restoration Alternative

A comprehensive program to aggressively identify and decommission environmentally harmful roads is outside the scope of the proposed action. The Forest has been completing roads analysis processes (RAPs) at the forest and project scales. The RAP information allows road improvements, decommissioning, and adjustments to be made as projects in various areas provide opportunities. Summerville and Yoakumville are examples of this within the Salmon River Watershed. Part of this alternative is duplicative of the alternatives considered in detail. The action alternatives for Meteor include decommissioning roads within the project area that are not needed and have been identified as causing resource damage through the RAP.

Decommission New And Existing Landings

Part of this is duplicative of the alternatives considered in detail. No new landings are proposed for construction in either of the action alternatives. Decommissioning existing landings would not meet the need for an economical transportation system. The majority of the project is on Matrix lands, where a sustained timber yield is part of the objective of the area.

No New Road Construction, Road Re-Opening, Or Adding Roads To The System

Part of this is duplicative of the alternatives considered in detail. No new road construction is proposed in either of the action alternatives. Avoiding adding roads to the system would not meet the need for an economical transportation system. These are matrix lands, where an efficient and environmentally sensitive transportation system is part of the desired condition.

Accomplish The Project In The Near Future, Not In Three To Five Years

A time frame of less than three years is not feasible, given the scope of the action alternatives. The acreage proposed for treatment would require a two to three year timber sale contract. Many of the associated activities cannot begin until the logging is finished, such as fuel treatment and reforestation, and then would take time to complete. Requirements to protect Federally listed species, such as seasonal restrictions on operations also extend the time needed to accomplish project activities.

Set Aside Some Portion Of The Timber Sales To Improve The Main Road And Signage In The Area

This alternative is not legal under the current laws. Funding the improvement of the main road and signage is not an appropriate use of timber sale receipts. Road improvements, unless they are for the haul route of a timber sale, must be funded by funds related to Engineering or Watershed Restoration.

Use Hand Release Rather Than Mastication

Hand piling is not as effective at reducing fuels as mastication, so would not meet that part of the need for the proposal. Also, hand piling does not have a protective effect on the soil like mastication, which leaves a layer of material to cover the soil, preventing rain splash and erosion.

Focus on Protecting Communities From Fire

This alternative would only meet one of the purposes of this proposal, to reduce the risk of catastrophic fire. It would not meet the purposes of developing stands resilient to insects and disease, providing a yield of wood products, or improving the transportation system. Other Forest Service programs do focus on community protection from fire; these projects are part of the National Fire Plan. Decisions for several fuel reduction projects have been completed on the District, including Garden Gulch 1 and Taylor Fuel Project. Other projects are currently being developed. A Fire Protection Strategy for the Sawyer's Bar Community is also being developed; a number of projects will likely come from this effort.

Limit Logging to Less Than a Certain Diameter Class, Commercial Thin Only

Members of the public made two proposals. One proposal suggested limiting logging to trees less than 17 inches in diameter, the other suggested limiting logging to trees less than 12 inches at diameter breast height. Neither provided information on why these particular diameters were chosen. An alternative with an upper diameter limit would not achieve the purpose for stands to be resilient to wildfire, insect and disease. It would not allow dying trees to be removed if they were of a certain size class. Dead trees would increase future fuel loading in the stands and not meet the purpose of reducing the risk of catastrophic fire. It would not provide for low conifer mortality in the future, as many high-risk trees would be left on the site. A diameter limit would not allow the trees with the highest vigor that are most resistant to insects and disease to be left on the site in the thinning prescriptions. An alternative with a diameter limit or that allowed thinning only would not allow regeneration of stands that are in an advanced state of decline. As the trees in these stands died, fuel loading would be high and they would be at risk of stand-replacing fire. This would not meet any of the purposes of the project.

Allow No Logging in Wild and Scenic River Corridors

This alternative would not meet the need to maintain stand health by leading stands into a condition resilient to wildfire, insects and disease where they can provide a sustained yield of wood products. These Recreational WSRs are Matrix land; refer to Chapter 1, Management Direction.

Maximum Treatment Alternative

An alternative that treats a large number of stands that are currently not at their vegetative desired condition was not considered in detail due to various resource and economic

concerns. Many of the proposed treatments would not be consistent with *Forest Plan* standards and guidelines. Others would not be economically viable. The specific reason for each stand can be found in Appendix D.

Commercial Thin Plantations Only Alternative

An alternative that only commercially thinned plantations is infeasible given the ecological types, site productivity, age classes, and size of existing plantations within the assessment area. Thinning to improve growth and yield retains the healthy dominant and most of the codominant trees as described on page 3-7 of the Draft EIS. Removing suppressed, intermediate, a few codominants, and any dead or dying trees from the plantations would not provide a commercial product. Trees in the lower crown classes have the smallest diameters in the stands and the majority of them would not be merchantable. Nor is there a market for small diameter material on the westside of the Forest. The mills likely to bid on westside logs need an average size of 16 inches diameter breast height for a viable sale, given their capacities. A considerable amount of precommercial thinning of plantations has been accomplished on the Salmon River District to achieve desired conditions in those stands and more is planned for the future. Past Decision Memos authorizing precommercial thinning and fuel treatment include Salmon Plantation Treatment 2003-2004, Precommercial Thinning/Release and Manual Release 2002, and Salmon River Precommercial Thinning & Release. Where plantations are large enough to be commercially thinned, they are included in projects; Taylor Fuels Reduction Project is an exmaple.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in **Table 7** is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 7. Effects or Outputs by Alternative

Effect or Output	Alternative 1	Alternative 2	Alternative 3
Acres Providing Healthy Growing Conditions	0	875	691
Acres Where Fire Management Objectives Are Achieved in the Short Term	297	744	650
Increase in On-Site Landslide Potential in Jones Gulch	None	Low	None
Cumulative Watershed Effects	No new management disturbances	Negligible to low impact, depending on the 7th field watershed	Negligible to low impact, depending on the 7th field watershed
Effects on Anadromous Fish Habitat	No new management disturbances	Negligible to no effect on water temperature, turbidity, sedimentation, pool quality, large woody debris in streams, and streambank stability.	Negligible to no effect on water temperature, turbidity, sedimentation, pool quality, large woody debris in streams, and streambank stability.
Potential for erosion and sedimentation in streams from treating Riparian Reserves	Not applicable	Minimal ground disturbance, small to negligible increase in landslide risk, unlikely that material would reach streams	Not applicable
Acres of change in Quality or Quantity of NSO Critical Habitat within the Matrix.	None	26 acres foraging/dispersal habitat degraded, 5 acres of dispersal lost	26 acres foraging/dispersal habitat degraded, 5 acres of dispersal lost
Compliance with WSR values	Compliant	Compliant	Compliant
Estimated Volume Produced	0 million board feet	6.0 million board feet	5.1 million board feet
Present Net Value	0	$187,925	$159, 780