United States Department of Agriculture

Forest Service

Pacific Southwest Region

Modoc County

California

April 2008

# Cedar Pass Forest Health Project

## *ENVIRONMENTAL ASSESSMENT*

## Warner Mountain Ranger District
## Modoc National Forest

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## Cedar Pass Forest Health Project

### *Environmental Assessment*

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**UNITED STATES DEPARTMENT OF AGRICULTURE**

**Forest Service**
**Pacific Southwest Region**
**Modoc National Forest**
**Warner Mountain Ranger District**
**Modoc County, California**

# CEDAR PASS FOREST HEALTH PROJECT ENVIRONMENTAL ASSESSMENT


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**ABSTRACT:**
This Environmental Assessment describes alternatives for the Cedar Pass Forest Health Project. **Alternative 6** – Proposed Action, would treat approximately 480 acres of National Forest system lands through selective thinning, salvage/sanitation thinning, pile burning and underburning, and inter-planting of ponderosa pine. **Alternative 3** – No Action, would not implement any vegetation management activities within the project area at this time.

# Cedar Pass Forest Health Project
## *Environmental Assessment*

## CHAPTER 1: PROPOSED ACTION and PURPOSE OF AND NEED FOR ACTION

## INTRODUCTION

The Forest Service (FS) has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. This Chapter includes information on the history of the project proposal, purpose and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the FS informed the public of the proposal and how the public responded.

## BACKGROUND

The Cedar Pass Forest Health Project is located adjacent to Cedarville within the Wildland-Urban Intermix zone (WUI) where human habitation is mixed with flammable wildland vegetation (SNFPA 2004a). The project area, divided by State Highway 299 near Cedar Pass, includes power and telephone lines, public and private recreation facilities, and borders private lands and homes. Other resources consist of wildlife habitats, including northern goshawk protected activity centers (PAC), and the Cedar Creek watershed.

Forested stands in this area are generally white fir – ponderosa pine with north slopes dominated by white fir and the dryer slopes and lower elevations dominated by ponderosa pine. The absence of fire has allowed over-dense forest vegetation to develop. These conditions, combined with prolonged drought have reduced forest health and have triggered wide-spread tree mortality, particularly of white fir, but also affecting ponderosa pine, as a result of bark beetle attack and annosus root disease.

"Trees that succumb to fir engraver attacks are typically predisposed by factors that compromise tree health and vigor. In the Cedar Pass area, high stand density, prolonged drought, and annosus root disease are all contributing factors in the decline of tree health." (USDA Forest Health Protection, 2004b)

The distribution of white fir mortality on the Modoc National Forest is strongly influenced by mean annual precipitation. The lower limit of precipitation in the natural range of white fir is about twenty inches. Based on a risk rating system developed by Forest Health Protection staff, the stands proposed for treatment are at high to extreme risk of significant mortality with 20 to 30 inches of rainfall in a *normal* water year. The water year 2006-2007 is on record as the 7$^{th}$ lowest precipitation since 1894 for Cedarville, CA and five of the lowest years have occurred in the last forty years (2007a). This has had a

dramatic effect on tree mortality and accumulation of standing and surface fuels, making the area susceptible to high intensity stand-replacing fire.

Given these conditions and the arid climate of northeastern California, it is desirable to reduce tree competition for limited water and nutrients and promote species such as ponderosa pine for diversity and resilience to drought, insects, disease and fire (USDA 2004b). In order to accomplish this, the Cedar Pass Forest Health Project proposes to modify the factors that can be managed: vegetation density and species composition.

# PURPOSE OF AND NEED FOR ACTION

The purpose of this proposal is to achieve the following goals and objectives:

- Restore stand structure and species composition to conditions more resilient to periodic drought and disturbance that could be maintained, over the long term, with prescribed fire.

- Increase the health and vigor of residual trees including larger overstory trees to reduce risk of successful bark beetle attacks and reduce bark beetle caused tree mortality over the long term.

- Provide for long term wildlife habitat needs by increasing forest health and resiliency and reducing the risk of adverse impacts from wildfire.

- Respond to concerns brought forward by the public about forest health in the Cedar Pass area.

- Implement direction provided by the National Fire Plan (2002) and Healthy Forest Restoration Act (2004) to reduce fuel loadings in fire-prone forests to protect people and sustain resources. The Wildland-Urban Interface (WUI) areas where flammable wildland fuels are near homes and communities, is one of the highest priorities for treatment.

**Table 1-1** shows Forest Plan land allocations as amended by the SNFPA Record of Decision (ROD) within the proposed project area including a brief description of desired conditions. The entire proposed project is within the General Forest land allocation with other land allocations overlapping.

| Table 1-1. Land Allocations and Desired Conditions | |
|---|---|
| **Land Allocation** | **Desired Condition Descriptions** |
| **General Forest** | Forest structure and function generally resemble pre-settlement conditions. High levels of horizontal and vertical diversity exist at the landscape scale. Stands vary in size, species compostition, and structure. Tree sizes range from seedlings to very large diameter trees. Species composition varies by elevation, site productivity and related environmental factors (SNFPA ROD Page 41). Tree density has been reduced to a level consistent with the site's ability to sustain forest health during drought conditions (SNFPA ROD Page 41), resulting in reduced levels of bark beetle activity and associated tree mortality.<br>The density of large old trees and the continuity and distribution of old forests across the landscape is increased. The amount of forest with late-successional characteristics is also increased (SNFPA ROD Page 9). |
| **Wildland Urban Intermix Threat Zone** | Future stand conditions allow for restoration of periodic, low intensity underburns. Under high fire weather conditions, wildland fire behavior is characterized as follows: (1) flame lengths at head of fire of less than 4 feet; (2) rate of spread at head of fire is reduced at least 50 percent of pre-treatment levels; (3) hazards to firefighters are reduced by managing snag levels in locations likely to be used for control of prescribed fire and fire suppression consistent with safe practices guidelines; (4) production rates for fireline construction are doubled from pre-treatment levels; and (5) tree density has been reduced to a level consistent with the site's ability to sustain forest health during drought conditions (SNFPA ROD Page 41), resulting in reduced levels of bark beetle activity and associated tree mortality. |
| **Northern Goshawk PAC** | The density of large old trees and the continuity and distribution of old forests across the landscape is increased (SNFPA ROD Page 9). At least 2 canopy layers are present. Dominant and co-dominant trees average at least 24" DBH. Area within the PAC has at least 70% CC. Large snags and high levels of snags and down woody (SNFPA ROD Page 38). |
| **Riparian Conservation Area** | Habitat supports viable populations of native and desired non-native plant, invertebrate, and vertebrate riparian and aquatic-dependent species. Species composition and structural diversity of plant and animal communities provide desired habitat conditions and ecological functions (SNFPA ROD Page 42). |

# PROPOSED ACTION

The Warner Mountain Ranger District of the Modoc National Forest is proposing to treat approximately 480 acres of National Forest system lands as the **Cedar Pass Forest Health Project**. The proposed project is located about five miles west of Cedarville (see **Map 1 – Vicinity Map** on Page 5). The legal location is: T43N, R15E, Sections 27, 28, 33, and 34 (see **Map 2 – Project Area Map** on Page 6).

The proposed action includes the following:

- Selective thinning of trees between 10 and 30 inches diameter at breast height (dbh), utilizing mechanical whole tree removal on 412 acres. Hazard trees greater than 30 inches DBH would be removed adjacent to the ski runs in unit 27.

- Ponderosa pine will be favored for retention over fir and juniper over 412 acres. Ponderosa pine would be interplanted in areas with inadequate pine seed source.

- Mechanical (piling, chipping or mastication) and prescribed burning of fuels concentrations excess to down woody requirements on 412 acres.

- Hand thinning (by chainsaw), piling and burning of trees less than 10 inches dbh on about 480 acres.

- Riparian Conservation Areas (RCA) 150 and 300 feet respectively, from seasonal and perennial creeks would be selectively thinned using a combination of mechanical and hand methods.

- Approximately 0.21 miles of temporary road would be established over Cedar Creek Trail to access Unit 29 for treatment. The trail would be restored following treatment.

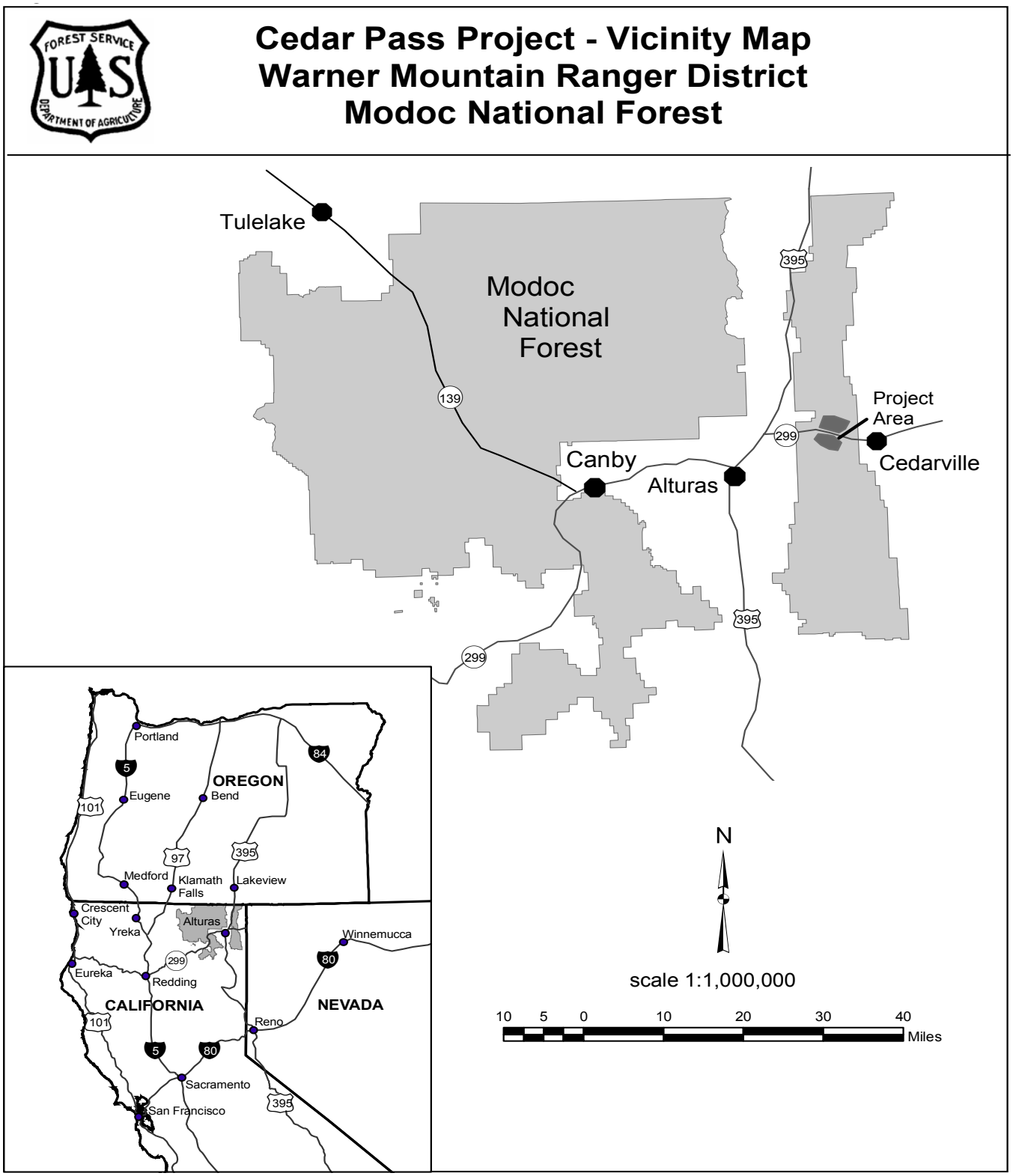
- Additional interpretive signs and information would be developed to enhance the existing recreational and educational values associated with the Cedar Creek Trail.

The Proposed Action consists of ten units. Three are near Stough Reservoir in the RUS subwatershed, and seven are within or near the Cedar Pass Snow Park in the LUS subwatershed (**Map 2**, Page 4). Acres and treatment by unit are shown in **Table 1-2**.

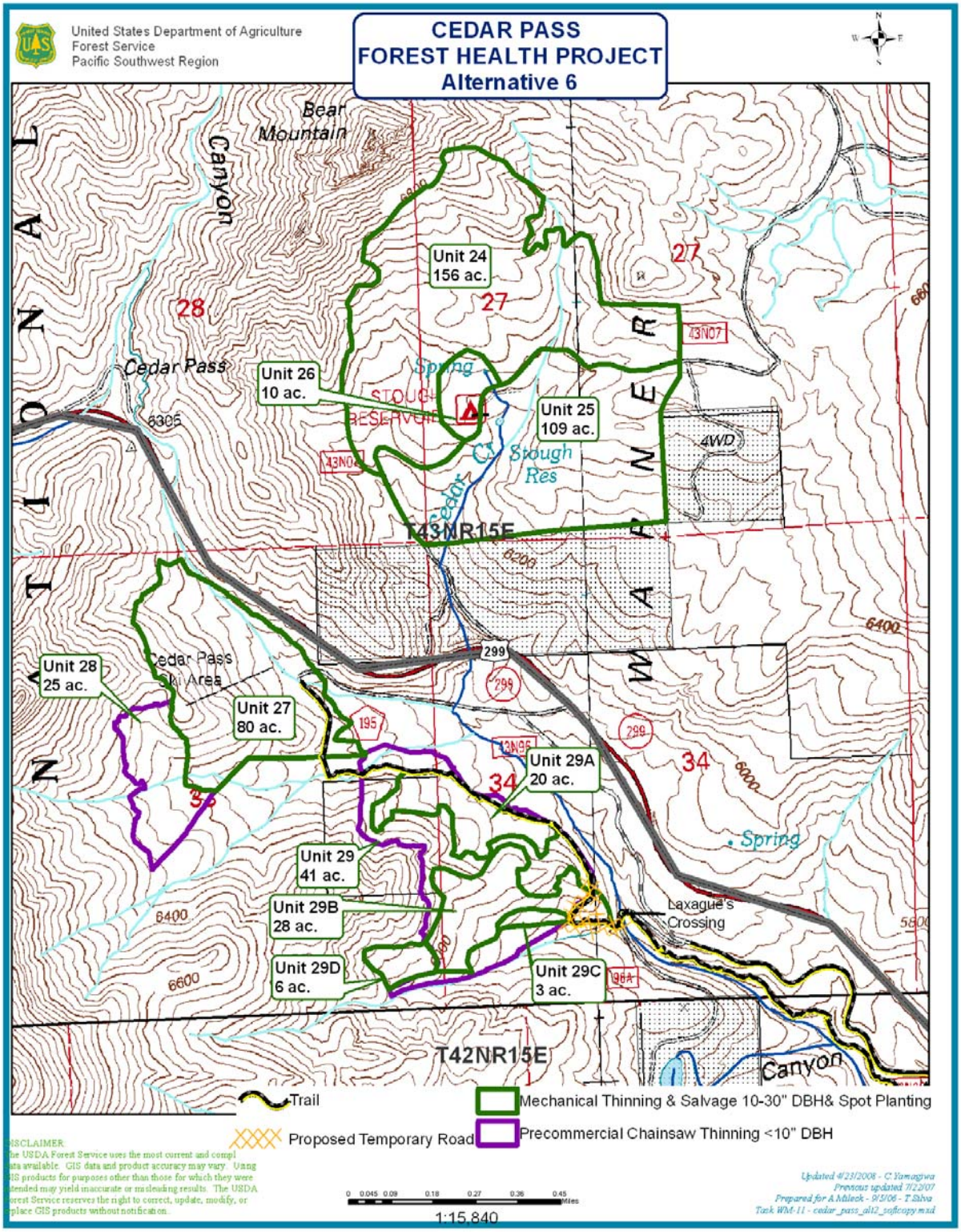
**Table 1-2 Acres for Units Proposed for Treatment**

| Unit Number | Acres | Treatment |
|---|---|---|
| **RUS SUBWATERSHED** | | |
| 24 | 156 | Mechanical and Hand Thin / Prescribed Underburn |
| 25 | 109 | Mechanical and Hand Thin / Prescribed Underburn |
| 26 | 10 | Mechanical and Hand Thin / Prescribed Underburn |
| **LUS SUBWATERSHED** | | |
| 27 | 80 | Mechanical and Hand Thin / Pile and Burn |
| 28 | 25 | Hand Thin / Hand Pile and Burn |
| 29 | 41 | Mechanical and Hand Thin / Prescribed Underburn |
| 29A | 20 | Mechanical and Hand Thin / Prescribed Underburn |
| 29B | 28 | Mechanical and Hand Thin / Prescribed Underburn |
| 29C | 3 | Mechanical and Hand Thin / Prescribed Underburn |
| 29D | 6 | Mechanical and Hand Thin / Prescribed Underburn |
| **TOTAL** | **478** | |

## MAP 1 - VICINITY MAP



# MAP 2 - PROJECT AREA MAP



# DECISION FRAMEWORK

The decision to be made by the District Ranger, based on review of the Purpose of and Need for Action and environmental consequences is whether to approve the Proposed Action or not implement the project at this time in the Cedar Pass project area.

# 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, Land and Resource Management Plans, and site-specific planning documents such as this EA. These higher-level documents are incorporated by reference and can be obtained from FS offices.

The Proposed Action and Alternatives 1 and 2 are consistent with the *Modoc National Forest Land and Resource Management Plan* (Forest Plan) (USDA 1991) as amended by the *Sierra Nevada Forest Plan Amendment Final Supplemental Environmental Impact Statement Record of Decision* (USDA 2004a). The Proposed Action is designed to meet Forest program goals (Forest Plan pp 4-1 to 4-5) and follow standards and guidelines (Forest Plan pp 4-13 to 4-33).

# SCOPING

The FS initiated public scoping by including this project in *Modoc National Forest Schedule of Proposed Actions* (SOPA) since October 1, 2004. The SOPA is posted on the Forest web page and mailed to agencies, tribal representatives, organizations, and individuals who have requested it. Additional public scoping includes the following:

- A letter, dated February 22, 2005, was sent to individuals and groups that had requested information about the proposed action, adjacent landowners, and other potentially interested parties.
- A public notice was published in the *Modoc County Record* on February 24, 2005.
- A field visit with the Ski Association held at the Ski Hill (unit 27) and Cedar Creek Trail (unit 29) on October 19, 2006.
- A meeting with Kyle Haines of Klamath Forest Alliance, March 4, 2008
- A meeting with the Cedarville Chamber of Commerce March 12, 2008
- A meeting with Alturas Elementary School Teachers March 13, 2008

Native American groups including representatives for the Fort Bidwell Indian Community Council, Cedarville Rancheria, and Pit River Tribe were contacted. Representatives from the Forest also participated in discussions about this project at quarterly consultation meetings with the Fort Bidwell Reservation and Pit River Tribe. The need to treat forest health problems was identified through these discussions.

A total of ten groups/individuals corresponded in response to scoping. One correspondence was an address correction and three were requests to be on the mailing list. Two correspondences were from the State of California and Modoc County providing information on coordinating road use and permits. The remaining correspondence included comments expressing concerns about potential effects to soils, sensitive plants and wildlife, potential for spread of noxious weeds, use of fungicide Borax/Sporax, and lack of opportunity to comment on the analysis. Additional scoping meetings held with the Cedarville Chamber of Commerce and Alturas Elementary School teachers clarified concerns about potential effects to the Cedar Creek Trail. Opportunity to comment on the analysis will be provided. The remaining issues are discussed in the following section of this document.

# ISSUES

Public scoping is an integral part of the environmental analysis process. Comments in response to scoping are used to determine the range of actions, alternatives, and impacts to be considered in an analysis and to identify issues related to a proposed action. Issues are divided into those truly significant to the action in question (40 CFR 1500.1(b)) and other non-significant issues.

Issues are identified as significant because of their extent, duration of effects, or intensity of resource conflict. Issues are identified as non-significant because 1) they are outside the scope of the Proposed Action; 2) they are already covered 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. Issues with limited extent, duration, and intensity of environmental effects were also considered non-significant. The Council on Environmental Quality (CEQ) *National Environmental Policy Act* (NEPA) regulations explain this delineation in Section 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review…".

No significant issues were identified by the interdisciplinary team (IDT) for the Cedar Pass Forest Health Project. Concerns raised by public input were incorporated into alternative development including the Proposed Action. The following is a description of non-significant issues identified by (IDT) for the Cedar Pass Forest Health Project.

# NON-SIGNIFICANT ISSUES

INVASIVE PLANTS

**Issue:** *Ground disturbance and associated equipment use could increase the risk of introduction of noxious weeds.*

Environmental consequences of alternatives for introduction of noxious weeds are evaluated based on the risk of spread in the following two categories:

**Existing circumstances** (not connected to Proposed Action):

- Inventory

- Known noxious weeds
- Habitat vulnerability
- Vectors unrelated to proposed project (existing roads and associated maintenance)

**Weed Spread Factors related to the Proposed Action**:

- Habitat alteration expected as a result of the project
- Increased vectors as a result of project implementation
- Design criteria

A *Noxious Weed Risk Assessment* (2005a) was conducted for the project area and is on file and available for review at the Warner Mountain Ranger District office. No noxious weeds are currently known within the project area, although Canada thistle and Scotch thistle are found nearby. Anticipated weed response to activities of the Proposed Action is low risk. Project design criteria include contract clauses for washing off-road equipment. Contractor's equipment will be inspected and must be found to be weed-free prior to entering project area. If noxious weeds are found within the project area they would be eradicated prior to ground-disturbing activity or flagged and avoided.

This issue was categorized as non-significant because general weed prevention practices for site-disturbing projects described in The Modoc National Forest Integrated Weed Management Strategy (2005b, pp.9-13) would be followed.

SOILS

**Issue:** *Skid roads, landings, and use of land-based skidding equipment can increase erosion and soil compaction.*

Existing soil conditions were reviewed and potential effects of Alternatives were analyzed for the Cedar Pass Forest Health Project. Results of this review and analysis, summarized here, are documented in the *Cedar Pass Project Hydrology and Soils Specialist Report* (USDA 2007b) on file and available for review at the Warner Mountain Ranger District office.

Protection of soils from loss of topsoil and maintenance of soil quality is achieved by meeting R5 Soil Quality Standards (R5 SQS) and Best Management Practices (USDA 2000). These guidelines are designed to assure long-term soil productivity by addressing potential direct, indirect, and cumulative impacts to the soils. Meeting soil cover guidelines would minimize risk of erosion and soil displacement while maintaining soil integrity and productivity. See *Chapter 2, Project Design Specifications* for a summary of soil productivity standards and guidelines applicable for this project.

Proposed actions would use existing roads, landings (where feasible), and a portion of an existing foot trail to reduce potential increase of soil compaction. These above referenced standards are designed to reduce erosion of wildland soils at acceptable levels in forested and range settings and are consistent with management direction contained within the Modoc National Forest Land and Resources Management Plan.

This issue was categorized as non-significant because Forest Plan and Region 5 Soil Quality Guidelines for soil cover and compaction would be met.

RECREATION

**Issue:** *Project activities would have negative effect on recreational value of Cedar Creek Trail.*

Existing recreational value of the Cedar Creek Trail and potential effects of Alternatives were analyzed for the Cedar Pass Forest Health Project. Results of this review, summarized here, are documented in the *Recreation Report for the Cedar Pass Forest Health Project* (Recreation Report) (USDA 2007c) on file and available for review at the Warner Mountain Ranger District.

Temporary road construction in the proposed actions would include use of approximately 0.21 mile of the Cedar Creek Trail for log hauling. The natural character of the trail would be restored through re-contouring, spreading wood chips, and if necessary, reseeding with weed-free seed for stabilization.

Selected trees would be removed in areas adjacent to the trail as part of the forest health project and would have a visual impact visible from the trail. In addition to trail and temporary road rehabilitation, pine seedlings would be planted for reforestation. The area would continue to provide educational experience through additional interpretive signs about forest insects and disease, tree harvest, site restoration and monitoring opportunities.

This issue was categorized as non-significant because project design criteria would minimize negative effects to recreational use of the Cedar Creek interpretive trail.

HERBICIDES/FUNGICIDES

**Issue:** *Use of herbicides and/or fungicides could cause significant adverse effects on humans, wildlife, aquatic species, and non-target plant species.*

The use of herbicides is not being considered as an option to control noxious weeds for this project. The use of Borax/Sporax is not being considered as an option for control of annosum root disease for this project. Since there would be no effects to humans or natural resources from this project, the issue of herbicide/fungicide use was determined to be non-significant.

# CHAPTER 2: ALTERNATIVES

## ALTERNATIVES CONSIDERED IN DETAIL

Alternatives 1, 2 and 3 were considered in detail by the interdisciplinary team (IDT) as documented by specialist reports for the *Cedar Pass Forest Health Project* on file at and available for review at the Warner Mountain Ranger District. As a result, the IDT determined that a

combination of Alternatives 1 and 2 would best meet the objectives of the project and developed Alternative 6 as the Proposed Action.

## ALTERNATIVE 1

Alternative 1 proposed 0.21 miles of temporary road construction over Cedar Creek Trail for access to Units 29 B, C and D, and excluded Unit 29A. Through further logging systems analysis, it was determined that Unit 29A could be accessed for treatment using the 0.21 miles of temporary road. The IDT determined that this design for road access would be used for Alternative 6. Therefore, Alternative 1 will not be mentioned further in this EA.

## ALTERNATIVE 2

This alternative proposed 0.59 miles of temporary road over Cedar Creek Trail needed to access Unit 29A. As described under Alternative 1, it was determined that Unit 29A could be accessed for treatment with 0.21 miles of temporary road. Due to this finding, the treatment unit configuration of Alternative 2 was added to Alternative 6 with the proposed road access from Alternative 1. Therefore, Alternative 2 will not be mentioned further in this EA.

## ALTERNATIVE 6 (PROPOSED ACTION)

Through detailed analysis of Alternatives 1 and 2, the IDT determined that combining the road access designed for Alternative 1 and the treatment unit configuration from Alternative 2 would best meet the objectives of the project with minimal resource impacts. Thus, Alternative 6 was developed as the Proposed Action as described in *Chapter 1*. Project design specifications described below are consistent with overall Forest Plan management direction and management area standards and guidelines.

Alternative 6 includes thinning stand densities to increase tree health and growth, promoting drought tolerant species, and reducing fuels. Stands would be thinned by selectively removing trees between 10 and 30 inch dbh, and hand thinning trees <10 inch dbh until desired basal area and stand density are met. Other design features described for the Proposed Action include favoring pine, retaining snags and down wood, treating RCA, and treatment of existing or activity generated fuels. Project design specifications to reduce potential for resource impacts would be implemented as part of this alternative and are described as follows:

**Project Design Specifications**:

- All activities would be planned and conducted in a manner to minimize impact to recreational facilities and public use.
- Best Management Practices (BMP) applicable to this project are listed in **Appendix A**.
- Suitable habitat for northern goshawk would be surveyed for occupancy prior to operations. If presence is established a limited operating period (LOP) from Feb 15$^{th}$ to Sept 15$^{th}$ would be applied.
- No trees or snags greater than 30 inches dbh will be harvested, except for hazard trees in unit 27 (Ski Hill).

- Design spacing guidelines for thinning to manage for diversity of stocking levels throughout the project area. Provide groups of closer spaced trees and maximize the variation in stocking levels where possible.
- Snag and log guidelines will be met in treated stands (Forest Plan, pp. 4-28, 4-30, SNFPA ROD pp. 51-52).
- Following thinning and fuel treatments, temporary road to unit 29 would be restored to natural conditions. This includes reestablishment of trail contour, installation of additional interpretive stations and seeding (native and weed free) if necessary for stabilization.
- Mechanical treatments within the LUS Cedar Creek sub-watershed (**Table1-2**) would be limited to slopes less than or equal to 30% and accomplished utilizing equipment, i.e., a boom-equipped fellerbuncher, designed to minimize ground disturbance.
- Mechanical thinning (trees 10-30 inches DBH) within the RUS Cedar Creek sub-watershed (**Table 1-2**) is limited to the *outer two-thirds* of the RCA. Hand thinning only (trees less than 10 inches DBH) would take place adjacent to the creek, in the *inner one-third* of the RCA. Harvest operations would be done in a manner minimizing ground disturbance and utilizing only existing skid trails and landings. Slash from hand thinning would be piled and burned at least 50 feet from the creek.
- Mechanical thinning (trees 10-30 inches DBH) within the LUS Cedar Creek sub-watershed (**Table 1-2**) is limited to the *outer half* of the RCA. Hand thinning only (trees less than 10 inches DBH) would take place adjacent to the creek, in the *inner half* of the RCA. Harvest operations would be done in a manner minimizing ground disturbance, utilizing only existing skid trails and landings. Slash from hand thinning would be piled and burned at least 50 feet from the creek.
- Burning is limited to no more than 10% of the RCA acreage per year.
- A smoke management plan would be submitted to the local air quality district to obtain applicable permits.
- Daily smoke monitoring would occur and compliance to permissive burn days would be followed.
- Within unit 29 down wood debris may be chipped or masticated or placed along slope contour where recommended by the Forest Hydrologist for soil stabilization.
- The Cedar Creek Stream crossing at "Laxague" would be improved with gravel to accommodate project-related traffic.
- An existing temporary road creating resource damage along 43N07 to Stough Campground would be restored to natural conditions.
- The Modoc National Forest Integrated Weed management Strategy (2005b) would be implemented. Off-road equipment would be required to be weed-free before entering NFS lands.
- Within 100 feet of Forest Road 43N07 (Stough Reservoir road), County road 195 (Ski Park road) and the Cedar Creek Interpretive trail:

- Trees will be designated in a manner that is not visible from road or trail
- Stumps shall be flush cut
- Activity generated slash shall be treated to resemble a natural appearing forest floor
- Landings visible from road shall be re-contoured and restored to natural conditions

### ALTERNATIVE 3 – NO ACTION

Alternative 3 is the "no action" alternative. There would be no vegetation management treatments implemented through this project at this time.

## ALTERNATIVES NOT CONSIDERED IN DETAIL

### ALTERNATIVE 4

Alternative 4 was considered in response to public input suggesting development of a shaded fuelbreak. This alternative includes the following features:

- Thin from below down to 60% canopy closure where available and utilize the numerous natural open areas, which already exist, to reduce risk of crown fire.
- Limit diameter cut up to 20 inches dbh.
- Retain all large logs, snags, and trees with wildlife characteristics.
- Thin only productive (timber resource) areas outside of riparian areas, springs, seeps, wet meadows, steep slopes, rare plants, and lava features.
- Reduce road density where possible to achieve 1.5 to 2.0 roads per square mile.

Alternative 4 was not considered in detail for the following reasons:

- IDT determination is that a selective thin of trees up to 30 inch dbh is necessary to best meet long and short-term forest health objectives, in particular, the need to increase tree health, promote structural diversity and fire and drought resistant tree species.
- Retention of large logs, snags, and trees with wildlife characteristics to Forest Plan standards is included in Alternative 6.
- Alternative 6 also includes measures for protection of RCA to meet Forest Plan standards.
- Alternative 6 includes stream crossing improvement/stabilization and minimizes temporary road construction to 0.21 miles (to be restored to trail post-treatment) in order to meet the project's purpose and need. Further road decommissioning is being considered separately.

### ALTERNATIVE 5

The original Proposed Action described in the scoping letter distributed to potentially interested publics and agencies February 22, 2005 was modified in the following ways in response to public input.

- Fuels treatment units were dropped.
- The area, identified in the scoping letter as "Forest Health Thinning Units - 322 acres," was modified by eliminating the southwest portion of the proposed thinning area to avoid riparian areas and potential goshawk habitat.
- Treatment prescriptions were changed to remove only dead and dying trees and ladder fuels. Thinning to basal area goals was not prescribed for the modified Proposed Action.

Interdisciplinary team review of Alternative 5 led to concerns about meeting purpose and need for the action and desired conditions in the WUI. In response to those concerns, resource specialists designed Alternative 6 to include fuels treatment units from Alternative 2, while protecting riparian areas and goshawk habitat. Since Alternative 5 does not meet the purpose and need for action and desired conditions for improving forest health and fuels treatments in the WUI, this alternative was eliminated from detailed study.

# SUMMARY OF ALTERNATIVES

**Table 2-1** summarizes effects of each alternative. With implementation of project design specifications, risk of adverse effects from Alternative 6 is negligible.

**Table 2-1 Comparison of Alternatives**

| Indicator | Alternative 6 (Proposed Action) | Alternative 3 (No Action) |
|---|---|---|
| Attain healthy stand density to effectively reduce tree competition and improve vigor. | Thinning and salvage/sanitation of primarily white fir, to stocking levels appropriate for restoration of diseased forest in arid climate. | Tree mortality associated with drought stress, bug infestations, and annosus root disease would continue, including the decline of ponderosa pine. Fuel accumulation increases susceptibility to high intensity stand-replacing fire. |
| Promote diversity of drought tolerant species. | Treatments favor ponderosa pine, young healthy white fir. Interplant ponderosa pine where natural pine seed sources are inadequate. | Vigor and growth of white fir and pine would decrease as stand density increases. Beetle caused mortality, associated with drought and overstocking, would continue. |
| Increase stand structural diversity. | Retention of trees over 30 inch dbh, except for hazard trees removed at Ski Hill, young healthy white fir are intermingled with existing and interplanted pine; tree sizes and spacing are variable. | Continued disease and mortality would lead to large gaps in overstory canopy with excess standing and surface fuel accumulations and increased susceptibility to high intensity stand-replacing fire. |
| Create stand conditions and structure that would allow for eventual restoration of periodic low intensity underburns to manage density and fuel loading. | Treatments would reduce existing excess fuels, increase height to live crowns, reduce risk of stand-replacing crown fire and promote conditions for low intensity surface fire behavior. | Accumulation of standing and surface fuels would continue to increase risk of stand-replacing crown fire. Conditions would not allow for low intensity underburns. |
| Meet SNFPA direction for WUI fuels management. | SNFPA direction for WUI fuels management would be met. | SNFPA direction for WUI fuels management would not be met. |
| Soils, Water Quality, and Watershed Condition | Applications of R5 Soil Quality Standards and Best Management Practices would ensure that the proposed action does not result in an adverse effect to soil or water quality. (USDA 2007b). | Current erosion sites would continue to contribute to the loss of topsoil. Non-system road that access the top of the ski run area would continue to contribute sediment to the upper tributary of Cedar Creek. Jackpotted fuels within the LUS of Cedar Creek Sub-watershed would contribute to the fuel loading and in the event of a wild land fire may result in the occurrence of a stand replacement fire. The fuel ladder of the RCA/SMZ of Cedar Creek would continue to put the riparian area at risk of a wild fire. |
| Federally Listed Threatened, Endangered, and Proposed Species | No Effect (2005c, 2008a, 2007d) | No Effect |
| Regional Forester Sensitive Wildlife Species | May affect habitat for northern goshawk and great gray owl, not likely to result in trend toward Federal listing or loss of viability; long-term benefits of habitat development and sustainability are expected (USDA 2007d). | May affect habitat for northern goshawk and great gray owl due to high tree mortality and wildfire risk. Not likely to result in trend toward Federal listing or loss of viability (USDA 2007d). |

| **Table 2-1 Comparison of Alternatives** (Continued) | | |
|---|---|---|
| **Indicator** | **Alternative 6 (Proposed Action)** | **Alternative 3 (No Action)** |
| Regional Forester Sensitive Fish Species | No Effect (USDA 2005c, 2008a). | No Effect |
| Regional Forester Sensitive Plant Species | No Impact (USDA 2007e) | No Impact |
| Modoc LRMP Terrestrial Management Indicator Species | There would be an insignificant (less than 1% change) in the amount of forest-wide habitat for any MIS found in the analysis area. Therefore, there would be no change in existing population trend or distribution. (USDA 2007f) | No Effect |
| Modoc LRMP Aquatic Management Indicator Species | May affect habitat for rainbow trout, not likely to change existing population trend or distribution. (USDA 2005c) | No Effect |
| Noxious Weeds | Low Risk of Introduction (2005a) | Low Risk of Introduction |
| Heritage Resources | No Effect (2005d) | No Effect |

# CHAPTER 3 – ENVIRONMENTAL EFFECTS

Environmental effects of Alternative 6 (Proposed Action) and Alternative 3 (No Action) are described in this chapter. The first section of this chapter is discussion of environmental effects by resource. The second section is a summary of effects analysis in terms of significance factors as defined for use in NEPA by the Council on Environmental Quality (CEQ). Included in the second section is a discussion of how alternatives relate to Federal, State, or local law or requirements for protection of the environment.

Information presented in this section summarizes site specific analysis and resource reports produced by qualified specialists. The planning record contains resource reports, biological evaluations, and other project-specific information including results from public involvement efforts. The project record is available for review at the Warner Mountain Ranger District office.

# ENVIRONMENTAL EFFECTS BY RESOURCE

## Vegetation and Fuels

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

Selective harvest would maintain and promote ponderosa pine and young healthy white fir while removing excess white fir less than thirty inches dbh as described in the *Vegetation/Silviculture Report for Cedar Pass Forest Health Project* (Vegetation Report) (USDA 2007a). Stands would be interplanted with ponderosa pine where natural pine seed sources are inadequate, directly increasing the component of ponderosa pine. Resulting stands would be lower density,

structurally and spatially diverse, with species composition better able to sustain forest health during drought conditions. Where aspen exists, site specific treatments would be designed to expand and improve the health of aspen stands.

Stand density would be lower, reflective of a forest type more effectively maintained by low intensity surface fires. With reduced stand density, more site resources (water, nutrients, and light) would be available to sustain larger, longer-lived conifers. Health and vigor of all species would improve, minimizing density and drought related mortality associated with annosum root disease and beetle infestations.

As described in the *Fuels Analysis Report for Cedar Pass Forest Health Project* (Fuels Report) (USDA 2007g), vegetation management for Alternative 6 would decrease stand density, reduce ladder and surface fuels, therefore reducing crown fire susceptibility. A more open forest, free of ladder fuels and excess dead and down material, would allow for low intensity underburns to manage density and fuel loading, and increase stand resiliency to wildfire events.

Proposed treatments would accelerate development of large fire-resistant ponderosa pine, consistent with SNFPA desired vegetation conditions for WUI, PAC, and management intent for the area. Fire behavior associated with resulting fuel conditions would meet SNFPA direction for WUI threat zone fuels management.

The proposed action would result in beneficial direct, indirect, and cumulative effects to landscape vegetation conditions because:

- Improved growing conditions would improve vigor of all residual trees and accelerate development of future large, longer-lived conifers composed of mostly drought-tolerant pine with interspersed white fir.
- Reduced density and mortality, and shift in species composition to more fire-adapted pine would increase landscape fire resiliency.
- Forest density management and fuels treatment in this proposal contribute to the pattern of diverse forest structure (tree size and density) across the landscape that would likely reduce rate-of-spread and intensity of a wildfire burning through the area.

**DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)**

Alternative 3 would not meet need to decrease stand density and increase the distribution of ponderosa pine to sustain forest health and resilience to drought. White fir would continue to dominate sites by shading out ponderosa pine and limiting natural seed sources. Overstocking of white fir would continue, as would density and drought related mortality associated with bark beetles.

Untreated fuel ladders would continue to pose a high risk of crown fire and resultant loss of large trees. The No Action alternative would not respond to the purpose and need of the project to protect and improve health and vigor of shade intolerant ponderosa pine.

Overall fuel loading, fuel continuity, and ladder fuels would increase as stand density increases and tree mortality continues. Risk of crown fire would increase and conditions would not allow for low intensity underburns to manage density and fuel loading in the future.

Alternative 3 is not consistent with SNFPA standards and desired conditions for the WUI Threat Zone land allocation due to lack of stand density management and retention of continuous surface and ladder fuels, making desired fire behavior impossible.

# Soils, Water Quality, and Watershed Conditions

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

The *Cedar Pass Project Hydrology and Soils Specialist Report* (USDA 2007b) concluded that implementation of Alternative 6, including selective mechanical and hand thinning, piling and treatment of excess slash, underburning, limiting temporary road construction to 0.21 miles using existing trail, and stream crossing improvements, is unlikely to result in adverse direct, indirect, or cumulative effects to soils, water quality, or watershed conditions for the following reasons:

- Implementation of BMPs would reduce risk to water quality and beneficial uses and protect unstable soils. (see **Appendix A**).
- Project design specifications exclude mechanical treatments and burning for inner portions of RCA and limit treatments in outer portions of RCA. (see *Chapter 2, Project Design Specifications*).
- Boom-equipped fellerbuncher would be used for harvest and piling activities in units 27 and 29a, b, c, d to minimize soil disturbance.
- Within unit 29 down wood debris may be chipped or masticated or placed along slope contour where recommended by the Forest Hydrologist for soil stabilization.
- Application of Region 5 Soil Quality Standards.
- Temporary road construction would be limited to 0.21 miles and would avoid the RCA along Cedar Creek and tributary.
- Temporary roads, skid trails and landings would be made hydrologically stable following the harvest activity and where feasible would be closed to public access. Lop and scatter of forest debris would be utilized to disconnect skid trails from landings, landings from temporary roads and temporary roads from system roads and stream crossings.

The R5 Cumulative Watershed Effects (CWE) Analysis with the associated stream analysis determined that the implementation of the proposed action would not likely result in the occurrence of a adverse cumulative effect to water quality. For a detailed description of the CWE Analysis process and results of the CWE Analysis please refer to *Cumulative Watershed Effects Report, Cedar Pass Forest Health Project* (2007h) located in the planning file.

The Proposed Action could result in a short-term increase in the soil compaction or Equivalent Roaded Acres (ERAs) to about 80% of Threshold of Concern (TOC) for each sub-watershed.

TOC levels are expected to drop by 20% within five years after the project and by 40-50% within ten years.

Implementation of Alternative 6, including selective mechanical and hand thinning, piling and treatment of excess slash, mastication, underburning, limiting temporary road construction to 0.21 miles, use of existing landings and skid trails and stream crossing improvements, is not likely to result in adverse cumulative effects to soils, water quality, or watershed conditions.

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)

With Alternative 3 (No Action) existing erosion and runoff would continue to add sediment to streams. With continued mortality and accumulation of standing and surface fuels, probability of adverse direct, indirect, or cumulative effects to soils, water quality and watershed condition are likely to occur in the event of a wildfire.

## Wildlife

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

FEDERALLY LISTED SPECIES

The *Biological Evaluation for the Cedar Pass Forest Health Project* (Wildlife BE) (USDA 2007d) reviewed potential effects for all species on a Forest-wide list of federally listed Threatened, Endangered, and Proposed species from the U.S. Fish and Wildlife Service (July 11, 2005). There are no, nor is there potential habitat for any federally listed terrestrial species within the analysis area. There would be no direct or indirect or cumulative effects to federally listed Threatened, Endangered, and Proposed terrestrial species.

REGIONAL FORESTER LISTED SENSITIVE SPECIES

The Wildlife BE (USDA 2007d) reviewed potential effects for 15 Regional Forester listed Sensitive wildlife species for the Modoc National Forest. Of these, the northern goshawk and great gray owl were identified as potentially affected by the Proposed Action. In addition, the northern goshawk is an MIS species and will be discussed separately from great gray owl. The following is a summary of potential direct, indirect and cumulative effects for northern goshawk and great gray owl.

R5 SENSITIVE AND MIS - Northern Goshawk

There are currently 2,957 acres of suitable goshawk nesting habitat within 1.5 miles of the project area. There are two known goshawk PACs within the project area, each comprised of about 200 acres of suitable nesting habitat. However, existing levels of conifer mortality threaten the suitability of habitat in the project area. In fact, goshawks have not been observed nesting in one of these PACs for 15 years. Alternative 6 would directly affect habitat suitability by reducing canopy cover within these PACs. Specifically, canopy cover would be reduced to 20-40% for 83% of the unoccupied PAC (166 acres in units 24 and 25), and 23% of the occupied PAC (48 acres in units 29A and 29B). This effect would be short-term as silvicultural prescriptions for

these units would promote long-term suitable goshawk nesting habitat by reducing large tree mortality, accelerating growth of healthy trees in the understory and promoting future drought tolerant ponderosa pine. Nest clusters in these PACs would remain untreated to retain functional aspects to the greatest extent, as per the SNF ROD. Nesting habitat suitability under Alternative 6 is expected to be restored in 25 to 30 years. There would be short-term direct effects by reducing suitable canopy cover, but indirect effects are expected to be long-term improvement of habitat condition for goshawks.

Cumulative effects analysis in the Wildlife BE concluded that past logging and fires reduced forest-wide suitable habitat for northern goshawk by 586 acres (USDA 2007d). These acres and the additional 214 acre decrease in habitat suitability from implementation of Alternative 6, would be a 0.0016% decrease of about 120,000 acres suitable habitat forest-wide. Harvesting on adjacent private land has primarily been thinning and scattered suitable habitat remains for these species. Recreation activities are concentrated at recreation facilities in the project area with no discernable effects to habitat. No cumulative effects from grazing are expected to habitat for northern goshawk. Due to the minor, short-term decrease of suitable habitat forest-wide, the incremental effects of the Proposed Action when added to other past, present, and foreseeable future actions would be discountable.

Implementation of the Cedar Pass Forest Health Project may be impact to individual, but not likely to cause a trend toward federal listing or loss of population viability, and change in suitable forest-wide habitat by less than 1% would not change northern goshawk population trend on the Modoc NF.

R5 SENSITIVE NON-MIS – Great Gray Owl

Suitable habitat for great gray owls includes forest canopy cover similar to suitable goshawk nesting habitat, presence of large diameter snags and meadow conditions that support prey species. The project area contains suitable habitat, but includes no great gray owl PACs. Alternative 6 would meet snag habitat requirements for great gray owl and would not affect meadow conditions. The decrease in canopy cover for 214 acres to 20 – 40% may directly decrease suitable habitat. Over time, Alternative 6 would indirectly benefit great gray owl habitat due to reduced fire risk, reduced tree mortality, and accelerated development of larger trees and suitable habitat.

There would be short-term direct effects by reducing suitable canopy cover for great grey owl, but indirect effects are expected to be long-term improvement of habitat condition.

Cumulative effects analysis in the Wildlife BE concludes that while grazing would be the most likely activity to cause cumulative effects to great gray owl, most grazing in the Cedar Canyon Livestock Allotment occurs outside the project area and fence improvements were made in 2007 to improve the condition of Cedar Pass Meadow (USDA 2007d). Therefore, no cumulative effects from grazing are expected. Forest habitat on adjacent private lands has been thinned, but still appear to provide suitable habitat for great gray owl. Recreation activities are concentrated at recreation facilities in the project area with no discernable effects to habitat. The incremental effects of the Proposed Action when added to other past, present, and foreseeable future actions would be discountable.

The implementation of the Cedar Pass Forest Health Project may impact individuals, but not likely to cause a trend toward federal listing or loss of population viability for great gray owl.

OTHER MANAGEMENT INDICATOR SPECIES (MIS)

The *Terrestrial Management Indicator Species Report* (USDA 2007f) describes effects to MIS associated with species of special interest that occur or have potential to occur within the project area. These species are listed in **Table 3-1** with their potential direct and indirect effects. Effects to other MIS, including Federal listed species and Regional Forester listed species are described in detail in the Wildlife BE and summarized previously in this section.

**Table 3-1 Potential Direct and Indirect Effects to MIS**

| Species | Potential Direct and Indirect Effect |
|---|---|
| **Blue Grouse** | Existing potential roosting habitat would be modified to more suitable breeding/foraging habitat post treatment. Snag and down log requirements would be met. Habitat protected by lower risk of severe wildfire. |
| **Hairy Woodpecker** | Little immediate effect to species due to snag retention. Proposed activities would promote and protect late seral habitat to benefit species. |
| **Pileated Woodpecker** | Short-term reduction in canopy cover required for habitat. Snag and log requirements would be met. Proposed activities would promote and protect long-term late seral habitat to benefit species. |
| **Mule Deer** | Proposed activities are likely to improve deer forage. There would be little effect to overall thermal cover available. |

Cumulative effects analysis for MIS concluded that past logging and fires reduced forest-wide suitable habitat for pileated woodpecker by 586 acres (USDA 2007d). These acres and the additional 61 acre decrease in habitat from implementation of Alternative 6, would be a 0.37% decrease in the 173,500 acres of suitable habitat forest-wide. Harvesting on adjacent private land has primarily been thinning and scattered suitable habitat remains for this species. Recreation activities are concentrated at recreation facilities in the project area with no discernable effects to habitat. No cumulative effects from grazing are expected. Due to the minor, short-term decrease of suitable habitat, the incremental effects of the Proposed Action on forest-wide pileated woodpecker habitat when added to other past, present, and foreseeable future actions would be discountable.

Cumulative effects analysis for MIS concluded implementation of Alternative 6 could potentially reduce 0.23% of 153,200 acres of forest-wide habitat for hairy woodpecker. There has been no significant decrease in hairy woodpecker habitat from past fires, logging or private land timber harvesting. Removal of hazard trees at recreation sites may be a minor decrease in habitat. No cumulative effects from grazing are expected. The incremental effects of the Proposed Action on forest-wide hairy woodpecker habitat when added to other past, present, and foreseeable future actions would be discountable because the potential decrease of forest-wide habitat would be minor.

There are no obvious habitat trends that would suggest significant downward or upward population trends for management indicator species directly as a result of implementing the proposed fuels and vegetation strategies (SNFPA Vol. 1, p. 313).

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)

FEDERALLY LISTED AND REGIONAL FORESTER SENSITIVE SPECIES

There would be no initial direct effects. Indirect effects of alternative 3 could be negative by resulting in a decrease of suitable northern goshawk habitat due to continued conifer mortality and potential long-term loss of habitat from high intensity stand-replacing fires. Cumulatively, there would be no potential for long-term beneficial effects associated with re-establishment of habitats through reduced tree mortality and accelerated tree growth.

MANAGEMENT INDICATOR SPECIES

Effects analysis of Alternative 3 concluded there would be no direct, indirect, or cumulative effects to terrestrial MIS.

## Aquatic Species

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

FEDERALLY LISTED SPECIES

The *Review of Fisheries and Aquatic resources for the Cedar Pass Forest Health Project* (USDA 2005c) and *Biological Evaluation Aquatic Species, Cedar Pass Forest Health Project* (Aquatics BE) (USDA 2008a), have determined no direct, indirect or cumulative effects from the Proposed Action to any Federally Endangered, Threatened or Proposed aquatic species.

REGIONAL FORESTER SENSITIVE SPECIES

The *Review of Fisheries and Aquatic resources for the Cedar Pass Forest Health Project* (USDA 2005c) describes effects to Regional Forester listed sensitive species associated that occur or have potential to occur within the project area. The vulnerability of Goose Lake redband trout populations to drought has raised a high level of concern for the long-term persistence of the species. Conservation efforts are in place for all contributing headwaters to Goose Lake, including tributaries of the Upper Pit River in the Pit River watershed, to protect the health of any potential populations that would contribute to re-colonization of Goose Lake after drought events.

Project design criteria to protect RCA implemented by the Proposed Action would prevent direct effects to Goose Lake redband trout and any Region 5 sensitive aquatic species. The potential for large woody debris to be added to streams by the Proposed Action is not expected to cause indirect effects that would cause any irreversible damage to riparian areas or limit fish movement.

Project design criteria to protect RCA implemented by the Proposed Action would reduce probability of sediment transport into waterways and water bodies. The incremental effects of the Proposed Action when added to other past, present, and foreseeable future actions are not

expected to result in cumulative effects to habitats for Goose Lake redband trout and any Region 5 sensitive aquatic species.

MANAGEMENT INDICATOR SPECIES

The *Review of Fisheries and Aquatic resources for the Cedar Pass Forest Health Project* (USDA 2005c) describes effects to aquatic management indicator species that occur or have potential to occur within the project area. Perennial streams in the project area provide suitable habitat for rainbow trout.

Project design criteria to protect RCA implemented by the Proposed Action would prevent direct effects to rainbow trout or their habitat. The potential for large woody debris to be added to streams by the Proposed Action is not expected to cause indirect effects that would cause any irreversible damage to riparian areas or limit fish movement.

Project design criteria to protect RCA implemented by the Proposed Action would reduce probability of sediment transport into waterways and water bodies. The incremental effects of the Proposed Action when added to other past, present, and foreseeable future actions are not expected to result in cumulative effects to habitats rainbow trout.

**DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)**

FEDERALLY LISTED AND REGIONAL FORESTER SENSITIVE SPECIES

Alternative 3 would have no direct, indirect, or cumulative effects to aquatic federally listed or Region 5 sensitive species.

MANAGEMENT INDICATOR SPECIES

Alternative 3 would have no direct, indirect, or cumulative effects to aquatic MIS.

# Listed Plant Species

**DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)**

FEDERALLY LISTED SPECIES

The *Cedar Pass Forest Health Project Sensitive Plant Biological Evaluation* (Plant BE) (USDA 2007e) concluded that there would be no direct, indirect, or cumulative effects to federally listed Threatened or Endangered plant species from implementation of proposed activities because none are present in the project area, nor is there any potential habitat for federally listed plants.

REGIONAL FORESTER LISTED SENSITIVE SPECIES

There are no Regional Forester listed plant species or potential habitat within the project area. Implementation of Alternative 6 would have no impact on sensitive plant species (USDA 2007e).

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3

Alternative 3 would have no impact on habitat or individuals of sensitive plant species.

## Noxious Weeds

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

As described in the *Noxious Weed Risk Assessment* (USDA 2005a), no noxious weeds are currently known within the project area and risk of noxious weed introduction would be low by implementing general weed prevention practices described in The Modoc National Forest Integrated Weed Management Strategy (USDA 2005b, pp. 9-13) which include, off-road equipment to be weed free, and eradication or avoidance of any noxious weeds found prior to project implementation.

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)

Alternative 3 would maintain low risk of noxious weed introduction.

## Heritage Resources

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

Surveys have been conducted for heritage properties as documented in the *Historic Preservation Compliance Letter* (USDA 2005d). Two historic properties that require protection measures were located within the area of potential effect. Should any previously unidentified archaeological site or object (prehistoric or historic) be encountered during the course of project activities, all work will stop until protection measures are in place. With protection measures of known and previously unidentified sites, the proposed undertaking would have no effect on heritage resource properties listed or eligible for the National Register of Historic Places.

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)

Alternative 3 would have no effect on heritage resources.

## Recreation

### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 6 (PROPOSED ACTION)

The Recreation Report (2007c) and subsequent meetings with the Cedarville Chamber of Commerce and Alturas elementary school teachers document effects and design criteria for the proposed actions. Direct effects to recreation include trail disturbance and loss of natural character to about of 0.21 miles of Cedar Creek Trail, visual impacts of treatments adjacent to the trail, and the removal of hazard trees and reduction of fire risk around recreation facilities. Project design specifications include restoring the disturbed portion of the trail through spreading

wood chips, recontouring, planting pine seedlings, and if necessary reseeding with weed-free seed for soil stabilization.

Indirect effects could include a decline in use of the Cedar Creek Trail, however, additional interpretive signs would include information about forest insects and disease, timber harvest and restoration. Educational opportunities through planting trees and ecological monitoring would also be available. Reduction of hazard trees and fuels would maintain and improve safety for recreational facilities in the project area, and thinning at the Ski Hill would enhance skiing opportunities while maintaining forest cover in a sustainable manner.

The incremental effects of the proposed action when added to past, present and foreseeable logging activities, continued recreation, and wildland fire would protect and maintain recreational facilities and public safety and enhance recreational experience through educational opportunities associated with the Cedar Creek interpretive trail.

**DIRECT, INDIRECT, AND CUMULATIVE EFFECTS OF ALTERNATIVE 3 (NO ACTION)**

Alternative 3 would have no effect on the Cedar Creek Trail. Hazard trees and increased fire risk due to continued high levels of tree mortality would continue to pose a threat to recreationists.

# EFFECTS RELATIVE TO SIGNIFICANCE FACTORS

In 1978, the CEQ disseminated regulations for implementing NEPA. These regulations (40 CFR Parts 1500-1508) include a definition of "significantly" as used in NEPA. The following is a summary of how the Proposed Action responds to significance elements as defined by the CEQ.

**a) CONTEXT**

*This means that the significance of an action must be analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting...in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.*

As discussed in more detail previously under *Environmental Effects by Resource* and below for other significance elements, the context of proposed activities is confined to a total of 478 acres of vegetation treatments including selective thinning, piling and treatment of slash, shrub mastication (reduction to small pieces using machinery), underburning, and interplanting of ponderosa pine. This represents about 28 percent of NFS lands in affected 7$^{th}$ field watersheds. Implementation of proposed actions would take 5 to 10 years to complete. Potential for adverse effects from implementation is limited and would be short-term, while benefits would be long lasting.

Similar activities have been occurring across the forest without significant impacts. Even in a local context, this proposal would not pose significant short- or long-term effects. Project design specifications included in this proposal minimize and avoid adverse impacts. Any impacts that

may occur are within acceptable levels, even at the local scale. Proposed activities are consistent with Forest Plan Standards and Guidelines as amended by SNFPA.

**b) INTENSITY**

*This refers to the severity of impact. The following should be considered in evaluating intensity:*

**(1)** *Impacts may be both beneficial and adverse. A significant effect may exist even if, on balance, effects are believed to be beneficial.*

The Proposed Action would result in beneficial impacts. Adverse impacts are unlikely. Negligible adverse impacts are not significant, even when each impact is considered separately. Beneficial effects have not been used to offset or compensate for the limited potential adverse effects in making this determination of no significant effect.

**(2)** *The degree of effects on public health or safety.*

Alternative 6 would avoid adverse impacts to public safety through expert design of the project on the ground. Implementation of Alternative 6 would be governed by standard public health and safety contract clauses. Actions, such as dust abatement, signing of roads during log hauling, safely securing truckloads, and maintaining the haul route, are standard precautionary measures that would be employed.

Short-term adverse effects on public health related to air quality from underburning and pile burning are a small possibility. These potential short-term effects are of limited scope and duration and have been minimized to the extent possible through timing of pile burning and use of mechanized fuels reduction methods (mastication) in some cases. Regional air quality standards would be met in a manner consistent with the *Clean Air Act*. Treatment of fuels would reduce potential fuels available for consumption and resulting particulate emissions during future wildfire.

**(3)** *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

The proposed project area has been field reviewed. There are two known cultural resources that will be protected (USDA 2005d). Perennial streams in the project area include Cedar Creek and a tributary. Stough reservoir is also within the project area. These water resources and associated riparian areas would be protected. SNFPA guidelines for RCA and Critical Aquatic Refuges would be met. The proposed project area does not contain parklands, prime farmlands, or wild and scenic river corridors.

**(4)** *The degree of controversy over environmental effects.*

Potential adverse effects of the proposed action have been minimized to the point where there are few effects to draw controversy. Consideration was given to long-term beneficial effects of the project. Through continued involvement and discussion with interested publics and regulatory agencies on other projects across the Forest, controversy over environmental effects was

minimized during project design. Public involvement efforts (refer to *Scoping and Issues* section of *Chapter 1*) have not revealed any significant controversies regarding environmental effects of this proposal. Non-significant issues are thoroughly discussed in the EA.

Activities and treatments proposed are standard practices on the Forest.

**(5)** *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

Alternative 6 was designed to achieve desired conditions identified in the Forest Plan as amended (*Chapter 1*). It implements project design specifications (*Chapter 2*) to minimize potential for adverse resource effects. Local expertise in implementation of these types of projects over the years minimizes the chance of highly uncertain effects or effects which involve unique or unknown risks. Proposed activities are routine in nature, employing standard practices and protection measures, and their effects are well known.

**(6)** *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

A precedent would not be set for future decisions with significant effects. Any future decisions would need to consider all relevant scientific and site-specific information available at that time.

**(7)** *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.*

Cumulative impact as defined by the Council on Environmental Quality is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7).

Past, present, and reasonably foreseeable future actions were assessed along with proposed actions to determine whether cumulative effects would occur. Past actions include logging and road construction on NFS lands and private lands, and wildland fire and fire suppression. Other current and future actions on NFS lands include logging on public and private lands, public recreation use, grazing on the Cedar Canyon cattle allotment, fuel treatments and fuel break activities throughout the Forest, and hunting.

Large scale logging has occurred on the Forest since the 1930s. Most historic logging in the project area focused on removing the largest trees or on salvage. Harvesting on private industrial lands resulted in more intensive removal of large trees. More recently, thinning and selective logging has occurred on private lands adjacent to the project area.

The Cedar Canyon cattle allotment covers the entire project area. All of the project area is grazed under Forest Service permits.

Future fuel treatments and fuelbreak activities are expected throughout the forest. Recreational activities are concentrated around recreation facilities and trails in the area. Activities include snowmobiling, skiing, sledding, hiking, camping, hunting and fishing.

**Cumulative Effects on Vegetation and Fuels:** Alternative 6 would have beneficial cumulative effects on landscape vegetation and fuels for reasons discussed previously under *Vegetation and Fuels* on Page14 of this EA.

**Cumulative Watershed Effects:** Implementation of Alternative 6, including selective thinning, piling and treatment of slash, shrub mastication, underburning, and interplanting of ponderosa pine is unlikely to result in adverse cumulative effects to soils, water quality, or watershed conditions for the reasons discussed previously under *Soils, Water Quality and Watershed Conditions* on Page 15 of this EA.

**Cumulative Wildlife Effects:** Alternative 6 would not contribute towards significant cumulative effects for Federally listed Threatened, Endangered, or Proposed species; Regional Forester listed Sensitive species, or Management Indicator Species for the reasons discussed previously under *Wildlife* on Page 16 of this EA.

**Cumulative Botanical Effects:** Alternative 6 would not contribute towards significant cumulative effects for Regional Forester listed Sensitive plant species for the reasons discussed previously under *Listed Plant Species* on Page 23 of this EA.

**Summary of Cumulative Effects:** This analysis did not identify any cumulative adverse effects that would be significant. Other Past, present, and foreseeable future actions were included in the cumulative effects analysis. The Proposed Action is not related to other actions with cumulatively significant impacts; proposed activities are not a component part of any larger action. This analysis is consistent with the Council on Environmental Quality memo from James L. Connaughton titled "Guidance on the Consideration of Past Actions in Cumulative Effects Analysis" dated June 24, 2005, which is incorporated by this reference.

**(8)** *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

*Historic Preservation Compliance* has been met and documented (USDA 2005d). The proposed project lies within areas adequately covered under Archaeological Survey Reports for prior projects. There two known historic properties within the area of affect eligible for listing and one site that is ineligible. Standard contract provisions would protect known eligible historic properties and any discovered during project implementation. Consultation requirements under Section 106 of the *National Historic Preservation Act* have been fulfilled as outlined in the *First Amended Regional Programmatic Agreement among the USDA FS, Pacific Southwest Region, California State Historic Preservation Officer, and Advisory Council on Historic Preservation.*

Native Americans and local Tribes were consulted about project activities (USDA 2004c). No conflicts were identified.

**(9)** *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 (ESA).*

As described in the Wildlife BE (USDA 2007d), the Aquatics BE (USDA 2008a), and the Plant BE (USDA 2007e), and summarized previously under *Wildlife* on Page 16 and *Aquatic Species* on Page 22 and *Listed Plant Species* on Page 23 of this EA, there would be no direct, indirect, or cumulative effects to federally listed Threatened, Endangered, and Proposed species protected under ESA. There are no such terrestrial species or potential habitat in the analysis area. Design criteria of the Proposed Action to protect RCA would prevent effects to aquatic species and their habitats.

As described in the Wildlife BE and summarized previously under *Wildlife* on Page 16 of this EA, project activities may affect individual northern goshawk and great gray owls or their habitats but are not likely to result in a trend towards Federal listing or loss of viability for these species. Long-term benefits may occur after thinning due to reduced fire risk and potential for development of larger trees and suitable habitats more quickly. There would be no effect to other Regional Forester listed sensitive terrestrial species.

As described in the Aquatics BE and summarized previously under *Aquatic Species* on Page 22 of this EA, project activities include protection measures to avoid direct, indirect or cumulative effects to Goose Lake redband trout and their habitats. There would be no effect to other Regional Forester listed sensitive aquatic species.

As described in the Plant BE and summarized previously under *Listed Plant Species* on Page 23 of this EA, there would be no direct, indirect, or cumulative effects to federally listed plant species protected under ESA, or sensitive species or because none are present in the project area nor is there potential habitat.

**(10)** *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

The Proposed Action would not threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. As discussed in the EA and supporting documents, Alternative 6 is consistent with the *National Environmental Policy Act, National Forest Management Act*, the *Clean Water Act*, the *Clean Air Act*, the *Endangered Species Act*, the *National Historic Preservation Act*, the *Federal Highway Safety Act*, the *California Porter Cologne Water Quality Act*, *Magnuson-Stevens Act*, and *Executive Order 12898*.

The *National Forest Management Act* requires projects to be consistent with the Forest Plan and minimum specific management requirements. Alternative 6 is fully consistent with the Forest Plan as discussed in *Chapters 1, 2,* and *3* of the EA. Resource protection is ensured through project design specifications presented in *Chapter 2***.** Forest Plan standards and guidelines for MIS are to maintain viable populations within the planning area. Project analysis indicates that Alternative 6 would maintain viable populations of MIS consistent with Forest Plan direction (USDA 2007f and 2005c).

Silvicultural prescriptions were selected to meet SNFPA desired conditions and management intent for the area including long-term site productivity and forest health. Potential effects to residual trees and adjacent stands have been considered, permanent impairment of site productivity will be avoided. Plant and wildlife species diversity and spatial and structural diversity would be maintained or enhanced (USDA 2007a).

Soils, water quality, and watershed conditions will be protected as described previously under *Soils, Water Quality, and Watershed Conditions* on Page 18 of this EA and in the *Project Design Specifications* (*Chapter 2***)**. **Appendix A** of the EA discusses applicable BMPs to reduce water quality impacts consistent with the *Clean Water Act*.

It has been determined that Alternative 6 would not directly, indirectly, or cumulatively affect Federally listed Threatened or Endangered wildlife, plant, or fish species protected under ESA (EA Page 12). Determinations are that the project would not lead towards federal listing or loss of viability for Regional Forester listed Sensitive northern goshawk or great gray owl. There would be no effect for other Regional Forester listed Sensitive species.

This project complies with the direction in Forest Service Manual 7700, Chapter 7710 – Transportation Atlas, Records and Analysis, Effective December 14, 2001. The Modoc National Forest has completed a project level *Transportation Analysis for the Cedar Pass Forest Health Project* (USDA 2005f). Alternative 6 is consistent with the recommendations developed during this analysis.

*Executive Order 12898* relating to Environmental Justice requires an assessment of whether there would be disproportionate effects to minority or low-income populations. In compliance with *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations,* the Cedar Pass Forest Health project was analyzed to determine if minority and/or low-income populations would experience disproportionately high adverse effects due to project implementation (USDA 2008). The proposed action was not found to disproportionately affect minority and/or low-income populations. A summary of the analysis that supports this conclusion is located in the project file at the Warner Mountain Ranger District office and is available for review upon request.

# CHAPTER 4 – AGENCIES AND PERSONS CONSULTED

## AGENCIES AND ORGANIZATIONS CONSULTED

The list below includes the Cedar Pass Forest Health Project Scoping Letter along with persons/organizations who were consulted or otherwise expressed interest in the project.

Native American groups including representatives for the Fort Bidwell Indian Community Council, Cedarville Rancheria, and Pit River Tribe were contacted. Representatives from the Forest also participated in discussions about this project at quarterly consultation meetings for the Fort Bidwell Reservation and Pit River Tribe.

California Wilderness Coalition
Pacific Legal Foundation
State of California Department of Transportation
Sierra Nevada Forest Protection Campaign
Californians for Alternative to Toxics (CATS) – Pete Harrison
Klamath Forest Alliance – Kyle Haines
County of Modoc
John R. Swanson
Jeff Richardson
Regina Chichizola
Ski Association – Erin Bevil, Tom Mocilac, Jim Cavasso
Cedarville Chamber of Commerce – Ray March, Bill Tierney
Alturas Elementary School Teachers – Donna Johnson, Amy Ward, Heather Prevette

# *APPENDICES*

**A – Best Management Practices**

**B – Glossary**

**C – Literature Cited and Documents Incorporated by Reference**

# APPENDIX A – BEST MANAGEMENT PRACTICES

**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. Monitoring of BMPs, which is the responsibility of the District Hydrologist, shall follow the USFS Region 5 BMP Evaluation Plan. The following is a list of the BMPs that would apply to the project and how they would be met.

**BMP 1.1 Timber Sale Planning Process:** The Cedar Pass Forest Health Project Environmental Analysis includes project design criteria to protect riparian resources such as identification of RCA and designation of SMZs. These criteria would be implemented through contract clauses and administration.

**BMP 1.2 Timber Harvest Unit Design:** A qualified hydrologist/soil scientist participated in design of proposed activities to secure favorable watershed and riparian conditions.

**BMP 1.4 Use of Sale Area or Project Areas Maps:** The maps for contract(s) resulting from this analysis would identify areas for protection.

**BMP 1.8 Streamside Management Zone (SMZ) Designation:** There would be no mechanical entry into SMZs (inner third of RCA) or within 50 feet of the high water mark or slope break (whichever is greater for all perennial, seasonally flowing with evidence of annual scour and/or deposition or ephemeral stream courses. Burning of piles would occur outside SMZs.

**BMP 1.12 Log Landing Location:** Activities would be conducted from existing landings.

**BMP 1.13 Erosion Prevention and Control Measures:** Activities would be conducted to minimize risk of soil erosion by prescribing erosion control measures as needed and meeting Regional Soil Quality Standards for retaining soil cover and minimizing compaction.

**BMP 1.15 Revegetation of Areas Disturbed by Harvest Activities**: Ponderosa pine would be planted in openings. Any other revegetation would be supervised by a qualified silviculturist and/or botanist.

**BMP 1.16 Log landing Erosion Control:** Contract requirements would provide for erosion prevention and control measures on landings.

**BMP 1.17 Erosion Control on Skid Trails:** Contract requirements would provide for erosion prevention and control measures on skid trails.

**BMP 1.19 Stream course and Aquatic Protection:** Project specific standards in RCA and SMZs would maintain riparian and aquatic values.

**BMP 1.22 Slash Treatment within Sensitive Areas:** Piling of fuels (slash) and burning of piles would occur outside SMZs.

**BMP 2.7 Control of Road Drainage:** Roads would be maintained to disperse road associated run-off.

**BMP 2.12 Servicing and Refueling of Equipment:** Service and refueling areas would be placed at approved sites well away from wet areas and surface water.

**BMP 2.21 Water source Development Consistent with Water Quality Protection:** Water supplies would be developed in consultation with hydrologist or fisheries biologist.

**BMP 2.22 Maintenance of Roads:** Roads would be monitored during contract administration and maintained in a manner which provides for water quality protection by minimizing rutting and surface flow as needed.

**BMP 2.23 Road Surface Treatments to Prevent Loss of Materials:** Road surface treatments would consist of standard road maintenance (grading and watering).

**BMP 2.24 Traffic Control During Wet Periods:** Roads would be monitored during contract administration and traffic would be controlled in a manner which provides for water quality protection by minimizing rutting and surface flow as needed.

**BMP 5.1 Soil Disturbing Treatments on the Contour:** No wet weather operation outside of existing travel ways would occur without additional measures prescribed that would provide a means of adequate water infiltration and decrease velocity of surface water runoff.

**BMP 5.2 Slope Limitation for Mechanical Equipment Operation:** Mechanical equipment will not enter slopes greater than 35%.

**BMP 5.4 Revegetation of Surface Disturbed Areas:** Sterile seed and clean wildflower seed would be used to reseed areas on and around portions of the Cedar Creek Trail.

**BMP 5.5 Disposal of Organic Debris:** Use of lop and scatter would be utilized on the skid trails/temporary roads, and landings slopes where hillsides have a sustained slope > 30% and where necessary, as determined by the Forest Hydrologist. Mulching with forest debris would occur near the outlets of water bars.

**BMP 5.6 Soil Moisture Limitation for Mechanical Equipment Operation:** Soil moisture restriction for heavy equipment would apply. Forest Plan standards and guidelines limit off-road equipment operations on soils with moisture content over 23% (moist enough to hold a ball shape).

**BMP 6.1 Fire and Fuel Management Activities:** Acceptable levels of slash to remain on site following activities would be determined by Forest fuels staff. Ongoing fire management work maintains fire access plans and restricts public activities, such as woodcutting, on days when fire weather predictions indicate high level of risk from such activities in the project area.

**BMP 6.3 Protection of Water Quality from Prescribed Burning Effects:** Application of prescribed burning would be limited in SMZs.

**BMP 7.4 Forest and Hazardous Substance Spill Prevention Control and Counter-measures (SPCC) Plan:** An integrated Forest and County SPCC is in place to coordinate local, State, and Federal agency emergency response in the event of a spill.

**BMP 7.6 Water Quality Monitoring:** The project level activities would be monitored under the R5 Best Management Practices Evaluation Program one year following implementation and completion of project level activities.

# APPENDIX B – GLOSSARY

The following list of acronyms and their definitions are here for reference and have been used throughout the analysis document:

| Acronym | Description |
|---|---|
| **AC** | Acre |
| **BA** | Basal Area |
| **BE** | Biological Evaluation |
| **BMPs** | Best Management Practices |
| **CEQ** | Council on Environmental Quality |
| **CFR** | Code of Federal Regulation |
| **dbh** | Diameter Breast Height |
| **EA** | Environmental Analysis |
| **ESA** | Endangered Species Act |
| **Forest Plan** | Modoc National Forest Land and Resource Management Plan |
| **FS** | Forest Service |
| **NEPA** | National Environmental Protection Act |
| **NFS** | National Forest System |
| **NWCG** | National Wildlife Coordinating Group |
| **PAC** | Protected Activity Center |
| **RCA** | Riparian Conservation Area |
| **ROD** | Record of Decision |
| **SDI** | Stand Density Index |
| **SMZ** | Streamside Management Zone |
| **SNFPA** | Sierra Nevada Forest Plan Amendment |
| **SOPA** | Schedule of Proposed Actions |
| **TPA** | Trees Per Acre |
| **USDA** | United States Department of Agriculture |
| **USDI** | United States Department of Interior |
| **WUI** | Wildland Urban Intermix |

# APPENDIX C – LITERATURE CITED AND DOCUMENTS INCORPORATED BY REFERENCE

**USDA. 1991.** Modoc National Forest Land and Resource Management Plan. Modoc National Forest, Alturas, California.

**_____. 2000.** Water Quality Management for Forest System Lands in California, Best Management Practices. Pacific Southwest Region. September 2000.

**_____. 2004a.** Pacific Southwest Region, Sierra Nevada Forest Plan Amendment (SNFPA) Final Supplemental Environmental Impact Statement and Record of Decision. January 2004.

**_____. 2004b.** Evaluation of Top-killed White Fir on Cedar Pass (FHP Report NE04-05). Prepared by Sheri Smith, Supervisory Entomologist, and Danny Cluck, Entomologist, Forest Health Protection, Pacific Southwest Region, March 16, 2004.

**_____. 2004c.** Quarterly Consultation between Pit River Tribal Council and Modoc National Forest Meeting Notes October 4, 2004.

**_____. 2005a.** Noxious Weed Risk Assessment, Cedar Pass Forest Health Vegetation Treatment Project, Modoc National Forest, Warner Mountain Ranger District. Completed by Cheryl Beyer, Forest Botanist. July 15, 2005.

**_____. 2005b.** Integrated Weed Management Strategy, USDA Forest Service, Modoc National Forest. September, 2005.

**_____. 2005c.** Review of Fisheries and Aquatic resources for the Cedar Pass Forest Health Project, Warner Mountain Ranger District, Modoc National Forest. Completed by Marty Yamagiwa, Forest Wildlife and Fisheries Program Manager, March 29, 2005.

**_____. 2005d.** Historic Preservation Compliance: Cedar Pass Forest Health Project (05PC30: Cedar Pass forest Health Project). Modoc National Forest, Warner Mountain Ranger District. March 23, 2005.

**_____. 2005f.** Transportation Analysis for the Cedar Pass Forest Health Project. Modoc National Forest, Warner Mountain Ranger District. July 22, 2005.

**_____. 2007a.** Vegetation/Silviculture Report for The Cedar Pass Forest Health Project, Warner Mountain Ranger District, Modoc National Forest. Completed by Anne Mileck, Silviculturist. October, 2007.

**USDA. 2007b.** Cedar Pass Project Hydrology and Soils Specialist Report, Modoc National Forest. December 27, 2007.

**_____. 2007c.** Recreation Report for the Cedar Pass Forest Health Project, Modoc National Forest. Completed by Jessie Berner, Recreation Officer. December, 2007.

**_____. 2007d.** Biological Evaluation for the Cedar Pass Forest Health Project, Modoc National Forest. Completed by Mary Rasmussen-Flores, Wildlife Biologist. October, 2007.

**_____. 2007e.** Cedar Pass Forest Health Vegetation Treatment Project Sensitive Plant Biological Evaluation, Modoc National Forest, Warner Mountain Ranger District. Completed by Cheryl Beyer, Forest Botanist. October 26, 2007.

**_____. 2007f.** Terrestrial Management Indicator Species Report, Cedar Pass Forest Health Project, Modoc National Forest. Completed by Mary Rasmussen-Flores, Wildlife Biologist. December, 2007.

**_____. 2007g.** Fuels Analysis Report, Cedar Pass Forest Health Project, Modoc National Forest, Warner Mountain Ranger District. Completed by Jon M. Stansfield, District Fuels Officer. October, 2007.

**_____. 2007h.** Final Assessment, Cumulative Watershed Effects Analysis, Cedar Pass Forest Health Project, Warner Mountain Ranger District, Modoc National Forest. December 22, 2007.

**_____.2008a.** Biological Evaluation Aquatic Species: Cedar Pass Forest Health Project. Warner Mountain Ranger District, Modoc National Forest. Completed by Marty Yamagiwa, April 21, 2008.

**_____. 2008b.** Checklist for Environmental Justice Analysis: Cedar Pass Forest Health Project. Warner Mountain Ranger District, Modoc National Forest. March 3, 2008.