

# Chapter 1 Purpose and Need



## 1.1 Introduction

The USDA Forest Service, Plumas National Forest (PNF), will prepare an Environmental Impact Statement (EIS) to reduce hazardous fuels, improve forest health, improve bald eagle habitat, support the local communities, improve aspen stands, provide access needed to meet other project objectives and reduce transportation system impacts on the west side of Lake Davis near Portola, California. The Freeman Project area is 14,967 acres. This project was originally scoped in September 2004 with the intention of completing an Environmental Assessment (EA). After evaluating responses to the initial scoping effort, the PNF decided to prepare an Environmental Impact Statement (EIS).

Chapter 1 briefly describes the Forest Service proposal for the Freeman Project, the reasons why the Forest Service is proposing action at this time and the desired conditions for the project area. This chapter discusses the management direction background on the PNF. This chapter also describes how the Forest Service informed the public of the Proposed Action and addressed the issues that prompted the formation of alternatives. This document describes the Proposed Action, and the purpose of and need for the Proposed Action. It has been prepared consistent with guidelines of the Council of Environmental Quality for compliance with the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] 500 et seq.).

This chapter is organized as follows:

- Background
- Purpose of and need for action
- Project location
- Project schedule
- Decision to be made and responsible official
- Public Involvement and Scoping Issues

The Standards and Guidelines applicable to all activities occurring in the project area may be found in Appendix C (USFS PSW 2004b, Table 2). In addition to all of the specific design features and resource specific mitigation measures listed in the Proposed Action and at the end of Chapter 2, the District would implement its Standard Operating Procedures (SOP) (Appendix D). This project may be implemented using stewardship contracting authority, which allows for the exchange of goods for services, and which requires community collaboration.

## 1.2 Background

This project is proposed according to management direction provided by the PNF Land and Resource Management Plan (LRMP) as amended by the Herger-Feinstein Quincy Library Group (HFQLG) 1999 Final EIS and Record of Decision (ROD), the 2003 HFQLG Supplemental EIS and ROD and the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) supplemental EIS and ROD (USFS PNF 1988, USFS 1999, USFS 2003, USFS PSW 2004 a, b). The 2004 SNFPA required that land allocations and application of Standards and Guidelines embodied in the HFQLG ROD be preserved for the life of the pilot study. The pilot study provided for by the HFQLG Act was designed to test the effectiveness of certain resource management activities at meeting various ecologic, economic and fuel reduction objectives. Fuelbreak construction consisting of a strategic system of Defensible Fuel Profile Zones (DFPZ) is just one of the requirements of the Act. Other activities include GS, Area Thinning Zone treatments (or Individual Tree Selection), as well as riparian management and restoration projects.

The Healthy Forest Initiative (HFI) and Healthy Forest Restoration Act (HFRA) affirmed the need to reduce the risk of wildland fire to communities, municipal water supplies, forests, rangelands and other important landscape components. One of the primary goals of this Act was to create a National Fire Plan that would address the fuels reduction needs in the Wildland Urban/Interface (WUI). The Plumas County Fire Safe Council finalized the Plumas County Communities Wildfire Mitigation Plan. In April 2005, the Plumas County Board of Supervisors adopted the Plan.

The Wildfire Mitigation Plan was developed through a collaborative process involving participation from county, state, federal agencies and the public. As a partner in the development of this Plan, the Forest Service is committed to do its part to implement the Plan in a coordinated fashion and reduce fuels in WUI on National Forest System (NFS) lands.

## 1.3 Project Purpose and Need

### 1.3.1 Reduce Hazardous Fuels

**Purpose 1:** Reduce fuels in order to do the following: a) provide continuity with existing DFPZ and existing fuel reduction project areas, b) provide continuity with Plumas Fire Safe Council's efforts to reduce fuels inside the WUI, c) contribute to the larger HFQLG landscape level DFPZ network, d) reduce the potential size and intensity of wildfires by creating conditions that improve fire suppression effectiveness in the Lake Davis Recreation Area, and e) reduce the risk of stand-replacing fire in riparian habitat conservation areas.

Fuel treatments are identified under two distinct zones, WUI and a strategic network of DFPZs. Under the HFRA, the Forest Service is required to work with the Plumas Fire Safe Council to reduce hazardous fuels around local communities. These areas are referred to as the WUI. Fuel treatments within the WUI are designed to create a fire buffer zone between developed areas and the wildland to increase the effectiveness of firefighting efforts and to reduce risks to firefighters, the public, facilities, structures and natural resources. The WUI is broken-up into two areas in the 2005 Plumas County Communities Wildfire Mitigation Plan: the *Adjacent WUI*, which stretches 0.5-miles around communities; and the *Extended WUI*, which stretches another 1-mile around the Adjacent WUI. This makes the overall size of the WUI approximately 1.5-miles around communities.

The principle behind a strategic network of DFPZs is to reduce the potential for large-scale, high-intensity fire by creating a network of linear fuel treatments across the landscape, over seven Ranger Districts, where wildfire behavior would be modified to allow safer, and more effective fire suppression. The DFPZs would generally be ¼-mile to ½-mile in width, although width would be adjusted to take advantage of naturally fire resistant landscape features such as roads, ridgelines, rocky slopes, wet valley bottoms and boundaries between PNF and private property.

Riparian habitat conservation areas (RHCA) and upland forested areas within the Freeman Project are currently overstocked, contain ladder fuels consisting of small trees and brush, and have excessive fuel loads. Insect infestations, drought, disease and fire exclusion have increased the susceptibility of the project area to intense fire. Nearly 60% of the stands are in high-risk condition with a rating of *Condition Class 3*, 26% are in *Condition Class 2* and 14% are in *Condition Class 1*. Condition Classes are a descriptive term to describe the degree of departure from historic *fire regimes*. Having so much of the area in *Condition Class 3* is an indication that fire regimes have been significantly altered by past management practices and fire suppression. With current surface fuel conditions and live-crown-base heights, wildfires during 90<sup>th</sup>-percentile fire weather conditions are likely to move from the ground surface to the forest canopy, leading to a high intensity fire that is difficult to control.

The desired conditions for fuels in the area are open upland and RHCA stands that are mostly dominated by larger, fire tolerant trees. The openness of crown fuels creates a network of intermingled openings between the clumps of large trees. The absence of most small diameter trees and the low amount of surface fuel would increase fire suppression capabilities and produce a very low probability of active crown fire under the weather conditions that most large fires occur on the PNF. The principles for fire-resilient forests (reduced surface fuel, increased canopy base height, decreased crown density and retention of large trees) are all inter-related when describing fire behavior potential. Measurable elements of fire resistant forests are surface fuels, canopy base height, rate of spread, flame length and overall fire type.

### 1.3.2 Improve Forest Health

**Purpose 2:** To improve forest health by a) reducing the amount of and susceptibility to disease infection and insect infestation b) accelerate the growth of California Wildlife Habitat Relationship (CWHR) size class 4 towards size class 5 and c) reducing fuels and improving conifer-growing conditions in the Area Thinning zone.

Many stands in the project area are infected with small pockets of insects and disease. Overstocked stands are at greater risk to insect and disease due to a weakened ability to resist attack.

Trees are most susceptible to insect mortality and damage when they are stressed due to overcrowded (over-stocked) stands. Although current bark beetle mortality pockets are small, there exists potential for bark beetle epidemic due to the large number of stands that are overstocked in the project area.

The diseases include mistletoe (*Arceuthobium* spp.), white pine blister rust (*Cronartium ribicola*) and annosus root rot (*Heterobasidion annosum*). White pine blister rust, a non-native disease, infects sugar pine (*Pinus lambertiana*). Dwarf mistletoe, annosus disease and white pine blister rust all damage infected trees and predispose them to mortality from beetles or other factors. Mistletoe infected trees have reduced growth rates, develop deformities and are susceptible to bark beetle attack and mortality. Annosus root rots occurs in two different strains. One attacks pine trees and the other, fir. The fir type infects trees primarily through basal wounds and root grafts and rarely kills trees outright. Cut stumps are the primary route of infection in the pine type and will kill pine trees quickly and spread to other pines in an ever-widening circle.

The area proposed for treatment outside the DFPZ and WUI are referred to as the Area Thinning Zone. The Area Thinning Zone units are also in need of fuels reduction and a reduction in the number of trees. Some of the areas are under-stocked due to shrub competition, preventing conifer growth. In over-stocked areas, a decrease in the number of trees will ultimately increase the health of the stands by making them less disease prone and less subject to stand-replacing fire. The amount of down fuels in the project area is high, as are the amount of ladder fuels, creating a high risk of stand-replacing fire.

**Table 1.1.** Displaying the preferred regulated stand size class distribution vs. the existing CWHR size class distribution under a regulated condition.

CWHR Size Class (dbh)	Existing (%)	Existing (Acres)	Regulated Stand (%)	Regulated Stand (Acres)	Difference (Acres)
0-2 (0-6")	10	1,220	10	1,185	35
3 (6-11")	19	2,192	10	1,185	1,007
4 (11-24")	62	7,354	30	3,554	3,800
>5 (>24")	9	1,082	50	5,924	-4,842
Total	<b>100</b>	<b>11,848</b>	<b>100</b>	<b>11,848</b>	

The desired condition is to have vigorous conifer stands that are resilient to insects and have low levels of mistletoe and annosus infection.

The Herger-Feinstein Quincy Library Group Act (HFQLG FRA) endorses GS un-even aged management as the way to achieve an all-aged, fire resilient forest. The average rotation length is 175 years, which translates to a harvest of .57% of the land base annually. Table 1.1 displays the approximate area in each size class under the 175 year rotation. Through an analysis of the desired distribution of size classes vs. existing size classes, it was determined that the Freeman project area had too many acres in CWHR size classes 3 and 4 and too few in size classes 5 and 6 (Table 1.1).

### 1.3.3 Improve Bald Eagle Habitat

**Purpose 3:** To improve bald eagle (*Haliaeetus leucocephalus*) habitat by promoting the growth and development of CWHR size class 5 trees, which are preferred for foraging, roosting and nesting habitat.

Stands in the Lake Davis Bald Eagle Habitat Management Area (BEHMA) in the Freeman project area are overstocked, largely unable to recruit nesting structure, and at risk of loss from wildfire and disease/insect infestation. Bald Eagle habitat in the project area is displayed in Appendix G, Figure G.1. Currently, the size class distribution of eagle habitat is disproportionately heavy in CWHR size class 4 (Table 1.2). The desired condition of the BEHMA stands is to increase the quantity of potential bald eagle habitat and lower the risk of loss to stand-replacing fires. The Lake Davis BEHMA Plan and LRMP directs us to accelerate tree growth in order to enhance bald eagle nesting, roosting and foraging habitat, through a combination of uneven-age and even-age systems (USFS PNF 1988 and USFS PNF BRD 2004).

### 1.3.4 Contribute to the Economic Stability of the Local Community

**Purpose 4:** To provide an adequate timber supply that contributes to the economic stability of rural communities.

There are several communities highly dependent upon the forest products industry within reasonable haul distance from the project area, without the forest products industry-related jobs and revenues, some communities may not survive. Timely timber sales within the Portola and

Quincy community areas contribute a proportional supply of timber to these communities that are highly dependent on the forest products industry.

**Table 1.2.** The CWHR size class distribution for forested Bald Eagle Habitat Management Area (BEHMA) in the Freeman Project. There are 3,819 total acres of BEHMA in the Freeman Project area.

CWHR Size Class	Acres
2	121
3	201
4	2,511
5	9
<b>Total</b>	<b>2,842</b>

### 1.3.5 Improve Aspen Stands

**Purpose 5:** To provide for greater biological diversity in the Freeman project area by releasing aspen stands from conifer competition.

Aspen stand improvement work follows the general forest management intent provided in the SNFPA by actively managing the general forest areas to maintain and enhance a variety of vegetative conditions (USFS PSW 2004b, Table 1). It also follows the HFQLG EIS Riparian Management Objectives that provide for the maintenance or restoration of 1) diverse and productive native plant communities in the riparian zone as well as 2) to support populations of well-distributed native plant, vertebrate and invertebrate populations that contribute to the viability of riparian plant communities (USFS 1999). There are approximately 300 acres of aspen in the project area, with stands ranging in size between 0.1-29.5 acres. Aspen is a critical component in the biodiversity of forests that also provides aesthetic qualities for recreation users. Functioning aspen ecosystems have plant community diversity and productivity second only to riparian areas on the PNF landscape. This work will assist the Forest in maintaining this genetic lineage of aspen clones, as well as promoting biological diversity in the project area. Higher plant diversity, greater plant productivity and elevated plant density is maintained because of the contribution of aspen litter fall and plant matter decomposition upon soil characteristics and nutrient availability. The organic matter provided to the soil maintains near-neutral pH levels, and increases water-holding capacity of the surface soils allowing diverse plant communities to proliferate. Many aspen communities within the project area are located adjacent to riparian areas and stream channels. Project implementation and associated enhancement of plant community diversity and density would therefore provide greater vegetative cover in these riparian areas. This would effectively result in improved water quality through increased sediment filtration and increased streambank protection during flood events, ultimately yielding greater watershed protection. Soil stability is provided through the rooting habit of aspen clones; approximately 95% of the root system is within 6” of the soil surface. Increased root density in shallow soil horizons reduces the potential for surface erosion during flashy storm events.



Aspen stands in the project area are low in productivity and health, and most are not successfully regenerating. This may be due to one or more of the following factors: past fire suppression or natural succession that favors conifers in the competition for sunlight and moisture; climate change; past grazing pressure or human-caused changes to the local hydrologic regime (e.g. roads). Field evaluation indicates that, regardless of the relative contribution of these various factors, at present, competition by conifers is a major factor in aspen decline. A risk rating assessment of the project area shows that the majority of the stands are at moderate to very high risk of loss. Each aspen clone has a unique genetic lineage, making the loss of even one clone significant. The stands in the project area have been rated as having 59% at high/highest risk of loss, 30% are at moderate risk of loss and 11% are other. Aspen stands that are rated at moderate or higher risk of loss have one or more risk factors: decadent overstory aspen; conifer canopy cover greater than 25%; overstory trees not being replaced by sprouting; and aspen cover less than 40%.

The removal of conifers, surrounding an aspen stand, is frequently recommended to allow for aspen community expansion, reduce shading effects from adjacent conifers and reduce nearby conifer seed sources. Aspen stands need to be released from conifer competition to create a more stable aspen community and restore the stands to a healthier condition. Improved functioning of these systems would maintain favorable water quality and flow, and reduce the likelihood that these communities could be severely damaged or lost because of wildfire. The objectives of this project are to maintain or improve habitat for plant, vertebrate and invertebrate populations that contribute to the viability of aspen stands. The outcome of releasing the aspen should result in increased aspen sprouting, a multi-layered canopy of aspen and increased health and vigor of the stands.

### 1.3.6 Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts

**Purpose 6:** To reduce impacts of the transportation system on forest resources and provide the necessary access for the vegetation treatments.

The proposed road relocation and decommissioning work is needed to achieve desired riparian conditions and to reduce the total area of compacted soil. As directed by the HFQLG, the Riparian Management Objectives (RMO) set forth many goals for water quality in the project area. These RMOs provide much of the justification for the roadwork that is being proposed. The roads identified for decommissioning are currently in poor locations or in a condition which adversely affects channel stability, peak flows, water quality and aquatic habitat. Decisions regarding the transportation system are being coordinated with ongoing planning for designation of off-highway vehicle routes. Appendix B, Table B.4 provides a description of the road number, type of work being proposed, and what the justification for closing or decommissioning certain roads before the completion of the forestwide Off-highway vehicle (OHV) analysis process. Measures

of successful implementation will lead to reduced equivalent roaded acres, lowered road density and less soil compaction in the project area.

The Freeman Project area recently had two hazard tree sales, in 2004 the Deek Hazard Tree Sale and in 2005 the Smitty Hazard Tree Sale. These two sales removed most of the hazard trees in the project area; however there are already new hazard trees in the project area and more hazard trees are likely to arise before the project area is finished being treated. These trees will need to be removed in order to create safe operating conditions for timber operators. Hazard trees are by definition, unstable and capable of falling and injuring people or damaging property. Removing these trees would restore both transportation and recreation safety.

### 1.3.7 Project Location

The project area is located north of Portola and west of Lake Davis in Plumas County, California, within the Beckwourth Ranger District of the PNF. It is within all or parts of T23N, R12E; T23N, R13E; T24N, R12E; and T24N, R13E (Figure 1.1). The project area is within portions of PNF's Mt. Ingalls Management Area #31, Penman Peak Management Area #32 and Lake Davis Management Area #37. Management direction and land allocations for these areas were amended by the 1999 HFQLG ROD and the 2004 SNFPA ROD. As shown in the original LRMP, the area visible from road 24N10 on the west side of Lake Davis has a visual retention prescription (Rx 10). The area east of road 24N10 has a Recreation Area prescription (Rx 5). Much of this same area also has a bald eagle prescription (Rx11). DFPZ and WUI land allocations in the project area are shown on Appendix G, Figure G.1.

### 1.3.8 Project Schedule

The responsible official expects to make a decision on this project as early as the summer of 2006. Implementation could begin as early as the fall of 2006.

### 1.3.9 Decision to be Made

The responsible official will decide whether to implement this project as proposed, implement the project based on an alternative to this proposal that is formulated to resolve identified issues or not implement this project at this time. The responsible official will be the PNF Forest Supervisor.

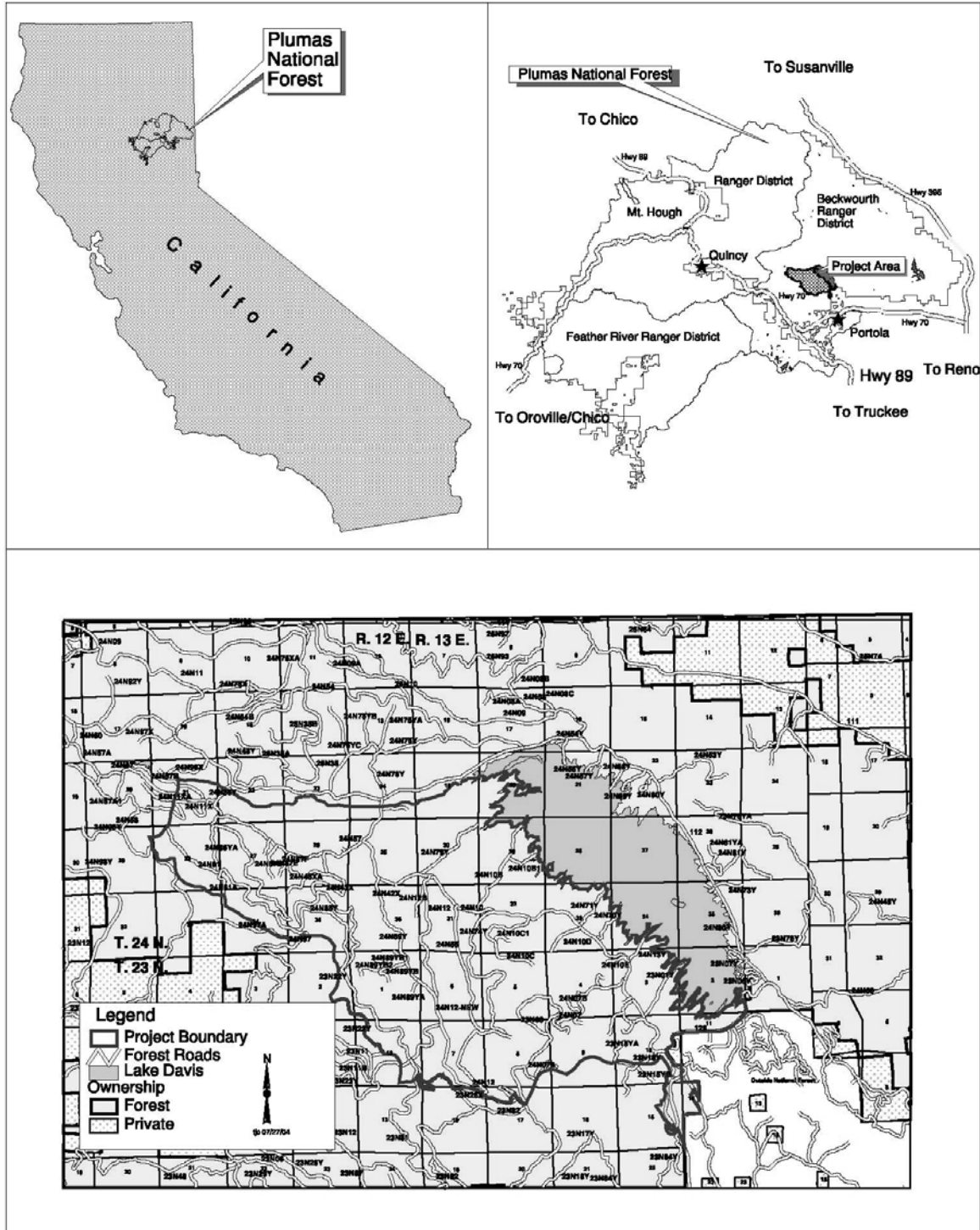


Figure 1.1. Vicinity Map for the Freeman Project.

## 1.4 Public Involvement and Scoping Issues

### 1.4.1 Public Involvement Process

Notice of the pending action first appeared in the Plumas National Forest quarterly Schedule of Proposed Actions (SOPA) issued April 2004 (It also appeared in July 2004, October 2004, January 2005, April 2005, July 2005 and October 2005). The Ranger District started the NEPA public scoping process by publishing a Notice of Intent (NOI) in the Federal Register on August 25, 2005. On August 24, 2005, a legal notice of the NOI was published in the *Feather River Bulletin*, the Forest's Newspaper of Record. The Proposed Action, Purpose and Need was mailed to approximately 93 public agencies, non-profit organizations, Native American entities, adjacent landowners and individuals who expressed interest in the project. The advertised scoping period ended on September 26, 2005, although the District continued to receive and consider comments after this date.

During scoping, the Beckwourth Ranger District, staff met with the Plumas Fire Safe Council (October 13, 2005) and the Quincy Library Group (August 25, 2005) to discuss the Freeman Project, providing copies of the Proposed Action, Purpose and Need to all of the members in attendance.

The purpose of the scoping process was to inform the public about the Proposed Action, Purpose and Need in order to seek different points of view on the pending action and issues to be addressed during the project analysis period. The Freeman Project received written or verbal scoping comments from one agency, five organizations, one Tribe and two individuals (Table 1.3).

### 1.4.2 Scoping Issue Development

The Forest Service Interdisciplinary Team (IDT) reviewed public comments and data collected during the 2004-2005 field seasons to identify issues related to the Proposed Action. They separated the issues into three groups: significant issues, non-significant issues and concerns.

Those comments that applied to the Purpose and Need, and indicated an effect caused by the Proposed Action were determined to be significant issues. These issues became the basis for developing and analyzing additional alternatives to the Proposed Action (Alternative 1) and the required No-action Alternative (Alternative 2) described in more detail in Chapter 2. Significant issues were further divided into minor and major significant issues (referred to as minor issues and major issues, respectively). We identified key topics that covered the major themes in the comments, and these were carried forward as significant issues that caused us to consider, develop and analyze additional alternatives to the Proposed Action. Minor issues were identified as those that were not substantial enough to require a new alternative to be developed but that could be addressed through adjustments to the Proposed Action. Major issues generally resulted in a new alternative being formed. Suggested alternatives were generally in relation to aspen

treatments, goshawk PAC avoidance and upper diameter limits to tree removal for forest health and fuels treatments. The IDT, in conjunction with the Responsible Official, developed the alternatives to the Proposed Action.

**Table 1.3.** People and organizations that provided comments on the scope of the Freeman Project and the date the comments were received.

Code	Entity	Representative	City	Date
<b>Agencies</b>				
AQ	Northern Sierra Air Quality Management District	Sam Longmire	Grass Valley, CA	September 2, 2005
<b>Organizations</b>				
SNFPC	Sierra Nevada Forest Protection Campaign	David G. Graves, Conservation and Communications Director and others	Sacramento, CA	September 26, 2005
CQF	Counties' QLG Forester	Frank Stewart	Chico, CA	September 16, 2005
CATS	Californians for Alternatives to Toxics	Pete Harrison, Forestry and Public Lands Associate	Eureka, CA	September 23, 2005
OCTA	Oregon-California Trails Association	Andrew Hammond	Chico, CA	September 18, 2005
PFP	Plumas Forest Project	John Preschutti	Blairsden, CA	September 26, 2005
<b>Tribes</b>				
SRI	Susanville Indian Rancheria	Stacy Dixon	Susanville, CA	September 18, 2005
<b>Individuals</b>				
LB	Linda Blum		Quincy, CA	September 28, 2005
JP	B. Sachau		Florham Park, NJ	August 25, 2005

Non-significant issues (referred to as non-issues) were identified as those that are:

- outside the scope of the proposed action;
- already decided by law, regulation, Forest Plan, or other higher level decision;
- irrelevant to the decision to be made; or
- the cause and effect relationship are not valid; or
- the effects are small relative to the decision to be made; or
- conjectural and not supported by scientific or factual evidence.

Comments identified as “concerns” were evaluated to determine those that could be addressed through further explanation of the Proposed Action or could be addressed through the effects analysis in Chapter 3. Some concerns were determined to be “outside the scope” of the project and/or did not fit within the Purpose and Need of this project. If the information was

deemed necessary for the deciding officer to make a decision, that information was provided in this environmental document. In other instances, the information was already provided in the Proposed Action document.

In the following chapter, each of these alternatives is first described, followed by the reason(s) for considering them in detail or elimination from detailed study and consideration. Based on internal and external feedback, an additional ten alternatives were considered, developed and analyzed. Of the ten, eight were developed, considered and not analyzed in detail. Two were developed, considered and analyzed along with the Proposed Action and No-action alternatives.

The significant issues were:

- Aspen treatment outside RHCA's not authorized by the Standards and Guidelines.
- Aspen treatment units greater than 2 acres may be considered too big.
- Aspen treatment involving the removal of larger conifers is objectionable to some, due to the loss of larger trees and their potential ecological importance.
- Design cost effective and efficient fuels treatments.

## 1.5 Document Structure

This *Freeman Project Draft Environmental Impact Statement* (DEIS) has been prepared according to the Council on Environmental Quality (CEQ) regulations that implement the NEPA (40 Code of Federal Regulations [CFR] 1500-1508).

- **Chapter 1: Purpose and Need**—this chapter provides readers with an explanation of the project background, purpose and need, the project location and schedule for implementation. It also explains the public scoping and issue identification processes that were used. It provides a table of the names and affiliations of each comment we received during the scoping of the Proposed Action, purpose and need. At the very beginning of this chapter is a glossary and list of acronyms designed to assist the reader with understanding some of the scientific jargon used by some of the resource specialists.
- **Chapter 2: Alternatives, Including the Proposed Action**—this chapter provides an introduction to the chapter that explains how we are meeting the intent of the CEQ guidelines by developing both the No-action Alternative and action alternatives to the Proposed Action. It describes the Proposed Action, No-action Alternative and each action alternative in detail and provides a comparison table of how each action alternative addresses the purpose and need and the issues that were generated during scoping. At the end of Chapter 2 there is a section on Specific Design Criteria to assist with fulfilling the purpose and need for this project, as well as any Resource Specific Mitigations, such as Limited Operating Periods (LOP) for wildlife or recreation, and units with botanical issues such as sensitive plants, special habitats or noxious weeds.
- **Chapter 3: Affected Environment and Environmental Consequences**—this chapter provides the reader with the affected environment and environmental consequences of the proposed action, No-action and two other alternatives for each resource. Each resource has a brief introduction. A summary of the effects of the Proposed Action and each alternative are provided at the beginning of each section. The scope of the analysis is provided, disclosing the analysis geographic area and timeframe that were used. As required by the 40 CFR 1502.14, the resource specialist provides an explanation of the analysis methodology that was used in drawing their effects analysis. The Affected Environment is discussed by resource, rather than in its own chapter, in order to facilitate the readers understanding of the context of the environmental consequences that follow. The Environmental Consequences section is grouped by each alternative or by the action alternatives versus the No-action alternative. This chapter touches on a variety of resources. The organization is loosely structured around the purpose and need. Since one of the main purposes of this project is to reduce fuels, the Fire, Fuels and Air Quality Section are covered first. The next purpose and need to improve forest health, naturally follows having the Forest Resources discussed. In this section the silviculturist discusses the insects and disease, stand growth over a series of time periods as well as DFPZ

maintenance. A very important purpose and need in this project area, and one that led to the development of an alternative is the need for aspen stand improvement. This special habitat is discussed along with other biodiversity areas, especially highlighting the effect of the Proposed Action on aspen, among other types of special habitats. The Wildlife Effects follows the special habitats section, with a discussion of the positive effects to bald eagle habitat that the Proposed Action should have, as well as discussion of other threatened, endangered and sensitive wildlife species and management indicator wildlife species. As required by 40 CFR 1502.23, the economic effects section, provides a basis for the cost-benefit analysis of this work towards contributing to local economic stability. Watershed and Soil Resources are discussed together in one section, followed by the Transportation System Effects. Threatened, Endangered and Sensitive Plants have their own section, followed by Special Interest Plants, and then Noxious Weed Effects. Visual Quality is followed by Recreation Effects, since this project is in a designated Recreation Area, just outside of Lake Davis. One of the largest range allotments on our Forest is located in and adjacent to the project area, so a detailed range effects discussion is provided in the Range Effects section. The Heritage Resources provide a firm understanding of the affected resource and assurance that the area has been well documented and heritage resources will be appropriately protected from damage during implementation. The end of Chapter 3 provides the legal regulatory compliance and consultation that has gone into writing and planning the implementation of this EIS.

- **Chapter 4: Preparers and Contributors**—This chapter provides the names of the resource specialists and planners that worked on this document as well as a brief biography about the individuals.
- **Chapter 5: Distribution List**—This chapter provides the readers with a list of federal, state, county and local agencies that the DEIS will be sent to, as well as the Tribes and individuals.
- **Appendices**— The appendices provide supporting documentation to the DEIS. Appendix A is a list of citations used in each specialist report, organized by resource. Appendix B provides a unit description for each action alternative and a list of the proposed road work. Appendix C provides a list of the Standards and Guidelines for vegetation projects. Appendix D provides a copy of our SOPs, sometimes referred to as Standard Management Requirements. Appendix E provides a list of our cumulative effects, the names of the projects and a brief description of what they entail. Appendix F is our monitoring chapter for this project.



## **Chapter 2      Alternatives, Including the Proposed Action**



## 2.1 Introduction

This chapter describes and compares the alternatives considered for the Freeman Project and those eliminated from detailed study. The first section describes the Alternatives Considered in Detail including: Alternative 1, the Proposed Action; Alternative 2, the No-action Alternative; and Alternatives 3 and 4. That section is followed by the Specific Design Features/Resource Specific Mitigation Section, which is designed to facilitate the project specific requirements needed to implement the project, while protecting resources. This is information that is in addition to the SOPs or that fall outside the SOPs, allowed by the Proposed Action and the Alternatives. The following section is designed to present the alternatives in a comparative format, defining the differences between each alternative and providing a clear basis for choice among options by the decision maker. Comparative tables are provided showing how the Purpose and Need Indicators and Outputs differ for each alternative and an Issue Indicator table of comparison for each alternative. Some of the information used to compare the alternatives is based upon the purpose and need (i.e., Total Project Value for each alternative) and others are designed around the issues (i.e., extended treatment zones vs. no extended treatment zones for improving aspen stands). The next section is about the Alternatives Considered but Eliminated from Detailed Study, providing the reader with insight into comments that were received from the public but eventually dropped from consideration and an associated explanation for why they were dropped.

A unit-by-unit description of the Proposed Action and action alternatives are provided in Appendix B, Table B.1 thru Table B.3. Maps showing the proposed action and action alternatives are provided as well (Appendix G, Figure G.2, G.3. and G.4). Road decommissioning, closure and reconstruction will be the same for each alternative (Appendix B, Table B.4)

There were three different action alternatives identified and one No-action Alternative. Alternative 1 is the Proposed Action. The Forest Service is required to analyze a No-action Alternative, identified in this document as Alternative 2, according to 40 CFR 1502.14(d). An analysis of a No-action Alternative, allows for a contrast between the issue driven alternatives and the Proposed Action. Federal agencies are required to rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 Code of Federal Regulations [CFR] 1502.14). The Forest Service followed these regulations by developing two action alternatives to the Proposed Action based on issues identified during the project public scoping process. Alternative 3 makes changes to the aspen treatments. Alternative 4 keeps the changes made in Alternative 3 and alters the silvicultural treatment in several units.

## 2.1.1 Alternatives Considered in Detail

### 2.1.1.1 Alternative 1 (Proposed Action)

#### How the Alternative Was Developed

Alternative 1 is the original action proposed to the public for scoping in September 2004, which was scoped again in August 2005 once it was decided that an EIS should be written, instead of an Environmental Assessment (EA). The Proposed Action would implement provisions of the HFQLG Act and National Fire Plan on this part of the Plumas National Forest. It is designed to:

- Reduce Hazardous Fuels
- Improve Forest Health
- Improve Bald Eagle Habitat
- Cost Effectively Support the Local Communities
- Improve Aspen Stands
- Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts

The Freeman Project area is approximately 14,967 acres in size. The Proposed Action would treat 5,792 acres, approximately 39% of the project area (Figure 2.1).

#### Minor Changes to the Proposed Action

On August 24, 2005, the document titled “Freeman Project—Proposed Action, Purpose and Need” was mailed to the public. Since that time there has been a change in management direction based on the impending Travel Management Plan, as well as issues identified by the public that were considered minor issues that could be addressed through a change to the Proposed Action. Lastly, there were database calculation errors, due to incorrectly attributing the Proposed Action. The following lists the errors and the corresponding corrections. These corrections are embodied in the Proposed Action (Alternative 1) that follows.

- Drop unit number 45, because there is no way to access it without tremendous cost to protect the Beckwourth Trail. This issue was brought about by the Oregon Trails Association.
- Table 4 titled “Acres of Defensible Fuel Profile Zone (DFPZ) and Wildland/Urban Interface (WUI) fuels treatment in the Freeman project area. DFPZ/WUI treatments represent where there is an overlap between the two fuels treatment designations.”, had an attribute error that has since been corrected to show that there will be 2,108 acres of DFPZ treated and 474 acres of DFPZ/WUI treated in the project area. This information is now available in a comparative table, Table 2.4. Some of the acreage figures have changed up or down due to rounding by one acre.

- Table 5 titled “A summary of the number of acres of each silvicultural treatment occurring in each zone for the Freeman project area.”, had a similar problem as the previous table, in that there should be 178 acres of DFPZ Mechanical-Aspen treatment and 110 acres of DFPZ/WUI Mechanical-Aspen treatment. This information is now available in Table 2.4.
- Stream Management Zones should state that the equipment exclusion zone is 25’ rather than 15’ wide.
- The original number of aspen acres existing in the project area was calculated as 860 acres. The actual number of acres that have been documented in the project area is 300 acres. The buffered aspen acres were accidentally used to calculate this value, instead of the actual aspen stand acres. There are approximately 300 acres (changed from 860) of aspen in the project area, with stands ranging in size between 0.1-29.5 acres (changed from 0.5-84). These changes are reflected in the purpose and need description for improving aspen in Chapter 1.
- In light of the pending Travel Management Plan, the Forest reassessed the roads proposed for decommissioning, relocation and reconstruction and made these changes to Appendix B Table B.4 of the Proposed Action. There would be 9.3-miles of existing system roads decommissioned with this decision as well as 1.8-miles of decommissioning from a previous decision, instead of 12.5-miles. Instead of 0.2-mile of relocation, there would be 0.3-mile of system road relocated. Approximately sixteen-miles of system roads would be reconstructed rather than 1.9-miles of system road reconstruction. Instead of 0.7-miles of road closure there would be 1.1-miles of road closure. This information is now available in Appendix B, Table B.4.
- Deleted the words “and trees greater than 8” would be left untreated” from the Improving Aspen Stands section third paragraph which discusses hand piling up to 8” dbh. The original wording made it appear as though the remaining stand would be left untreated, when the intent was to state that hand piles would be made with  $\leq 8$ ” dbh material and the rest would be treated mechanically with a long-reach boom, to the greatest extent possible, from outside the equipment exclusion zones.

## Reducing Fuels

- The Proposed Action will treat fuels on approximately 13-miles of DFPZ and WUI zones (Table 2.4 and Figure 2.1). Areas of overlap are referred to as DFPZ/WUI. Treatments in the WUI include both adjacent and extended WUI. The fuel treatments proposed would provide continuity with 700 acres under contract (Knutson-Vanderberg (KV) projects) and 1,388 acres that are currently in an acceptable condition or have been administratively removed for treatment within the DFPZ (Table 2.1). Treatments will

reduce surface, ladder and canopy fuels. Treatments are specifically designed to cause advancing wildfire to drop to the ground and burn with reduced intensity.

Fuels would be reduced by generally thinning from below (removing trees starting with the smallest diameter). Where mechanical, ground-based harvest equipment is used, trees will be removed using whole tree yarding, effectively removing most limbs and tree tops from the stand, thereby reducing the need for post-project slash pile fuels treatments. Area Thinning Standard and Guidelines will be applied to the WUI, while DFPZ Standard and Guidelines will be applied to the DFPZ (Appendix C). The Area Thinning standard and guidelines emphasize that Westside vegetative treatments in CWHR 4D, 4M, 5D, 5M and 6 should be designed to retain 50% canopy cover wherever possible. Where a 50% canopy cover is not possible, a minimum of 40% canopy cover will be retained. In eastside stands, 30% of the existing basal area comprised of the largest trees will be retained. In the DFPZ red fir (*Abies magnifica*) and white fir stands, canopy cover would be reduced to between 40-50%. In pine stands, canopy cover would be reduced to between 30-40%. For an explanation of other Standards and Guidelines that apply to these two treatment areas, see Appendix C.

**Table 2.1.** The acres of Defensible Fuel Profile Zone (DFPZ) and Wildland/Urban Interface (WUI) and DFPZ/WUI in the Freeman Project area. Not all of the area will be treated at this time, because some of the areas are already under contract and others are currently in an acceptable condition or have been administratively removed for treatment.

Fuels Treatment Areas	Total Acres in Project Area
DFPZ	3,301
DFPZ/WUI	669
WUI	1,301
Total	5,271

Note: Acres may vary up to 10% during the final layout due to topography, stand condition, etc. Mechanical treatment acres will be less than those displayed due to the no equipment rules applied to slopes  $\geq 15\%$  in RHCAs and  $\geq 35\%$  in upland areas. See the Cumulative Watershed and Soil Effects Report for more details (USFS PNF BRD 2006f).

Clumps of the largest fire-tolerant, healthy trees would be retained within a network of intermingled openings, rather than employing uniform spacing between the residual trees. A thinning from below prescription would be utilized in most cases, except for trees that are at high risk of mortality due to insects or diseases, keeping those needed for wildlife snag recruitment and in the case of aspen stand improvements. No trees over 29.9” dbh will be removed, except for operability (e.g., new skid trails, landings, temporary roads). Forest Service Representatives must approve such removal of larger diameter trees and will do their best to avoid having to do so whenever possible. New skid trails may be necessary due to the use of whole tree yarding techniques in some stands. Although whole tree yarding enables less slash to be dealt with, it also requires that skid trails are straighter than those used in the past since full length trees with all of their branches are hard to maneuver through the forest without damaging the residual stand. Mechanical felling would be restricted to slopes having a gradient of less than 35%. Exceptions may be made for short (less than 100’) pitches within the interior of units where slope exceeds

this limit. Mastication, grapple pile and/or underburning may follow thinning, if needed to meet ladder and ground fuel-reduction objectives. Mastication and grapple piling have similar effects to soil resources and therefore may be interchanged during layout. For treatments in aspen stands within the DFPZ, see the section on aspen stand improvement.

Fuels occurring in plantations, natural stands of young trees and prior shelterwood regeneration harvest areas, would be reduced through a combination of hand-thinning grapple piling and mastication (Table 2.4). Follow-up treatment may consist of underburning and/or pile burning, unless damage to regeneration is predicted.

Fuels in some units and within RHCA buffers may be reduced by hand-thinning, piling and burning of trees up to 8" dbh. In other units, fuels may be reduced using underburning without any additional treatment.

### **Riparian Habitat Conservation Areas**

RHCAs and streamside management zones (SMZ) within the treatment units total approximately 1,301 acres. Treatments in these areas would include hand-thinning, mechanical thinning, underburning, pile burning and/or a combination thereof. No GS would be permitted within RHCAs. RHCAs vary in width, depending on whether they are along fish bearing streams and lakes (300'), or intermittent and ephemeral channels with scour and deposition, seeps, springs and bogs (150').

In DFPZs, WUI and Area Thinning (areas outside DFPZ and WUI) units, RHCA treatment would be as follows:

- Within units to be mechanically thinned, masticated, or grapple piled, equipment would be restricted from entering within 50' (for 150'-wide RHCAs) and 100' (for 300'-wide RHCAs) of the high water mark of streams and springs. Low ground pressure equipment (under 8.0 psi) would be permitted to extend booms into these inner zones to remove material, but would not be allowed to significantly damage residual stands or disturb soils. Areas beyond the reach of booms would be hand thinned, piled and burned.
- Low ground pressure equipment would be allowed to travel into the outer RHCA zone; harvest trees and bring them to skid trails. Skid trails would be spaced approximately every 120', generally perpendicular to streams and skidders would be allowed to enter the outer RHCA on these skid trails. To minimize soil displacement, no equipment would be permitted to turn around while off a skid trail in RHCAs.
- Where side slopes within RHCAs exceed 15%, only hand-thinning would be allowed.
- Canopy cover  $\geq 40\%$  would be retained in general and within the inner zones of the perennial, fish-bearing stream RHCAs, canopy would remain  $\geq 60\%$ , where available (canopy cover in RHCAs will be less in aspen treatment units). Within RHCAs in units proposed for underburning or hand-thinning, conifers up to 8" dbh would be removed. Slash would be piled and burned. Hand piles would be situated away from riparian vegetation to prevent scorching.

Streamside management zones (SMZs) are channels that have flow only after storms or during snowmelt, generally exhibit no annual scour or deposition, and are found in the upper reaches of a drainage. A 25'-wide equipment exclusion zone would protect these areas. The harvest prescription for adjacent land would apply to these areas. There are approximately 57 acres of mapped SMZs within the proposed treatment units.

Along the perimeter of units adjacent to meadows, scattered conifers possessing one or more of the following characteristics would be retained to provide nesting and roosting habitat for raptors: large limbs extending into the meadow; mistletoe brooms higher than 20' from the ground; multiple tops; bole sweep; and snags.

Where conifers with the above characteristics are not present adjacent to meadows, dense pockets of conifers  $\frac{1}{4}$  acre in size, spaced approximately every 200 yards around the perimeter of the meadow, would be retained.

### Improving Forest Health

In addition to fuels reduction, the purpose and need focuses on the need to treat stands for forest health reasons. This will involve treating the DFPZ, DFPZ/WUI and WUI, and the areas outside, referred to here as Area Thinning stands (Figure 3). As discussed in the Purpose and Need, treatments would focus on areas where disease and insect infestations have occurred. GS would be the primary tool utilized to treat these areas.

### Group Selection

GS would range in size from  $\frac{1}{2}$ -2 acres and would be predominately located in stands containing sawlog-sized conifers, generally ranging from 11-29.9" dbh. GS, consisting of harvesting trees to create openings up to 2 acres in size totaling 175 acres, would be implemented over approximately 2,700 acres (Table 2.2). GS patches will be identified during layout of the project, which will not occur until just before implementation; therefore, the exact locations have not yet been identified.

If not removed as part of a timber sale, non-saw log material (biomass) would be piled and burned or decked and sold as firewood. GS will be replanted as necessary to insure adequate restocking. Healthy, advanced regeneration of appropriate species would be retained during harvest, where practical. Areas with mistletoe or root disease infestation would be planted with alternative non-susceptible native species. Fuels objectives would be met by underburning, grapple piling or masticating post-treatment. Each GS area would be site specifically evaluated.

### Group Selection within the DFPZ and WUI Zones

WUI treatments would be adjacent to the Grizzly Road-Lake Davis communities of Portola, California, which have been identified as one of the communities at risk to wildfire in the Plumas County Communities Wildfire Mitigation Plan (PFSC 2005). Fuel treatments in these areas are adjacent to the strategic network of DFPZs. Area Thinning standard and guidelines will be



applied to the areas within the WUI (Appendix C), while DFPZ standard and guidelines will be applied to the DFPZ.

These two Standards and Guidelines differ in the way they factor GS into the post-treatment canopy cover calculations. In the WUI, GS will be factored into the remaining canopy cover for the overall stand. When calculating canopy cover for the DFPZ, GS treatments are not factored into the overall canopy cover. Further canopy cover may be lost due to post-treatment underburning. GS areas in the DFPZ and WUI treatment areas will be evaluated after treatment; those units not meeting desired surface fuel conditions would be underburned, grapple piled and burned, or masticated.

**Group Selection within Area Thinning Zone Stands**

GS would be implemented on 95 acres within acres of Area Thinning Zone silvicultural treatments (Table 2.2). Of the units being treated with GS in the Area Thinning, 4% of the land base will be treated. Emphasis will be placed on improving stand health by cutting diseased and insect infected trees or trees otherwise in poor health.

The project area has both Eastside and Westside forest conditions (Appendix B). Stocking levels in eastside pine stands would retain at least 30% of the existing basal area, generally comprised of the largest trees. In Westside stands, where vegetative conditions permit, at least 50% canopy cover will be retained where possible, with a minimum of 40% canopy cover. Canopy cover calculations in Area Thinning treatments will factor in the canopy cover of the entire treatment area including GS treatments.

**Table 2.2.** Acres of Group Selection (GS) treatment within Defensible Fuel Profile Zone (DFPZ), Wildland/Urban Interface and Area Thinning fuel treatments in the Freeman Project area Proposed Action. DFPZ/WUI treatments represent where there is an overlap between the two fuels treatment designations.

Zones	GS (Acres)	Total Acres of Units with GS
DFPZ	60	958
DFPZ/WUI	4	86
WUI	16	232
Area Thinning	95	1,424
Total	175	2,700

Note: Acres may vary up to 10% during the final layout due to topography, stand condition, etc. Mechanical treatment acres will be less than those displayed due to the no equipment rules applied to slopes  $\geq 15\%$  in RHCAs and  $\geq 35\%$  in upland areas. See the Cumulative Watershed and Soil Effects Report for more details (USFS PNF BRD 2006?).

**Area Thinning Zone**

Areas outside the DFPZ and WUI are considered Area Thinning Zone treatment stands; all Standards and Guidelines to Area Thinning apply (Appendix C). Area Thinning treatments include both non-commercial and commercial treatments and will occur on approximately 2,727 acres. Non-commercial treatments consist of hand thinning, grapple piling and mastication of non-saw log material (Table 2.4). Commercial treatments consist of mechanical thinning and

helicopter thinning. In Area Thinning treatments, thinning from below will strive to achieve an uneven-aged condition, to achieve stocking levels appropriate for the forest type. Larger trees, < 30” dbh, may be removed due to insect and disease infections.

Units 87 and 93, totaling 186 acres, are too steep to be logged with ground-based equipment and would be harvested using a helicopter or other aerial method.

As with fuels treatments in the DFPZ and WUI, clumps of the largest fire-tolerant, healthy trees would be retained within a network of intermingled openings, rather than employing uniform spacing between the residual trees. A thinning from below prescription would be utilized in most cases, except for trees that are at high risk of mortality due to insects or diseases, keeping those needed for wildlife snag recruitment and in the case of aspen stand improvements. No trees over 29.9” dbh will be removed, except for operability. Forest Service Sale Representatives must approve such removal and will be avoided where possible. Mechanical felling would be restricted to slopes having a gradient of less than 35%. Exceptions may be made for short (less than 100’) pitches within the interior of units where slope exceeds this limit. Mastication, grapple pile and/or underburning may follow thinning, if needed to meet ladder and ground fuel-reduction objectives. Mastication and grapple piling have similar effects to soil resources and therefore may be interchanged during layout.

### Improving Bald Eagle Habitat

As mentioned in the Purpose and Need, the project area contains bald eagle habitat that would be treated with prescriptions from the Lake Davis BEHMA Plan (USFS PNF BRD 2004). Several of the units in the project area fall within the BEHMA and are considered bald eagle habitat (Appendix B). Over half of the eagle habitat within the project area would receive some kind of treatment, consisting of mechanical thinning, hand thinning, underburn only, GS and mechanical aspen treatments. The overall emphasis will be similar to that found in the Forest Health except that more mistletoe infected trees would remain. As with most of the bald eagle habitat within the project area, bald eagle treatment units have a disproportionate amount of CWHR Size Class 4 (Table 2.3). Mechanical treatments would focus on thinning CWHR Size Class 4 in order to accelerate the stands growth to CWHR Size Class 5.

**Table 2.3** CWHR size class distribution of forested vegetation within bald eagle treatment units in the Freeman Project.

CWHR Size Class	Acres
2	96
3	129
4	1,243
5	9
Other	51
<b>Total</b>	<b>1,528</b>

Units identified as eagle special prescription (Appendix B, Tables B.1-B.3) will receive special treatment due to its adjacency to bald eagle winter roosting habitat. The prescription for

this 71 acre unit will be to retain the largest pines, including those with mistletoe infections, in order to maintain trees suitable for bald eagle nesting. Throughout the remaining bald eagle territories, treatments will be designed to enhance habitat attributes while meeting other project objectives to the extent possible.

GS treatments within the BEHMA would continue to focus on diseased and insect-infested pockets of trees (as discussed in Purpose 2), to reduce tree mortality and improve stand health. The units designated as bald eagle treatment units contain approximately 1,528 acres of designated bald eagle habitat and 436 acres of undesignated habitat, for a total of 1,964 acres of eagle treatment units. A total of 52 acres out of 1,964 acres will be treated with GS. In areas where GS treatments are conducted, tree planting will focus on disease resistant strains of native tree species, for future nesting and roosting trees.

### Improving Aspen Stands

Aspen stands would be treated to remove conifers to enhance aspen health and growth. Aspen would be released from conifer competition in 40 units totaling approximately 645 acres, ranging in size between 1-85 acres. Conifers to be removed are within the existing aspen stand (i.e., those trees actively suppressing aspen community productivity and function) or trees bordering a stand, which directly affect the health of the stand. Conifers up to 29.9" dbh would also be removed, with an exception of all sugar pines retained, within a variable-width treatment zone extending up to 150' beyond the outer boundary of the aspen stands. Aspen release would involve whole-tree removal of all conifers, except sugar pine, up to 29.9" dbh through a combination of hand and mechanical treatments. No canopy cover or spacing guidelines would restrict removal of conifer. Trees providing bank stability in stream corridors would be retained. The width of the zones would be dependent on aspen stand condition, visual integrity as viewed from Road 24N10, wildlife habitat considerations and the ability of the aspen to expand into adjacent soils.

For northern goshawk habitat enhancement, aspen stands in 4 units (25 acres total) would be treated within 2 goshawk protected activity centers (PACs). PACs are designed to minimize land disturbance within delineated areas around habitat for a specific animal. The 2004 SNFPA provides for mechanical treatment in up to 5% of northern goshawk PACs per year and 10% per decade of the northern goshawk PAC acreage. Aspen treatments within goshawk PACs will be very limited in extent and focus on enhancing the ecological diversity of the PACs and improving the quality of habitat for goshawk by maintaining or restoring native plant communities in the riparian zone. Aspen would be released from conifer competition by a combination of hand and mechanical treatment, involving whole-tree removal of conifers up to 17.9" dbh. All snags would be retained, with exceptions made for safety and operability. Skid trails and landings would be pre-designated, as described above.

A no-equipment buffer zone (25' wide) would be established along each side of stream channels to ensure no disturbance to streambanks. These areas would be hand piled up to 8" upper diameter limit. Equipment may be positioned outside of the buffer to harvest/gather

material via an extendable boom. Crossing stream channels with mechanical equipment would be allowed only under special circumstances and with permission from the sale administrator and hydrologist. If a crossing were deemed necessary for effective harvest and aspen release, returning the channel banks to their natural contour by the contractor would be required. This may require the use of an excavator or backhoe to slope the channel banks. Unless deemed necessary by resource specialists following post-harvest review, aspen units would not be underburned or subsoiled. Landings would be located outside of the aspen stand perimeters and RHCA's, whenever possible, to minimize disturbance to the aspen communities as well as the RHCA's. A Forest Representative will coordinate with the District Hydrologist to minimize resource damage if placing a landing in the RHCA is deemed necessary.

### Improving the Transportation System

The following is a summary of the proposed improvements to the PNF transportation system needed to access the vegetation/fuels treatment units and to mitigate existing adverse effects on heritage resources, soils, and water quality:

- Approximately 17 temporary roads would be built, totaling 2-miles, are needed to implement planned activities. Most are less than 100' in length and are needed to place landings beyond visually sensitive locations. These roads would be decommissioned upon completion of the project.
- Approximately 7.9-miles of existing system roads would be decommissioned (Appendix B.4). Decommissioning would include recontouring, removing drainage structures, subsoiling, restoring vegetative cover and/or blocking access. Decommissioning of roads would reduce equivalent roaded acres (ERA) values, thereby lowering cumulative watershed impacts and soil compaction. None of the roads proposed for decommissioning are needed for the long-term transportation system. Portions of roads are in poor locations within RHCA's and are causing direct stream impacts.
- 1.1-miles of system roads would be closed. Closing roads consists of blocking access for a temporary period, allowing re-opening for future use.
- 1.9-miles of non-system roads would be decommissioned.
- 0.3-mile of system road would be relocated.
- 15-miles of system roads would be reconstructed. Reconstruction would consist of brushing, blading the road surface, improving drainage and replacing/upgrading culverts where needed.
- 0.7-mile of system road would be reduced to single-track, in order to provide for recreational opportunities near Lake Davis.
- Hazard trees would be removed from along Maintenance Level 3, 4 and 5 roads (generally, surfaced roads) and high-use Maintenance Level 2 roads (generally native-

surface roads). Identification of hazard trees would follow guidelines in the Plumas National Forest Roadside/Facility Hazard Tree Abatement Action Plan (2003).

### **2.1.1.2 Alternative 2 (No-action)**

This alternative takes no action at this time to implement provisions of the HFQLG Act or National Fire Plan on this part of the Plumas National Forest. On-going activities such as routine road maintenance, fire suppression and recreation would still occur in this area. This alternative serves as a baseline against which to compare the action alternatives.

### **2.1.1.3 Alternative 3—Aspen Stand Treatment Changes**

#### **How the Alternative Was Developed**

This alternative was developed in response to the following issues:

- Aspen treatment outside RHCA's not authorized by the Standards and Guides.
- Aspen treatment units greater than 2 acres may be considered too big.
- Aspen treatment involving the removal of larger conifers is objectionable to some due to the loss of larger trees and their potential ecological importance.

Alternative 3 does away with the variable-width extended treatment zone surrounding the actual aspen stand, by absorbing them into the adjacent treatment unit, if one exists, or where there is no adjacent treatment unit, the extended treatment zone is eliminated. It also, expands the RHCA to the extent of the riparian vegetation.

The Proposed Action would treat 5,792 acres, approximately 39% of the project area. Alternative 3 treats 5,579 acres, approximately 37% of the project area (Appendix G, Figure G.2.).

#### **Reducing Fuel**

In the Proposed Action, aspen stands were surrounded by extended treatment areas. In these areas all conifers < 30" dbh would be removed. Alternative 3 proposes to thin rather than remove conifers surrounding the aspen stands. In the DFPZ, DFPZ/WUI and WUI Zones, where units are adjacent to aspen stands, this extended treatment area has been absorbed into the adjacent unit, whenever one exists. When there is not an adjacent unit, the surrounding stand will not be treated and was therefore eliminated. This accounts for the change from 3,029 acres of fuels treatment in the Proposed Action to 2,943 acres of treatment in Alternative 3. The result is a decrease in 86 acres of fuels treatment proposed in the project area (Table 2.4). The number of acres of each treatment changed accordingly (Table 2.4). Most of the changes were to the mechanical-aspen treatment extended areas changed to mechanical thin. The aspen-grapple pile was absorbed into the surrounding unit, since it was not mapped as falling in the RHCA.

#### **Riparian Habitat Conservation Areas**

In the Proposed Action, RHCAs would be defined by 150' buffers and 300' buffers depending on whether the riparian environment is along fish-bearing streams. Through extensive field work,

gathering site specific data on aspen stand locations, it was realized that we would actually have to widen our RHCAs to the extent of riparian vegetation in this project location. Past projects on this Ranger District have been higher up in the watershed, therefore using the site potential trees was the widest width, however the Freeman Project area contains a lot of wide valley bottoms and meadows leading to Lake Davis, requiring that we use other indicators for RHCAs that involve riparian vegetation. RHCAs would still receive the same protections as provided for in the Proposed Action; however, there may be more RHCA acres due to the use of riparian vegetation indicators as opposed to a strict buffer width around the RHCAs. The RHCAs would be defined at the time of layout. RHCAs would follow the SAT guidelines which state that RHCAs should be defined by:

- the top of the inner gorge, or
- to the outer edges of the 100-year floodplain, or
- to the outer edges of riparian vegetation, or
- to a distance equal to the height of two site-potential trees or 300' horizontal distance if the stream is fish bearing; or one site-potential trees or 150' horizontal distance if the stream is perennial, which ever is greatest.

### Improving Forest Health

This alternative would not change the amount of GS acres anticipated in the Proposed Action within the project area. In the Area Thinning Zone, where units are adjacent to aspen stands, the aspen treatment areas outside the aspen stand, incorporated into the Proposed Action, have been removed and are now part of the adjacent unit. The result is a small decrease in the amount of Area Thinning in the project area (Table 2.4).

### Improving Bald Eagle Habitat

The Proposed Action proposes to treat the units designated as bald eagle treatment units contain approximately 1,528 acres of designated bald eagle habitat and 436 acres of undesignated habitat, for a total of 1,964 acres of eagle treatment units. A total of 52 acres out of 1,964 acres of eagle treatment units with GS. A total of 52 acres out of 1,964 acres will be treated with GS.

Alternative 3 treats 1,948 acres of bald eagle treatment units with no change to the number of acres of GS. This change is due to the change in aspen treatment acres.

### Improving Aspen Stands

The Proposed Action proposes to treat declining aspen stands within the Freeman Project boundary. This amounts to a total of 645 acres with units ranging in size from 1-85 acres. Mechanical equipment would be restricted to slopes <15% slope and RHCA widths would be defined by a 150' buffer on nonfish-bearing and 300' on fish-bearing streams.

Alternative 3 addresses the above-mentioned issues by developing actions that reflect reduced treatment in aspen improvement units. These revised treatment options are viable alternatives to

aspen stand improvement. The aspen stand improvements would remove all of the extended treatment zones around aspen stands, treat only aspen within RHCAs and define the RHCA by the riparian vegetation, as described in the SAT guidelines (see the RHCA discussion under Reducing Fuels for this alternative). This amounts to a total of 233 acres with units ranging in size from 1-31 acres.

Aspen stands in Alternative 3 will lift RHCA slope restrictions in the RHCA for the purpose of removing conifer from aspen stands. Leaving the slope restrictions in place for aspen treatments was an oversight in the original proposed action that upon further analysis and review by resource specialists was identified as being too restrictive, and would not allow us to meet the purpose and need of clearing encroaching conifer from the aspen stands as effectively. In Alternative 3, mechanical equipment would be allowed to operate up to 35% slope, rather than limiting mechanical equipment to < 15% slopes, as would be the case in non-aspen treatment units. By changing this slope limitation, approximately 53 acres more aspen would receive mechanical treatment than with the proposed action, where a 15% slope restriction would be applied. Mechanical aspen treatment allows for the most effective removal of encroaching conifer to the aspen stands.

Additionally, Alternative 3 would evaluate the upper diameter limit of conifer retention, based on whether the conifers were there previous to the aspen occurrence or grew up at the same time as the aspen stand, thereby leaving some conifer < 30" dbh in the stand particularly if very few > 30" dbh conifers would remain. This would allow for some conifer retention in the stands, more closely mirroring the ecological conditions that exist naturally. The criteria used to identify trees that would remain in the stand would be written into the tree marking guidelines. The guidelines would emphasize retention of the largest conifers in the stand, particularly those that would have been alive previous to the stand-replacing event that stimulated the aspen stands most recent growth, or those trees that would have grown simultaneously with the aspen stand.

#### **2.1.1.4 Alternative 4—Aspen Changes and Silvicultural Treatment Changes**

##### **How the Alternative Was Developed**

This alternative was developed in response to the following issue:

- Design cost effective and efficient fuels treatments.

The Proposed Action would treat 5,792 acres, approximately 39% of the project area. Alternative 4 treats 5,456 acres, approximately 36% of the project area (Appendix G, Figure G.2.).

##### **Reducing Fuel**

In the Proposed Action, aspen stands were surrounded by aspen treatment areas. In these areas all conifers < 30" dbh would be removed. Alternative 4 treats aspen the same way that Alternative 3 would. RHCAs would be treated the same as in Alternative 3 as well. Another difference in fuels treatments between the Proposed Action and this alternative is that Alternative 4 proposes to do more mechanical fuels treatments as opposed to grapple pile or mastication. This change in

treatments removes more of the fuels from the site. The mechanical fuels treatments have a majority of the remaining fuel removed from the site, while grapple pile requires post-treatment pile burning. This is a more efficient fuels treatment. This change also provides an opportunity to remove material that are >11” dbh and utilize them as sawlogs, making better use of this material. There is a 20 acre decrease in fuels treatments between Alternative 4 and the Proposed Action. The magnitude of difference in fuels treatment between Alternative 3 and 4 is explained by a merging of units. In Alternative 4 where adjacent units had essentially the same treatment, they were merged.

### **Group Selection**

Alternative 4 has one fewer GS acre than the other action alternatives. This change was due to watershed concerns that this Alternative was going over threshold. Watersheds over threshold are required to have costly monitoring conducted on them.

### **Improving Bald Eagle Habitat**

The Proposed Action proposes to treat the units designated as bald eagle treatment units contain approximately 1,528 acres of designated bald eagle habitat and 436 acres of undesignated habitat, for a total of 1,964 acres of eagle treatment units. a total of 52 acres out of 1,964 acres of eagle treatment units with GS. A total of 52 acres out of 1,964 acres will be treated with GS.

Alternative 4 treats 2,114 acres of bald eagle treatment units with no change to the number of acres of GS. This change is due to the change in aspen treatment acres as well as the merging of adjacent units with the same or similar treatments.

### **Improving Aspen Stands**

The Proposed Action proposes treating all impaired aspen units within the entire Freeman Project boundary. This amounts to a total of 645 acres with units ranging in size from 1-85 acres.

Alternative 4 addresses the issues in the same way as Alternative 3, by treating 233 acres of aspen.

## **2.1.1.5 Comparison of the Alternatives**

### **Action Alternatives Comparison**

#### **Reducing Fuels and Improving Forest Health**

Alternative 1 reduces fuels on 3,066 acres, while Alternatives 3 and 4 treat slightly less acreage, 57 and 29 acres less respectively (Table 2.4). Alternative 3 treats the most Area Thinning Zone, 2,727 acres while Alternative 3 treats 2,570 acres and Alternative 4 treats the least at 2,419 acres. GS in each alternative is the same except for Alternative 4 which has one less acre of groups in the Area Thinning Zone.

The acres that were dropped from treatment were due to removing the extended treatment areas surrounding aspen stands. Although Alternative 4 treats less fuels, it treats them more



effectively by changing many of the acres from hand thin, masticate and grapple pile to mechanical thin. Mechanical thinning removes the biomass rather than piling it and requiring subsequent burning. The removal of biomass, while more costly does provide a product that can be utilized rather than just burning the material.

### **Improving Bald Eagle Habitat**

The action alternatives do not vary in how much bald eagle habitat they treat, or in the number of GS openings that would be created.

### **Improving Aspen Stands**

In Alternative 1, 645 acres of aspen stands including extended treatment zones would be treated. While in Alternative 3 and 4 there would be no extended treatment zone around the stands, reducing the aspen treatment acres to 233 acres. Subsequently the number of acres of Aspen PAC is diminished from 25 acres in Alternative 1 to 11 acres in Alternative 3 and 4.

### **Transportation System**

All of the action alternatives treat the same number of road miles under decommissioning, relocation, reconstruction and temporary roads.

**Table 2.4.** Actions by alternative for each Purpose and Need for the Freeman Project area.

	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Silvicultural Treatment Acres for Reducing Hazardous Fuels</b>				
DFPZ Burn Only (acres)	40	0	40	18
DFPZ Grapple Pile (acres)	450	0	451	153
DFPZ Hand Thin (acres)	35	0	34	23
DFPZ Masticate (acres)	150	0	149	133
DFPZ Mechanical Thin (incl. GS) (acres)	1,255	0	1,336	1,743
DFPZ Mechanical-Aspen (acres)	180	0	77	77
<b>Total DFPZ Treatment</b>	<b>2,108</b>	<b>0</b>	<b>2,087</b>	<b>2,146</b>
DFPZ/WUI Aspen-Grapple (acres)	6	0	0	0
DFPZ/WUI Eagle Selection (incl. GS) (acres)	71	0	80	124
DFPZ/WUI Grapple Pile (acres)	101	0	108	53
DFPZ/WUI Hand Thin (acres)	20	0	20	20
DFPZ/WUI Mechanical Thin (incl. GS) (acres)	166	0	201	181
DFPZ/WUI Mechanical-Aspen (acres)	109	0	55	55
<b>Total DFPZ/WUI Treatment</b>	<b>474</b>	<b>0</b>	<b>464</b>	<b>433</b>
WUI Masticate (acres)	0	0	0	40
WUI Grapple Pile (acres)	124	0	131	0
WUI Groups Only (acres)	183	0	191	191
WUI Mechanical Thin (incl. GS) (acres)	110	0	120	211
WUI Mechanical-Aspen (acres)	67	0	16	16
<b>Total WUI Treatment</b>	<b>484</b>	<b>0</b>	<b>458</b>	<b>458</b>
<b>Total Fuels Reduction Acres</b>	<b>3,066</b>	<b>0</b>	<b>3,009</b>	<b>3,037</b>
<b>Silvicultural Treatment Acres for Improving Forest Health</b>				
Area Thinning Helicopter (acres)	186	0	186	186
Area Thinning Mechanical Thin (incl. GS)	1,545	0	1,563	1,831
Area Thinning Mechanical-Aspen (acres)	254	0	73	73
Area Thinning Aspen PAC (acres)	25	0	11	11
Area Thinning Grapple Pile (acres)	329	0	350	73
Area Thinning Handthin-Aspen (acres)	3	0	0	0
Area Thinning Masticate (acres)	384	0	387	245
<b>Total Area Thinning</b>	<b>2,727</b>	<b>0</b>	<b>2,570</b>	<b>2,419</b>

	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Silvicultural Treatment Acres for Improving Forest Health (Continued)</b>				
DFPZ GS (acres)	60	0	60	60
DFPZ/WUI GS (acres)	4	0	4	3
WUI GS (acres)	16	0	16	16
Area Thinning GS (acres)	95	0	95	95
Total GS	175	0	175	174
<b>Improve Bald Eagle Habitat</b>				
Bald Eagle Habitat Treatment (acres)	1,528	0	1,528	1,528
GS (acres)	52	0	52	52
<b>Improve Aspen Stands (See Reducing Hazardous Fuels and Improving Forest Health for Treatment Types)</b>				
Aspen Treatment (acres)	645	0	233	233
Aspen Treatment in Goshawk PAC (acres)	25	0	11	11
<b>Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts</b>				
Road Decommissioning (miles)	7.9	0	7.9	7.9
Road Relocation (miles)	0.3	0	0.3	0.3
Road Reconstruction (miles)	15	0	15	15
Temporary Road Construction (miles)	2	0	2	2

## Purpose and Need and Issue Indicators for Meeting Project Objectives

The following table compares how the values for each purpose and need and issue indicator measures vary for each alternative (Table 2.5). The action alternatives, when compared against the No-action alternative, convey the magnitude of need that surrounds this project.

### Reducing Hazardous Fuels

Measurable elements are the amount of surface fuels, rate of spread, flame length, fire type and canopy base height (Table 2.5). The action alternatives substantially decrease the number of tons of fuels per acre, decrease rate of spread, decrease flame lengths, increase the canopy base height and changes the overall fire type from a passive crown fire to a surface fire. This is in contrast to the No-action alternative, which has greater surface fuels, a faster rate of spread, higher flame lengths, lower canopy base heights and an overall fire type which would be a passive crown fire.

### Improve Forest Health

The measures identified for improving forest health were those units meeting the desired condition depending on which zone they fell under (i.e., DFPZ (40% canopy cover) and Area Thinning Zone (50% Canopy cover)), overstocked conditions after treatment, and the departure from the regulated stand condition in CWHR1. Alternative 1 leaves the most number of acres not meeting the desired condition, and the most number of acres that depart from the regulated stand condition. Alternative 4 leaves the least number of acres not meeting the desired condition and the least number of acres departing from the regulated stand for CWHR size class 1. Alternative 1 has more mastication and grapple pile than Alternative 4. By changing many of these units to mechanical treatment, more of the sawlogs will be removed and the biomass can be removed as a product, rather than simply burned in piles, as would be the case with the grapple pile and burn treatments.

### Improve Bald Eagle Habitat

Currently, there are 255 acres of suitable bald eagle nesting habitat (CWHR Size 5) in the Bald Eagle Management Area within the Wildlife Analysis Area. No Size 5 will be treated within the Bald Eagle Management Area. Size 5 is considered suitable bald eagle nesting habitat. Nesting habitat is critical to the survival of this threatened bird species. The action alternatives release overstocked 12-24" dbh trees (CWHR Size 4) using a thin from below prescription, which will help the stands grow more quickly, becoming >24" dbh trees (CWHR Size 5), thus becoming nesting habitat. Size 4 becomes Size 5 in 5-50 years in the action alternatives, as opposed to in 25-100 years in the No-action alternative. There are a total of 3,537 acres of CWHR Size 4 in the wildlife analysis area (Table 2.5). Alternative 4 releases the most number of Size 4 habitat and has the least amount of loss of Size 4 from GS or Aspen Treatments.

## **Cost Effectiveness and Support of Local Communities**

Sawlog volume, project value and total full-time jobs are the measure of success that we use to determine whether a project is both cost effective and provides employment and products to the local community (Table 2.5). Alternative 1 is by far the more cost effective alternative, providing approximately 70 more jobs than Alternative 3 and 62 more jobs than Alternative 4. The difference in volume is coming from the extended aspen treatment areas surrounding aspen stands. By removing these extended treatment areas alone, we removed 5 million board feet (mmbf) less volume from the project area.

Alternative 4 was developed due to an issue that surfaced around the need for more cost effective treatments. This alternative takes another look at the original units and by changing many of the grapple pile, mastication and handthin units to mechanical treatments, allows for more volume to be removed with a subsequent benefit of fewer piles to burn post-treatment.

## **Improve Aspen Stands**

Many of the stands in the project area are decadent with little to no understory regeneration of aspen occurring. Thinning the < 29.9”dbh conifer from the aspen stands would release them and allow more aspen stems to sprout, thus increasing the number of regenerating aspen stands in the project area.

In the Proposed Action, theoretically there would be no conifer (except conifer > 29.9 dbh, sugar pine, and those needed for bank stability) left in the aspen stands, leaving a ratio of zero percent conifer to 100 percent aspen (0:10) for both overstory and mid-story conifer cover. The No-action Alternative illustrates the need for this work, showing that the majority of stands are dominated by overstory conifer with no aspen overstory (10:0), even the mid-story conifer are dominate with an 8:2 ratio. In both Alternative 3 and 4, aspen would be treated the same way. In these two alternatives, some overstory conifer would be retained; leaving a 1:9 ratio of conifer to aspen, with no mid-story conifer retention. As more aspen reach maturity and a more than 500 stems of 5-15’ tall regeneration occur in the stands we may conclude that the risk of aspen loss has substantially decreased. Ideally, we would like to see this desired condition reached in 3-5 years.

The majority of aspen stands in the project area are at highest, high and moderate risk of loss due to conifer encroachment. Alternative 1 does the most to improve aspen stands by treating the number of acres of aspen stands. Alternative 3 and 4 treat the same number of acres for each risk rating. The action alternatives treat from 80-85% of the highest, high and moderate risk of loss stands in the project area.

The main issue addressed in the action alternatives was the effect of creating a variable width buffer around the aspen stands. The extended treatment zone in the proposed action was 402 acres. The action alternatives treat approximately ten less acres of aspen then the proposed action. This is due to dropping treatments that are not within the RHCA as defined by the SAT guidelines.

**Table 2.5.** The Freeman Project Purpose and Need and Issues Objectives comparing each alternative and the Proposed Action.

	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Purpose &amp; Need</b>				
<b>Reduce Hazardous Fuels</b>				
Surface Fuels	< 5-7 tons/acre	> 5-7 tons/acre	< 5-7 tons/acre	< 5-7 tons/acre
Rate of Spread (chains per hour)	2-10 (132-660 ft/hr)	15-24 (990-1,584 ft/hr)	2-10 (132-660 ft/hr)	2-10 (132-660 ft/hr)
Flame Length (feet)	< 4	> 8	< 4	< 4
Canopy Base Height (feet)	> 12	< 5	> 12	> 12
Fire Type	Surface	Passive Crown	Surface	Surface
<b>Improve Forest Health</b>				
The number of acres within units not meeting desired canopy cover for DFPZ & Area Thinning Zone (acres)	613	4,111	810	207
The number of acres within units that remain overstocked (> 70% of normal).	490	1,827	501	500
The amount of the project area that departs from a regulated stand condition in CWHR1 (acres)	+611	+36	+211	+210
<b>Improve Bald Eagle Habitat</b>				
Acres of CWHR Size 4 released (becoming CWHR Size 5 in 5-50 years)	912	3,537 (occurring in the wildlife analysis area)	977	1,116
Acres of CWHR Size 4 lost to GS, Aspen	89	0	27	23
<b>Cost Effectiveness and Support of Local Communities</b>				
Sawlog Volume (mmbf)	13.9	0	8.9	9.9
Biomass (tons)	59,800	0	55,000	61,100
Total Project Value	-\$1.9 million	Unquantifiable fire suppression costs.	-\$2.5 million	-\$2.3 million
Employee Related Income (million)	\$13.3	0	\$10.3	\$10.6
Total Full-time Jobs	310	0	240	248

	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-Action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Improve Aspen Stands</b>				
Overstory Conifer to Aspen Ratio	0:10	10:0	1:9	1:9
Mid-story Conifer to Aspen Ratio	0:10	8:2	0:10	0:10
Aspen stems/acre	> 500	< 500	> 500	> 500
<b>Project Area Aspen Risk Rating</b>				
Acres of Aspen treated in the project with the Highest Risk Rating	26	27 (project area amount not treated)	25	25
Acres of Aspen treated in the project with the High Risk Rating	87	107 (project area amount not treated)	80	80
Acres of Aspen treated in the project with the Moderate Risk Rating	74	86 (project area amount not treated)	71	71
Acres of Aspen treated in the project with the Low Risk Rating	56	70 (project area amount not treated)	56	56
Total Aspen treatment (acres)	243	300 (project area amount not treated)	232	232
<b>Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts</b>				
Threshold of Concern (%)	35-96	7-46	33-96	39-96
Reduced number of Stream Crossings	8	9	8	8
Restored Hydrologic Function (Acres)	24	0	24	24
<b>Issues</b>				
<b>Improve Aspen Stands</b>				
Aspen treated out of the 300 acres available (acres)	243	N/A	233	233
Extended Treatment Zone (acres)	402	N/A	0	0
RHCA Mechanical-Aspen Treatment Slope Limitation (%)	>15	N/A	> 35	> 35
Area not treated by Mechanical-Aspen treatment (acres)	53	N/A	0	0
Mechanical-Aspen treatment (acres)	592 (incl. Extended treatment zone)	N/A	233	233

	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-Action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Cost Effectiveness and Support of Local Communities</b>				
Biomass (acres)	3,808	0	3,561	4,302
Biomass (mtons)	57.3	0	51.7	63.2
Mastication (acres)	534	0	536	448
Cost to Masticate (\$)	\$240,000	0	\$241,000	\$202,000
Grapple Pile and Burn (acres)	1,011	0	1,040	279
Cost to Grapple Pile and Burn (\$)	\$556,000	0	\$572,000	\$153,000
Number of Grapple Piles to Burn	1,848-6,160	0	2,439-4,065	537-895
Area Thinning Service Contract	-1,007,000	0	-1,030,000	-\$784,600
DFPZ Service Contract	-\$840,600	0	-\$863,500	-\$778,600
Timber Sale Value	\$798,000	0	\$78,200	\$46,700
Total Project Value (\$)	-\$1 million	Unquantifiable fire suppression costs.	-\$1.8 million	-\$1.5 million

\*Calculated under 90th% weather conditions — high air temperature, low relative humidity, strong wind conditions and low fuel moisture content levels that historically have occurred on 10% of days in fire seasons, creating the potential for severe wildfire behavior. During a typical fire season, 90% of the days have less severe conditions and 10% of days have more severe conditions.



## Other Effected Resources

### Heritage

The programmatic agreement with the State Historic Preservation Office requires that sites in the project are evaluated. Most of the resources are flagged and avoided. The net effect of the project must have no effect by following the SOPs.

### Botany

Botany effects cover several areas: threatened and endangered plant species, sensitive plant species, special interest plant species, special habitat and biological diversity areas, and noxious weeds. There are no known occurrences of threatened and endangered species in the project area. There are five “may affect” sensitive plants, which are flagged and avoided in the project area. The two known special interest plants are flagged and avoided. Known occurrences of List A and B noxious weed species are flagged and avoided.

### Wildlife

#### California Spotted Owl

Potential California spotted owl foraging and nesting habitat may be affected by the action alternatives. Alternative 4 would have the most loss of both nesting and foraging habitat, while Alternative 3 would have the least loss to both. However, all of the action alternatives leave from 84-89% of the foraging habitat and 94-96% of the nesting habitat. Alternative 1 creates the most edge habitat for spotted owls in the area, while Alternative 3 creates the least amount of edge habitat in the wildlife analysis area.

#### Northern Goshawk

Potential northern goshawk nesting may be affected by the action alternatives. Alternative 4 would have the most loss of nesting habitat, while Alternative 3 would have the least loss. However, all of the action alternatives leave 86-89% of the nesting habitat in the wildlife analysis area.

#### Great Gray Owl

Potential great gray owl nesting may be affected by the action alternatives. Alternative 4 would have the most loss of nesting habitat, while Alternative 3 would have the least loss. However, all of the action alternatives leave 78-80% of the nesting habitat in the wildlife analysis area.

### Watershed and Soils

#### Soil Effects

Grapple and hand thinning treatments are not removed from the site and require post-treatment pile burning. The burn piles have an affect on soils. Alternative 4 would result in the least number

of piles to burn, while Alternative 1 and 3 create a similar number of piles to burn (Table S.3). The number of acres outside of standard for ground cover would be the least in Alternative 3. Alternative 3 would also leave the least soil compacted above recommended thresholds.

#### Threshold of Concern (TOC)

Currently, the watersheds in the project area have a low to very low threshold of concern (TOC) (No-action). The Proposed Action will bump two of the watersheds close to threshold, giving them a high TOC rating. Alternative 4, takes only one of the watersheds into the high threshold category, representing approximately 26% of the project area, while Alternative 3 would result in no watersheds with a high TOC rating.

**Table 2.6.** Other effected resources in the Freeman Project area.

<b>Other Resource Indicators</b>	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Heritage</b>				
Cultural Resources	No effect through use of SOPs	No Effect	No effect through use of SOPs	No effect through use of SOPs
<b>Botany</b>				
T & E Species	No known occurrences	No known occurrences	No known occurrences	No known occurrences
Sensitive Plants	5 “May Affect Species” known to occur in the project area, all flagged and/or avoided.	No Effect	5 “May Affect Species” known to occur in the project area, all flagged and/or avoided.	5 “May Affect Species” known to occur in the project area, all flagged and/or avoided.
Special Interest Plants	2 species in the project area, both flagged and avoided.	No Effect	2 species in the project area, both flagged and avoided.	2 species in the project area, both flagged and avoided.
Special Habitats and Biological Areas	Aspen will be effected, all others will be flagged and avoided.	No Effect	Aspen will be effected, all others will be flagged and avoided.	Aspen will be effected, all others will be flagged and avoided.
Noxious Weeds	1 A-listed and 2 B-listed all flagged & avoided	No Effect	1 A-listed and 2 B-listed all flagged & avoided	1 A-listed and 2 B-listed all flagged & avoided
<b>Wildlife</b>				
California Spotted Owl Foraging Habitat Loss (acres) (% remain)	2,760 (85)	0	2,610 (89)	3,037 (84)
California Spotted Owl Nesting Habitat Loss (acres) (% remain)	246 (96)	0	243 (96)	379 (94)
GS and Aspen Edge Habitat Created in California Spotted Owl Habitat	390	0	136	147
Northern Goshawk Nesting Habitat Loss (acres) (% remain)	2,760 (88)	0	2,853 (89)	3,416 (86)
Great Gray Owl Nesting Habitat Loss (acres) (% remain)	1,817 (79)	0	1,697 (80)	1,882 (78)
Fisher & Marten Denning Habitat Loss (acres) (% remain)	1,261 (86)	0	1,201 (87)	1,549 (83)

<b>Other Resource Indicators</b>	<b>Alternative 1 (Proposed Action)</b>	<b>Alternative 2 (No-action)</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
<b>Watershed and Soils</b>				
Percent of project area disturbed by burn piles (incl. Both grapple and hand piles)	0.1-0.5	0	.1-0.6	.03-0.1
Percent of project area outside of Standard for Fine Organic Matter (0-3" size range)	17	9	15	17
Outside of Standard for Ground Cover (acres)	870	414	766	870
Soil Compaction Above Recommended Threshold (acres)	217	92	210	226
<b>Threshold of Concern</b>				
Percent of the Project Area at threshold (12%), considered High TOC (9% in sensitive and 12% in upland) (# of watersheds)	40 (2)	0	0	26 (1)
Percent of the Project Area with a Moderate High TOC (6% in sensitive and 9% in upland)	14 (3)	0	48 (4)	27 (4)
Percent of the Project Area with a Moderate TOC (>6%-9% in upland)	34 (4)	0	33 (4)	34 (4)
Percent of the Project Area with a Low TOC (>3%-6% upland)	13 (2)	76 (9)	19 (3)	13 (2)
Percent of the Project Area with a Very Low TOC (<3% upland)	0	24 (2)	0	0
Thresholds of Concern (%)	35-96	7-46	33-96	39-96

## 2.1.2 Specific Design Features/Resource Specific Mitigations

The following section provides information about the specific design features for the Freeman Project and any resource specific mitigations. These are design features and mitigations that are specific to the Freeman Project, which are not in our Standard Operating Procedures or our Standards and Guidelines. Certain mitigations are common to all of the action alternatives, while others may change by alternative.

### 2.1.2.1 Design Features Specific to the Purpose and Need

#### General Design Features for All Action Alternatives

##### Reduce Hazardous Fuels

###### Thinning

- Whole tree yarding will be used whenever possible in order to avoid the need for post-project slash pile fuels treatments.
- Mechanical felling would be restricted to slopes having a gradient of less than 35%. Exceptions may be made for short (less than 100') pitches within the interior of units where slope exceeds this limit.
- Clumps of the largest fire tolerant healthy trees should be retained within a network of intermingled openings, rather than employing uniform spacing between residual trees.
- Where conifers with the above characteristics are not present adjacent to meadows, dense pockets of conifers ¼ acre in size, spaced approximately every 200 yards around the perimeter of the meadow, would be retained.

###### Post-Treatment

- Hand-thinning, grapple piling, mastication and/or underburning may follow treatment if needed to meet ladder and ground fuel-reduction objectives.

##### RHCA Treatments

- Units adjacent to meadows should retain conifers possessing one or more of the following characteristics in order to provide nesting and roosting habitat for raptors:
  - large limbs extending into the meadow;
  - mistletoe brooms higher than 20' from the ground;
  - multiple tops;
  - bole sweep;
  - and snags.

- Within RHCAs in units proposed for underburning or hand-thinning, conifers up to 8" dbh would be removed. Slash would be piled and burned. Hand piles would be situated away from riparian vegetation to prevent scorching.
- No GS should be permitted in RHCAs.

#### Equipment exclusion zones

- A 25'-wide equipment exclusion zone would protect SMZs.
- Low ground pressure equipment would be allowed to travel into the outer RHCA zone; harvest trees and bring them to skid trails. Skid trails would be spaced approximately every 120', generally perpendicular to streams and skidders would be allowed to enter the outer RHCA on these skid trails. To minimize soil displacement, no equipment would be permitted to turn around while off a skid trail in RHCAs.

#### Canopy Cover Restrictions

- Canopy cover  $\geq 40\%$  would be retained in general and within the inner zones of the perennial, fish-bearing stream RHCAs, canopy would remain  $\geq 60\%$ , where available (canopy cover in RHCAs will be less in aspen treatment units).

#### Improve Forest Health

- Emphasis will be placed on improving stand health by cutting diseased and insect infected trees or trees otherwise in poor health.
- Mechanical felling would be restricted to slopes having a gradient of less than 35%.

#### Reforestation of Group Selection

- Group Selection will be replanted as necessary to insure adequate restocking. Healthy, advanced regeneration of appropriate species would be retained during harvest, where practical. Areas with mistletoe or root disease infestation would be planted with alternative non-susceptible native species. GS areas will be site specifically evaluated to receive underburning, grapple piling or mastication post-treatment.

#### Group Selection

- In the WUI, GS will be factored into the remaining canopy cover for the overall stand.
- When calculating canopy cover for the DFPZ, GS treatments are not factored into the overall canopy cover.
- Further canopy cover may be lost due to post-treatment underburning.
- GS areas will be evaluated after treatment; those units not meeting desired surface fuel and silvicultural site preparation conditions would be underburned, grapple piled and burned, or masticated.

- If not removed as part of a timber sale, non-saw log material (biomass) would be piled and burned or decked and sold as firewood.
- Emphasis will be placed on improving stand health by cutting diseased and insect infected trees or trees otherwise in poor health.
- Canopy cover calculations in Area Thinning treatments will factor in the canopy cover of the entire treatment area including GS treatments.
- Mechanical felling would be restricted to slopes having a gradient of less than 35%. Exceptions may be made for short (less than 100') pitches within the interior of units where slope exceeds this limit.

### Improve Bald Eagle Habitat

- The overall emphasis will be similar to that found in the Forest Health except that more mistletoe infected trees would remain.
- Units identified as eagle special prescription (Appendix B, Tables B.1-B.3) will receive special treatment. The prescription for these units will be to retain the largest pines, including those with mistletoe infections, in order to maintain trees suitable for bald eagle nesting. Treatments will be designed to enhance habitat attributes while meeting other project objectives to the extent possible.
- GS treatments within the BEHMA would continue to focus on diseased and insect-infested pockets of trees (as discussed in Purpose 2), to reduce tree mortality and improve stand health.
- In areas where GS treatments are conducted, tree planting will focus on disease resistant strains of native tree species, for future nesting and roosting trees.

### Improve Aspen Stands

- Unlike the majority of the treatments, thinning in aspen stands would not be a thinning from below. The objectives for aspen stand thinning are to remove conifer to reduce competition for water and light.
- Aspen release would involve whole-tree removal of all conifers up to 29.9" dbh (except in the case of sugar pine, which would be left to maintain the species genetic diversity) through a combination of hand and mechanical treatments.
- No canopy cover or spacing guidelines would restrict removal of conifer.
- Trees providing bank stability in stream corridors would be retained.
- The width of the zones would be dependent on aspen stand condition, visual integrity as viewed from Road 24N10, wildlife habitat considerations and the ability of the aspen to expand into adjacent soils.

- A no-equipment buffer zone (25' wide) would be established along each side of stream channels to ensure no disturbance to streambanks. These areas would be hand piled up to 8" upper diameter limit. Equipment may be positioned outside of the buffer to harvest/gather material via an extendable boom.
- Crossing stream channels with mechanical equipment would be allowed only under special circumstances and with permission from the sale administrator and hydrologist. If a crossing is deemed necessary for effective harvest and aspen release, the contractor would be required to return the channel banks to their natural contour. This may require the use of an excavator or backhoe to slope the channel banks.
- Unless deemed necessary by resource specialists following post-harvest review, aspen units would not be underburned or subsoiled.
- Landings would be located outside of the aspen stand perimeters and RHCAs, to minimize disturbance to the aspen communities as well as the RHCAs.

### **Goshawk PAC**

- Aspen treatments within goshawk PACs will be very limited in extent and focus on enhancing the ecological diversity of the PACs and improving the quality of habitat for goshawk by maintaining or restoring native plant communities in the riparian zone.
- Aspen would be released from conifer competition by a combination of hand and mechanical treatment, involving whole-tree removal of conifers up to 17.9" dbh.
- All snags would be retained, with exceptions made for safety and operability.

### **Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts**

In the summer of 2006, 24N10 and 23N10Y will both be chip sealed to enhance recreation use of the Camp 5 boat launch facilities. The anticipated chip seal will require road use restrictions in winter, that would preclude the ability to plow that road in winter. The chip seal is not designed to be plowed and will break up the surface of the road.

#### **2.1.2.2 Design Features for Each Alternative**

##### **Alternative 1**

#### **Equipment Exclusion and Slope Restrictions**

- Within units to be mechanically thinned, masticated, or grapple piled, equipment would be restricted from entering within 50' (for 150'-wide RHCAs) and 100' (for 300'-wide RHCAs) of the high water mark of streams and springs. Where side slopes within RHCAs exceed 15%, only hand-thinning would be allowed. Low ground pressure equipment (under 8.0 psi) would be permitted to extend booms into these inner zones to remove



material, but would not be allowed to significantly damage residual stands or disturb soils. Areas beyond the reach of booms would be hand thinned, piled and burned.

### **Improve Aspen Stands**

- Conifers to be removed are within the existing aspen stand (i.e., those trees actively suppressing aspen community productivity and function) or trees bordering a stand, which directly affect the health of the stand. Conifers up to 29.9" dbh would also be removed within a variable-width treatment zone extending up to 150' beyond the outer boundary of the aspen stands. Sugar pine would be left in the stand to preserve genetic diversity of this species, which is threatened by the disease blister rust.

## **Alternative 3 and 4**

### **Equipment Exclusion and Slope Restrictions**

- The RHCAs would be defined at the time of layout. RHCAs would follow the SAT guidelines which state that RHCAs should be defined by:
  - the top of the inner gorge, or
  - to the outer edges of the 100-year floodplain, or
  - to the outer edges of riparian vegetation, or
  - to a distance equal to the height of two site-potential trees or 300' horizontal distance if the stream is fish bearing; or one site-potential trees or 150' horizontal distance if the stream is perennial, which ever is greatest.
- Within units to be mechanically thinned, masticated, or grapple piled, equipment would be restricted from entering within 50' (non-fish-bearing streams) and 100' (fish-bearing streams) of the high water mark of streams and springs. Where side slopes within RHCAs exceed 15%, only hand-thinning would be allowed, except in aspen treatment units, where equipment would be allowed to operate on slopes up to 35%. This is allowed in order to maximize removal of encroaching conifer in aspen stands. Low ground pressure equipment (under 8.0 psi) would be permitted to extend booms into these inner zones to remove material, but would not be allowed to significantly damage residual stands or disturb soils. Areas beyond the reach of booms would be hand thinned, piled and burned.

### **Improve Aspen Stands**

- The aspen stand improvements would remove all of the extended treatment zones around aspen stands, treat only aspen within RHCAs and define the RHCA by the riparian vegetation, as described in the SAT guidelines.
- Aspen stands will have the same mechanical treatment restrictions as the upland areas, because mechanical equipment would be allowed to operate up to 35% slope, rather than limiting mechanical equipment to < 15% slopes, as would be the case in non-aspen

treatments. Removing this restriction was felt to be important to meeting our purpose and need for aspen stand improvement.

- Conifers to be removed are within the existing aspen stand (i.e., those trees actively suppressing aspen community productivity and function). Conifers up to 29.9" dbh would be removed within the aspen stand units. Leave conifers that were there previous to the aspen occurrence or grew up at the same time as the aspen stand, thereby leaving some conifer < 30" dbh in the stand particularly if very few > 30" dbh conifers would remain. This would allow for some conifer retention in the stands, more closely mirroring the ecological conditions that exist naturally.
- The criteria used to identify trees that would remain in the stand would be written into the tree marking guidelines. The guidelines would emphasize retention of the largest conifers in the stand, particularly those that would have been alive previous to the stand-replacing event that stimulated the aspen stands most recent growth, or those trees that would have grown simultaneously with the aspen stand.

### **2.1.2.3 Resource Specific Mitigations**

#### **Air Quality**

Specific air quality mitigations for prescribed burning would include number of acres burned daily, preferred wind directions for smoke dispersal, and desired weather conditions. These mitigations will be agreed upon with the Northern Sierra Air Quality District, and addressed in the Smoke Management portion of those burn plans developed for the Freeman Project.

#### **Botany**

The Freeman Project could potentially impact sensitive and special interest plant species, as well as unique and unusual botanical habitats. Implementation of the following mitigations greatly reduces the impact to botanical resources (Table 2.7 and Table 2.8). Occurrences protected by flagging and avoiding as a control area will be flagged prior to implementation. The success of this plan is dependent upon the sale administrator knowing the location of control areas and communicating that knowledge to contractors.

#### **Range**

##### **Protecting Aspen Regeneration from Grazing**

It is assumed livestock use on aspen is currently within the 20% incidence of use allowed in the Sierra Nevada Forest Plan Amendment. The theory in treating a large area is that livestock use on aspen will be diffused further among the aspen seedlings. The monitoring plan will monitor deer use before livestock are turned into the pasture and after cows are removed from the pasture. If livestock use is shown to increase above the 20% standard then timing, season, frequency or intensity of livestock use may be adjusted through adaptive management (FSH 2209.13.92.23b).

**Table 2.7.** Botany Protections by unit for the Freeman Project action alternatives.

Unit Number	Prescription	Species	Occurrence Number	Mitigation
53	Mechanical thin	<i>Astragalus lentiformis</i>	ASLE 11-054	Control Area
72	Mechanical thin	<i>Astragalus lentiformis</i>	ASLE 11-036B	Control Area
72	Mechanical thin	<i>Astragalus lentiformis</i>	ASLE 11-036C	Control Area
72	Mechanical thin	<i>Astragalus lentiformis</i>	ASLE 11-036D	Control Area
None	none	<i>Meesia uliginosa</i>	MEUL 11-001	Control Area
113	Mechanical thin	<i>Botrychium minganense</i>	BOMI 11-002	Control Area
114	Grapple pile	<i>Botrychium minganense</i>	BOMI 11-002A	Control Area
114	Grapple pile	<i>Botrychium minganense</i>	BOMI 11-002B	Control Area
94	Mechanical thin	<i>Botrychium minganense</i>	BOMI 11-003	Control Area
94	Mechanical thin	<i>Botrychium minganense</i>	BOMI 11-003A	Control Area
93	Helicopter ITS	<i>Botrychium minganense</i>	BOMI 11-003B	Control Area
006	Grapple Pile	<i>Botrychium minganense</i>	BOMI 11-004	Control Area
25	Mechanical thin	<i>Ivesia sericoleuca</i>	IVSE 11-010B	Control Area
25	Mechanical thin	<i>Ivesia sericoleuca</i>	IVSE 11-010O	Control Area
83	Mechanical thin	<i>Ivesia sericoleuca</i>	IVSE 11-010P	Control Area

**Table 2.8.** Special habitats protections for the Freeman Project action alternatives.

Unit Number	Prescription	Habitat	Occurrence Number	Mitigation
06	Grapple Pile	Spring	SPECHAB90MR2	Control Area
46	Mechanical thin	Spring	SPECHAB90MR2	Control Area
20	Mechanical thin	Seep	SPECHAB35GJ1	Control Area
94	Mechanical thin	Spring	SPECHAB39CS1	Control Area
94	Mechanical thin	Spring	SPECHAB39GJ3	Control Area
93	Helicopter ITS	Spring	SPECHAB39GJ1	Control Area
81	Mechanical thin/ Aspen	Spring	SPECHAB49JM1	Control Area
31	Masticate	Seep	SPECHAB61MR1	Control Area
31	Masticate	Spring	SPECHAB71GJ1	Control Area
04	Mechanical thin	Spring	SPECHAB73GJ1	Control Area
20	Mechanical thin	Seep	SPECHAB35MR1	Control Area

## Noxious Weeds

A list of noxious weed occurrences, species, locations and associated treatments may be found in Table 2.9.

**Table 2.9.** Freeman Project noxious weed occurrences within 1-mile of the project boundary.

Occurrence	Species	Location	Treatment
CEMA4_003	spotted knapweed	forest road 175	flag and avoid
CEMA4_010	spotted knapweed	County road 126	flag and avoid
CIAR4_051_001	Canada thistle	west shore of Lake Davis	None
CIAR4_051_002	Canada thistle	west shore of Lake Davis	None
CIAR4_051_003	Canada thistle	west shore of Lake Davis	None
CIAR4_052	Canada thistle	west shore of Lake Davis	None
CIAR4_054_001	Canada thistle	Unit 62	flag and avoid
CIAR4_054_002	Canada thistle	west shore of Lake Davis	None
COAR4_001	field bindweed	forest road 24N10	None
COAR4_002	field bindweed	forest road 24N10	None
LELA2_004	tall whitetop	forest road 175	flag and avoid
LELA2_005	tall whitetop	forest road 175	flag and avoid
LELA2_014_001	tall whitetop	forest road 175	flag and avoid

## Heritage Resources

Detailed heritage resource information about the location, character, or ownership of a historic resource is withheld from disclosure because sharing this information may cause a significant invasion of privacy, may risk harm to the historic resources, or may impede the use of a traditional religious site by practitioners [Section 304 of National Historic Preservation Act, 16 U.S.C. 470w-3(b)]. Therefore specific mitigations for heritage resources are not publicly documented.

## Recreation

The following concerns: noise, smoke, traffic, increasing off road travel, and road degradation can be minimized.

One of the direct effects of burning will be reducing air quality within the Recreation Area. To minimize the effects of this burning it would be best if it did not occur on weekends or after Memorial Day. In the fall the burning will be late enough to not have as much impact.

Noise will likely have an impact within the Recreation Area. Limiting early morning starts and weekend logging would reduce the number of people impacted.

Traffic associated with this project will impact the Recreation Area. Signage is important to warn the public about the trucks. Limiting road closures will reduce the impacts to the public. Only close roads when absolutely necessary and reopen all roads for weekend use. Signing about road closures at the beginning of the 24N10 road would help the public make decisions on where to go.

The density of the trees along the fishing access roads prevents the public from driving off road. Opening these stands up along the road could increase off road travel. Leaving a buffer of trees along the roads could prevent this illegal activity.

The 24N10 road is scheduled for chip sealing in 2006. Requiring a surface replacement clause will ensure this road will be repaired if damaged. Not logging in wet conditions will protect this road from the logging equipment damage. All other fishing access roads should be fixed if they are damaged by logging.

Winter-logging should be implemented to minimize conflicts with winter recreation activities around Lake Davis.

The busiest times for camping are June and July so having the logging activity occur in August and through the fall will benefit recreation users.

## Visual Quality

Areas just beyond the visual retention zone are classified as visual partial retention where activities must remain visually subordinate to the characteristic landscape.

The types of treatments proposed in all of the alternatives are not likely to affect visual quality, provided landing and skid trail layout is designed to move material away from the

visually sensitive road, stumps are cut low, and burn piles are situated outside the immediate view.

### **Wildlife**

All of the action alternatives would be implemented in compliance with all rules and regulations governing land management activities, including the use of the appropriate Limited Operating Periods (LOP) identified in Table 2.10.

**Table 2.10.** Potential Wildlife Limited Operating Periods (LOP's) for the Freeman Project.

<b>Species</b>	<b>Location</b>	<b>Limited Operating Period</b>
Bald Eagle	Within designated territories (1/2 mile around nest)	November 1 through August 31
Bald Eagle	Winter roosts	November 1 through March 1
California Spotted Owl	Within 1/4 mile of a protected activity center boundary	March 1 through August 31
Sandhill Crane	Within 1/2 mile of nesting sites	April 1 through August 1
Great Gray Owl	Within 1/2 mile of nesting sites	March 1 through August 31
California Red-Legged Frog (Covers all other amphibians and the northwestern pond turtle)	All unsurveyed and occupied suitable habitat	October 1 through April 15 or after the first frontal system resulting in more than 1/4 inch of precipitation, or both. If a dry period of 72 hours or more occurs after the onset of the rainy season, operations may resume
Goshawk	Within 1/4 mile of territory or active nest site	February 15 thru September 15
Marten Den	100 acre den site buffer	May 1 through July 31
Fisher Den	700 acre den site buffer	March 1 through June 30
Wolverine Den	Analyze activities within 5 miles	January 1 through June 30
Sierra Nevada Red Fox Den	Analyze activities within 5 miles	January 1 through June 30
Willow Flycatcher	Within occupied willow flycatcher sites	Breeding Period (June 1 through August 15)
Pallid Bat & Townsend's Big-eared Bat	Within 1/4 mile of maternity & other roosts	April 1 - October 31
Western Red Bat	Within RHCA's with cottonwoods	May 20 - August 21

\*Herger-Feinstein Quincy Library Group Forest Recovery Act – Final Environmental Impact Statement (USFS 1999), Page 2-8, Table 2.3.

\*\*Sierra Nevada Forest Plan Amendment – Final Supplemental Environmental Impact Statement (SNFPA FSEIS) – Record of Decision (ROD) (2004) , page A-54, A-58, A-60, A-61 and A-62.

### 2.1.3 Alternatives Not Analyzed In Detail

Federal agencies are required 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).

#### 2.1.3.1 Alternative 5—Limit reduction of canopy cover and basal area in Northern Goshawk areas

This alternative was developed in response to the following issue:

- Regarding the negative impacts that vegetation treatment activities would have on northern goshawk habitat.

Alternative 5 was eliminated from further study because Alternative 1, the Proposed Action, already addresses northern goshawk habitat concerns, thereby rendering this comment a minor issue, because the effects relative to the decision being made weren't enough to craft and analyze a new alternative. The Proposed Action established that northern goshawk protected activity centers (PACs) are designed to minimize land disturbance within delineated areas around habitat for a specific animal. In the Proposed Action, vegetation treatments in goshawk PAC's would be limited to aspen treatments which would consist of a combination of hand and mechanical treatments, involving whole-tree removal of conifers up to 17.9" dbh. The Proposed Action would treat approximately 26 acres of northern goshawk PAC. The Freeman ID Team felt that this limited silvicultural prescription should have a minimal impact on northern goshawks and their PACs.

#### 2.1.3.2 Alternative 6—Hazard trees should be felled and left in place to provide down large woody debris

This alternative was developed in response to the following issue:

- Removing hazard trees along roads would lead to a decrease in large woody debris and instead should be felled and left on the ground.

The Proposed Action discloses that there may be a need to remove hazard trees along project designated roads to reduce hazards and maintain road use efficiency. The term 'hazard tree' applies to trees within 150' of Forest Service system roads that pose a safety risk to road users. Alternative 6 was developed to address concerns from public comments regarding the potential lack of large woody debris for wildlife habitat needs thereby leaving hazardous trees in place in areas that lacked large woody debris.

This was considered a non-issue, because the cause and effect relationship was not there, since there is not a lack of large woody debris in the project area. In addition, firewood cutters would likely gather felled hazard trees left by the road, due to the proximity of the project area to Portola and the popularity of the Lake Davis area, it is most likely that any large, down wood near roads would be removed by recreational and commercial woodcutters.

### **2.1.3.3 Alternative 7—The Forest Service should not use borate compounds to mitigate and treat annosum root rot**

This alternative was developed in response to the following issue:

- The use of borax to treat annosus root rot has the potential to cause detrimental human health and ecological damage and should be eliminated or replaced with alternative methods.

Currently, the SOPs require that all pine stumps greater than 14” dbh be treated with a borate compound to prevent the spread of *Heterobasidion annosum*, the fungal pathogen that causes annosus root rot. Alternative 7 would eliminate the use of borate compounds to treat *Heterobasidion annosum*. This alternative was developed to address the potential pesticide hazards of borate compounds, which would require the Forest Service to forego the use of borate compounds and instead develop other non-pesticide methods to control the root rot.

Upon additional review, Alternative 7 was dropped from further analysis because the cause and effect relationship is not valid based on scientific evidence. The Happy Jack DFPZ/GS Project researched the effects. Borate compounds were considered to be highly effective at preventing and mitigating the spread of annosus root rot, used sparingly throughout the project area and would have very low to no human health and ecological risks. That analysis also determined that alternatives to borate compounds were ineffective and/or impractical.

### **2.1.3.4 Alternative 8—Reduce the upper diameter limit across all treatments from 30” dbh to 20” dbh**

This alternative was developed in response to the following issue:

- Without a 20” dbh upper diameter limit in DFPZs, canopy cover and fuel reduction objectives will be met by unnecessarily removing mostly 20” to 30” dbh trees therefore adversely impacting wildlife habitat.

Currently, the Proposed Action states that all conifers greater than 29.9” dbh would be retained under all circumstances except for special circumstances where a Forest Service Sale Representative approves the removal for operability reasons and fuels would be reduced by generally thinning from below.

Alternative 8 would reduce the upper diameter limit for conifer removal from 29.9” dbh to 19.9” dbh within the fuel treatment zones (i.e., DFPZ, DFPZ/WUI). All other treatments would remain the same as in the Proposed Action. Area Thinning Zone treatments would retain a 30” dbh UDL following the standards and guides (Appendix C).

This alternative was considered a minor-issue. It has been previously analyzed in the Happy Jack EA, Empire EIS and Watdog EIS. In all three instances it was not the preferred alternative, because it was determined not to meet the purposes and needs as well for the project area and there was no difference in effects to watershed, wildlife or fuels objectives. The design criteria for DFPZs in Appendix J of the HFQLG Final Environmental Impact Statement (FEIS) states that aerial fuel objectives should be met by thinning to 40% canopy cover. Although the upper



diameter limit to meet this fuel objective may be less than 29.9” dbh, thinning to a higher upper diameter limit meets other purposes and needs more effectively such as, improving forest health, improving aspen stands or improving bald eagle habitat.

### **2.1.3.5 Alternative 9—Fully Implement the 2001 SNFPA ROD**

This alternative was developed in response to the following issue:

- That management direction consistent with the 2001 SNFPA ROD instead of the 2004 SNFPA ROD should be considered as an alternative.

Alternative 9 was not analyzed in detail because this issue is already decided, thereby rendering this a non-issue, because it was already decided by law. The 2004 SNFPA SEIS compared effects of implementing changes proposed in the 2004 SNFPA ROD with management policy in the 2001 SNFPA ROD. Comparisons specific to the HFQLG pilot project area were made. Based on assessment of these two alternatives, a decision was made to modify some of the management direction in the 2001 SNFPA ROD. One of the major purposes of the proposed action (and any alternatives to it that are considered) is to implement the HFQLG Act and ROD, subject to provisions of the 2004 SNFPA ROD. Adherence to standards of the 2001 SNFPA ROD would not allow implementation of the legally-mandated HFQLG pilot project.

### **2.1.4 Preferred Alternative**

Alternative 4 is the preferred alternative.

