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Draft Environmental Impact Statement

Freeman Project

Beckwourth Ranger District, Plumas National Forest,
Plumas County, California

Freeman Project

Draft Environmental Impact Statement

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Abstract: The Freeman Project Final Environmental Impact Statement documents the analysis of the Proposed Action (Alternative 1) and alternatives (Alternatives 3 and 4) against the No-action Alternative (Alternative 2) for reducing hazardous fuels, improving forest health, contributing to the economic stability of the local community, improving aspen stands, improving bald eagle habitat and providing the access needed to meet other project objectives and reduce transportation system impacts. The Proposed Action proposes to treat 3,066 acres of hazardous fuels and improve forest health by thinning 2,727 acres (out of the 5,793 acres of thinning and hazardous fuels reduction being proposed 1,527 acres of that is bald eagle habitat). The Proposed Action would also remove pockets of disease by creating 175 acres of Group Selection (GS) openings (including 52 acres of group selection in bald eagle habitat). It would also remove all conifers up to 29.9” diameter breast height within aspen stands and a 150’ variable width extended treatment zone surrounding each stand, comprising 645 acres of aspen stand improvement. Road access would be provided by reconstructing 15 miles of road and constructing 2-miles of temporary road, and decommissioning 7.9 miles of system roads. Alternative 3 proposes to treat the landscape exactly the same as the Proposed Action, except that it eliminates the extended treatment zone around aspen stands, thus reducing the number of acres of aspen treatment from 645 acres to 233 acres. Alternative 4 is the preferred alternative, proposing to treat the landscape exactly as Alternative 3, except that it proposes to change many of the grapple pile, masticate and hand thin units to mechanical treatment.

Reviewers should provide the Forest Service with their comments during the review period of the draft environmental impact statement. This will enable the Forest Service to analyze and respond to the comments at one time and to use information acquired in the preparation of the final environmental impact statement, thus avoiding undue delay in the decision-making process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. City of Angoon v. Hodel (9th Circuit, l986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

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Summary

The Plumas National Forest proposes to reduce hazardous fuels, improve forest health, contribute to the economic stability of the local community, improve aspen stands, improve bald eagle habitat and provide the access needed to meet other project objectives and reduce transportation system impacts. The Freeman project is located within the Lake Davis Recreation Are, which is a major recreation destination on the Plumas National Forest. The lake and its facilities are very popular with recreation visitors and local residents. The lake is well known throughout California for its excellent fishing opportunities.

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 treatments (or Individual Tree Selection), as well as riparian management and restoration projects.

The Healthy Forests Initiative 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) land.

Purpose and Need and for the Proposed Action and Alternatives

Reduce Fuels

The first purpose is to reduce fuels in order to do the following: provide continuity with existing DFPZ and existing fuel reduction project areas; provide continuity with Plumas Fire Safe Council’s efforts to reduce fuels inside the WUI; contribute to the larger HFQLG landscape level

DFPZ; reduce the potential size and intensity of wildfires by creating conditions that improve fire suppression effectiveness in the Lake Davis recreation area; and reduce the risk of stand-replacing fire in riparian habitat conservation areas (RHCA).

Improve Forest Health

The second purpose is to improve forest health by reducing the amount of and susceptibility to disease infection and insect infestation; accelerate the growth of California Wildlife Habitat Relationship (CWHR) size class 4 towards size class 5; and reducing fuels and improving conifer-growing conditions in the Area Thinning forest.

Improve Bald Eagle Habitat

The third purpose is 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.

Contribute to the Economic Stability of the Local Community

The fourth purpose is to provide an adequate timber supply that contributes to the economic stability of rural communities.

Improve Aspen Stands

The fifth purpose is to provide for greater biological diversity in the Freeman project area by releasing aspen stands from conifer competition.

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

The sixth purpose is to reduce impacts of the transportation system on forest resources and provide the necessary access for the vegetation treatments.

Issues and Alternatives

Based on internal and external feedback, an additional ten alternatives were considered, developed and analyzed. Eight were developed, considered and not analyzed in detail. Two more were developed, considered and analyzed along with the Proposed Action and No-action alternatives.

The issues that led the agency to develop alternatives to the Proposed Action include:

- 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.
- Design cost effective and efficient fuels treatments.

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 S.1). Alternative 1 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 S.1. Actions by alternative for each Purpose and Need for the Freeman Project area.

	Alternative 1 (Proposed Action	Alternative 2 (No-Action)	Alternative 3	Alternative 4 (Preferred Alternative)
Silvicultural Treatment Acres for Reducing Hazardous Fuels				
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)	178	0	77	76
Total DFPZ Treatment	**2,108**	**0**	**2,087**	**2,146**
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)	110	0	55	55
Total DFPZ/WUI Treatment	**474**	**0**	**464**	**433**
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
Total WUI Treatment	**484**	**0**	**458**	**458**
Total Fuels Reduction Acres	**3,066**	**0**	**3,009**	**3,037**
Silvicultural Treatment Acres for Improving Forest Health				
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)	255	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

	Alternative 1 (Proposed Action	Alternative 2 (No-Action)	Alternative 3	Alternative 4 (Preferred Alternative)
Silvicultural Treatment Acres for Improving Forest Health (Continued)				
Area Thinning Masticate (acres)	384	0	387	245
Total Area Thinning	2,727	0	2,570	2,419
DFPZ GS (acres)	60	0	60	60
DFPZ/WUI GS (acres)	4	0	4	4
WUI GS (acres)	16	0	16	16
Area Thinning GS (acres)	95	0	95	94
Total GS	175	0	175	174
Improve Bald Eagle Habitat				
Bald Eagle Habitat Treatment (acres)	1,528	0	1,528	1,528
GS (acres)	52	0	52	52
Improve Aspen Stands				
Aspen Treatment (acres)	645	0	233	233
Aspen Treatment in Goshawk PAC (acres)	25	0	11	11
Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts				
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 S.2). 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 S.2). 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 then 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 S.2). 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 S.2). 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 S.2. The Freeman Project Purpose and Need and Issues Objectives comparing each alternative and the Proposed Action.

	Alternative 1 (Proposed Action)	Alternative 2 (No-action)	Alternative 3	Alternative 4 (Preferred Alternative)
Purpose & Need				
Reduce Hazardous Fuels				
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
Improve Forest Health				
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
Improve Bald Eagle Habitat				
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
Cost Effectiveness and Support of Local Communities				
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

	Alternative 1 (Proposed Action)	Alternative 2 (No-Action)	Alternative 3	Alternative 4 (Preferred Alternative)
Improve Aspen Stands				
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
Project Area Aspen Risk Rating				
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
Provide Access Needed to Meet Other Project Objectives and Reduce Transportation System Impacts				
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
Issues				
Improve Aspen Stands				
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

	Alternative 1 (Proposed Action)	Alternative 2 (No-Action)	Alternative 3	Alternative 4 (Preferred Alternative)
Cost Effectiveness and Support of Local Communities				
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 to heritage resources by following the SOPs (Table S.3).

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 (Table S.3).

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 (Table S.3). 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 (Table S.3). 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 (Table S.3). 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 (Table S.3). 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 S.3. Other effected resources in the Freeman Project area.

Other Resource Indicators	Alternative 1 (Proposed Action)	Alternative 2 (No-action)	Alternative 3	Alternative 4 (Preferred Alternative)
Heritage				
Cultural Resources	No effect through use of SOPs	No Effect	No effect through use of SOPs	No effect through use of SOPs
Botany				
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
Wildlife				
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 (9`6)	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)

Other Resource Indicators	Alternative 1 (Proposed Action)	Alternative 2 (No-action)	Alternative 3	Alternative 4 (Preferred Alternative)
Watershed and Soils				
Percent of project area disturbed by burn piles (incl. Both grapple and hand piles)	0.1-0.5	0	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
Threshold of Concern				
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

Decision Framework

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.

Glossary and Acronyms

Glossary

90th percentile 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. A 90th percentile weather day creates 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.

A-listed noxious weed – invasive plant species for which eradication or containment is required at the state or county level.

Area Thinning Zone — the area outside of the Defensible Fuels Profile Zone or Wildland Urban Interface.

B-listed noxious weed – invasive plant species for which eradication or containment is at the discretion of the county agricultural commissioner.

basal area – the cross-sectional total area of all tree stems at breast height over a given area, usually an acre.

best management practices (BMP) – management practices that minimize degradation of surface waters from pollutants, including sediment from soil erosion. Refers specifically to the set of such practices developed jointly by the California State Water Resources Control Board and USFS Region 5 for application to forest land management in California (USFS PSW. 2000).

C-listed noxious weed – invasive plant species for which eradication or containment is necessary only when found in a nursery or at the discretion of the county agricultural commissioner.

canopy cover (CC) – the degree to which forest canopy (forest layers above one's head) blocks sunlight or obscure the sky.

Chain – 66 feet

Condition Class 1– Fire regime is within historic range, and risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within the historic range

Condition Class 2– Fire regime has been moderately altered from the historic range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historic ranges by one or two return intervals. This would result in moderate changes to one of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from the historic range.

Condition Class 3– Fire regime has been significantly altered from the historic range. The risk of losing key ecosystem components is high. Fire frequencies have departed from their historic range by multiple return intervals. This results in dramatic changes to one of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been significantly altered from the historic range (RMRS GTR-87-2002).

Crown base height – the height of the lowermost branches of the forest canopy above the ground.

cut-to-length system – as opposed to skidding whole trees or logs to a landing, a system of cutting logs to particular lengths (e.g. 20') and moving them to a landing on a wheeled forwarder. Reduces impacts to soils, requires less road construction and smaller landings and causes less damage to residual trees.

California Wildlife Habitat Relationships (CWHR) – a system developed jointly by the California Department of Fish and Game that classifies forest stands by dominant species types, tree sizes and tree densities and rates the resulting classes in regard to habitat value for various wildlife species or guilds.

CWHR Conifer Size and Canopy Closure definitions

CWHR Tree Size			CWHR Canopy Cover		
CWHR	**Conifer Crown**	**dbh**	**CWHR**	**WHR Closure Class**	**Ground Cover**
1	Seedling Tree	<1"	S	Sparse Cover	10-24%
2	Sapling Tree	1-6"	P	Open Cover	25-39%
3	Pole Tree	6-11"	M	Moderate Cover	40-59%
4	Small Tree	11-24"	D	Dense Cover	60-100%
5	Medium/Large Tree	>24"			
6	Multi-layered Tree	Size class 5 over size class 4 or 3 trees w/ a 60% CC			

The crosswalk between CWHR and timber strata is as follows:

CWHR Timber Strata	CWHR Vegetation Type	Size Class (dbh)	Canopy Cover (CC) (%)
SMC4M	mixed conifer (SMC/MCH/DFR)	11-23.9"	40-59%
SMC5P	mixed conifer (SMC/MCH/D)	24-39.9"	20-39%
SMC5M	mixed conifer (SMC/MCH/DFR)	24-39.9"	40-59%
PPN4S	pine (EPN/PPN)	11-23.9"	< 20%
PPN4P	pine (EPN/PPN)	11-23.9"	20-39%
PPN4M	pine (EPN/PPN)	11-23.9"	40-59%
PPN5P	pine (EPN/PPN)	24-39.9"	20-39%
RFR4P	red fir (RFR)	11-23.9"	20-39%
RFR4D	red fir (RFR)	11-23.9"	60%+
RFR5M	red fir (RFR)	24-39.9"	40-59%
RFR5D	red fir (RFR)	24-39.9"	60%+
WFR3D	white fir (WFR)	6-10.9"	60%+
WFR4D	white fir (WFR)	11-23.9"	60%+
WFR5M	white fir (WFR)	24-39.9"	40-59%

defense zone – a buffer zone within the wildland-urban intermix generally ¼-mile wide around human habitation (residences, commercial buildings, administrative sites) in adjacent areas of flammable wildland vegetation. The desired condition for these zones is vegetation that makes ignition of crown fire highly unlikely and allows staging of fire suppression equipment and personnel to directly attack an approaching wildland fire. Stands should be fairly open and dominated primarily by larger, fire tolerant trees

defensible fuel profile zone (DFPZ)– zones approximately ¼-mile wide where fuel has been reduced. They usually are constructed along roads or ridgetops. They are intended to break up

fuel continuity across the landscape and provide a defensible zone for suppression forces. Design criteria are described in the HFQLG EIS, appendix J, tables 1 and 2.

eastside – forest types growing on drier east side of the Sierra Nevada comprised of open stands of drought-resistant conifer species, most commonly Jeffrey pine, mixed with a brushy understory.

end lining – extending a cable from a tractor and pulling a log to the tractor, rather than driving the tractor to each log in a harvest area.

equivalent roaded acres (ERA) – the area of roads in a watershed that would produce the same rate of runoff and channel instability that the sum of all disturbances in a watershed cause. Thus, acreages of different types of land disturbances are weighted according to the rate of runoff they cause relative to runoff caused by a native-surface road and the sum is the equivalent roaded area of the watershed.

fire regime – a combination of fire frequency and severity.

fire safe council – a local council (e.g. Plumas County) under authority of the California Department of Forestry and Fire Protection comprised of public officials and private interests formed for purposes of initiating and reviewing proposals for fuels reduction programs that may involve public and private land ownerships.

fireline – a zone in wildland vegetation types cleared of flammable material to inhibit or prevent the spread of fire.

grapple piling – moving and piling logging slash (for burning) using mechanize equipment (a grapple).

hydrophobic soil – a soil that resists the infiltration of water. Intense fires often cause or increase the “hydrophobicity” of soils.

ladder fuels – fuels that provide a pathway for fire in ground fuels to ascend to the canopy of a forest stand. They comprise tall brush, small trees and lower branches of larger trees.

level 2 road – NFS roads intended for use by high-clearance vehicles, such as pickup trucks. User comfort is not usually a consideration. User safety is the minimum required for the safe operation of the design vehicle and roads are often subject to at least seasonal closure. Also called “maintenance level 2 road:.

level 3, 4 and 5 roads – roads designed and maintained to accommodate passenger car use. High levels provide increasing levels of user comfort and safety.

lithic scatter – a prehistorical heritage resource exhibiting flake stone artifacts.

management indicator species – species whose populations are believed to respond to management activities. They are chosen to represent specific habitat types.

mast production – acorns.

mechanical thinning – use of tractors, cable systems or helicopters to remove trees that have been cut by chainsaws or the use of feller-bunchers — wheeled vehicles with lopping shears or saws that cut and collect trees and carry them to a landing site.

off-base and deferred lands – federal Lands identified in the HFQLG Act as off-base or "deferred". The act excludes timber harvest and road construction from off-base and deferred lands during the term of the pilot project.

operability – the ability to conduct vegetation management operations, which include construction of access roads and log landings, use of cable logging systems, clearing of central skid trails for tractor logging and removal of trees that pose hazards to forest workers.\

over-stocked – condition of a forest stand where excessive number of trees has reduced total stand growth from the maximum possible amount. Trees are competing with one another for soil moisture and sunlight to the degree that growth of stand volume is suppressed.

partial retention – a visual quality objective of providing a natural-appearing landscape where management activities may be evident but must remain visually subordinate to the characteristic landscape.

piling and burning – piling harvest or thinning residues (branches and limbs) and burning when moisture content has been reduced through evaporation, wildfire hazard is low and atmospheric conditions are favorable for dispersal of smoke.

prescribed burning – fire purposefully ignited to achieve a beneficial purpose, such as reducing fuels on the forest floor or fuels generated by logging or thinning forest trees.

regeneration – tree seedlings and saplings that have the potential to develop into mature forest trees.

retention – a visual quality objective of providing a natural-appearing landscape where management activities are not visually evident to the casual forest visitor.

return interval – the average time period for the recurrence of a type of event (wildfire, flood, intense rainfall, etc.). Actual intervals been events vary.

riparian habitat conservation areas (RHCA) – zones of specified widths along streams and watercourses and around lakes and wetlands which vary in width according to stream or feature type, as described the SAT guidelines.

road decommissioning – culvert removal and removal of stream-crossing fills and regrading of the road prism to restore natural slope, natural contours and watercourse morphology.

sensitive area (for cumulative watershed effects analysis) – areas within 200' of perennial streams.

sensitive species – species listed as such by the regional forester of the USFS' Pacific Southwest Region because their populations are such that National Forest management actions could contribute to a trend toward eventual listing by USFWS/NMFS as threatened or endangered.

seral stage – a life stage of a plant community. Usually a transitional stage that succeeds to a later stage until a climax stage is reach.

shade intolerant – species that require full, open sunlight on the forest floor to establish and grow (e.g. ponderosa pine).

shelterwood – a regeneration method under an even-aged silvicultural system wherein a portion of a mature stand is retained as a source of see and/or protection during the period of regeneration.

site-potential trees – trees that growing at the maximum rate that the environmental conditions of a given site will allow. Trees on a site whose growth is not inhibited by competition from other trees.

slash – vegetative residue after a logging operation. Includes branches and tops of logged trees, broken branches of residual trees and broken residual trees.

snag – a dead standing tree.

special habitats – habitat types that are monitored if they are determined to be limited in distribution, particularly valuable as habitat for rare plants or wildlife or of concern for other reasons

spotting – the process of ignitions ahead of an advancing fire due to wind-borne firebrands.

standard operating procedures (SOP) – a set of environmental-protection requirements for the conduct of vegetation management activities that are imposed upon USFS contractors through contract provisions.

streamside management zone (SMZ) –buffer zones along streams in timber harvest zones designated and managed in accordance with the 1988 PNF Forest Plan. Predate RHCAs and SAT guidelines.

subsoiling – any treatment to fracture and/or shatter soil with narrow tools below the depth of normal tillage without inversion and with a minimum mixing of the soil.

thinning from below – a process of removing trees from a stand beginning with the smallest trees under desired conditions for crown base height and/or CC is attained.

threat zone – a land-use allocation of SNFPA within the wildland-urban intermix generally extending about 1¼-mile beyond defense zones where vegetation should be treated to reduce the rate of wildfire spread and wildfire intensity.

threatened and endangered species – a species listed in either category by the USFWS or NMFS under provisions of the federal Endangered Species Act, as amended.

timber strata -- vegetative areas with similar species composition, tree size and density.

torching – ignition of an entire tree, isolated sufficiently from other trees so that a crown fire is not initiated with a stand.

treatment units – forest stands where vegetation management activities are proposed, including both DFPZ construction and GS timber harvest (about 6,400 acres). Areas subjected to road system actions can also be thought of as treatment units.

threshold of concern (TOC) – an estimate of the value of equivalent roaded area (ERA) in a particular watershed above which land disturbances begin to substantially impact downstream channel stability and water quality.

underburning – prescribed fire in fuels on the forest floor that is intended to generally remain on the forest floor without consuming significant portions of the forest canopy.

westside – forest types growing on wetter, more humid west side of the Sierra Nevada, usually comprised of mixed conifer stands, most commonly ponderosa pine, Douglas fir, white fir, incense cedar, sugar pine and black oak or higher-elevation communities

wildland/urban interface (WUI) – an area where human habitation is mixed with areas of flammable wildland vegetation. It generally extends outward from the edge of develop private land into federal, private or state jurisdictions.

Acronyms

AOC	Area of Concern
AT	Area Thinning Zone
BA/BE	biological assessment/biological evaluation
BBS	Breeding Bird Survey
BEHMA	Bald Eagle Habitat Management Area
BMP	best management practices (for protection of water quality)
CC	canopy cover
CDFG	California Dept. of Fish and Game
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Cfs	Cubic feet per second
CWE	Cumulative Watershed Effects
CWHR	California Wildlife Habitats Relationships
DEIS	Draft Environmental Impact Statement
DFPZ	defensible fuel profile zone
dbh	diameter at breast height
DOQ	Digital Orthophotoquad
EA	environmental assessment
EIS	environmental impact statement
ERA	equivalent roaded area
ETZ	Extended Treatment Zones
FEIS	final environmental impact statement
FIA	Forest Inventory Analysis
FONSI	Finding of No Significant Issues
FM	fuel model
FRLC	Feather River Lumber Company
FVS	forest vegetation simulator
GIS	Geographical Information Systems
GPS	Global positioning system
GS	Group Selection
Hef	Habitat Effectiveness
HFI	Healthy Forest Inititiative
HFRA	Healthy Forest Restoration Act
HFQLG	Herger-Feinstein Quincy Library Group
HFQLG FRA	Herger-Feinstein Quincy Library Group Forest Recovery Act
HRCA	home range core area (for spotted owls)
HSI	Habitat Suitability Index
HUC	Hydrologic unit codes
IDT	Interdisciplinary Team
ITS	Individual Tree Selection
KV	Knutson-Vanderberg Act

LOP	limited operating period
LRMP	Plumas National Forest Land and Resource Management Plan, as amended
LS/OG	Late Seral/Old Growth
LWD	Large woody debris
MBF	thousand board feet (1 board feet = 12'x12'x1")
MMBF	million board feet (1 board feet = 12'x12'x1")
MFFR	Middle Fork Feather River
MIS	management indicator species
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NSAQMD	Northern Sierra Air Quality Management District
NTMB	Neotropical Migratory Bird
OHV	Off-highway Vehicle
PA	Proposed action
PAC	protected activity center
PFSC	Plumas Fire Safe Council
PLAS	Plumas Lassen Administrative Study
PNF	Plumas National Forest
PM	Particulate matter
Psi	Pounds per square inch
PSW	Pacific Southwest Research Station
QMD	Quadratic mean diameter
RAC	resource advisory committee
RAWS	remote automated weather station
RHCA	riparian habitat conservation area
RMO	riparian management objectives
ROD	record of decision
RWQCB	Regional Water Quality Control Board
SAT	Scientific Analysis Team
SHPO	State Historic Preservation Officer
SMC	Sierra Mixed Conifer
SMZ	streamside management zone
SNEP	Sierra Nevada Ecosystem Project
SNFPA	Sierra Nevada Forest Plan Amendment (both 1991 and 1994 amendments)
SOHA	spotted owl habitat area
SOP	standard operating procedures
SOPA	schedule of proposed actions

SQS	soil quality standards
TOC	threshold of concern
UDL	upper diameter limit
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFS PSW	U.S. Forest Service Pacific Southwest Region
USFWS	U.S. Fish and Wildlife Service
VQO	Visual Quality Objectives
WEPP	watershed erosion prediction project
WIFL	Willow Flycatcher
WNV	West Nile Virus
WPT	Western Pond Turtle
WUI	wildland-urban interface
YFL	Yellow legged frog
%	percent
“	inches
‘	feet