Eldorado County
Eldorado National Forest
Placerville Ranger District

Terrestrial Wildlife
Biological Assessment and Evaluation
Last Chance Fuels Reduction Project

2003

Prepared by: /s/ Susan Yasuda Date: March 18, 2003
Susan Yasuda
District Wildlife Biologist

Reviewed by: /s/ Dawn Lipton Date: April 28, 2003
Dawn Lipton
Forest Wildlife Biologist

I. INTRODUCTION

Forest Service Manual (FSM) 2672.42 directs that a biological assessment (BA) be prepared for all proposed projects that may have effects upon United States Fish and Wildlife (USFWS) listed threatened, endangered, and proposed species. In addition FSM 2670.32 directs that a biological evaluation (BE) be prepared to determine project effects upon Forest Service designated sensitive species. The documents are to ensure that project decisions do not adversely affect Federally listed species or result in the loss of species viability or create significant trends towards Federal listing for sensitive species. A species list was obtained from the internet regarding information on threatened, endangered or proposed listed wildlife species that could occur on the Eldorado National Forest from the U.S. Fish and Wildlife Service (USFW) pursuant to Section 7 (c) of the Endangered Species Act (USDI Fish and Wildlife Service 2003). No critical habitat for any terrestrial wildlife species has been identified on the forest (Ibid). This document considers the potential effects of the proposed Last Chance Fuels Reduction Project on the following federally listed threatened, endangered, and Region 5 listed sensitive terrestrial wildlife species:

Federally Listed and Proposed Species

American bald eagle (*Haliaeetus leucocephalus*) – Threatened
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) - Threatened

Region 5 Designated Sensitive Species

California spotted owl (*Strix o. occidentalis*)
Northern goshawk (*Accipiter gentilis*)
American peregrine falcon (*Falco peregrinus*)
Great gray owl (*Strix nebulosa*)
Willow flycatcher (*Empidonax trailli*)
American marten (*Martes Americana*)
Pacific fisher (Martes pennanti pacifica)
Sierra Nevada red fox (*Vulpes vulpes necator*)
California wolverine (*Gulo gulo luteus*)
Pallid bat (Antrozous pallidus)
Townsend's big-eared bat (*Corynorhinus townsendii*)
Western red bat (Lasiurus blossevilli)

The Last Chance Fuels Reduction Project analysis area is defined as the project boundary and the adjoining areas that have a potential to be impacted by the proposed project. For those species that have identified management areas, such as home range core areas (HCRAs) for spotted owl and Protected Activity Centers (PACs) for spotted owl and goshawk, effects are evaluated at the stand scale and the respective home range or habitat area scale. This includes both the Last Chance Project area and adjacent habitat that is suitable for the above listed species that could be potentially affected by the proposed project. Based on the existence of suitable habitat within the analysis area, the following table examines the potential for occurrence of the threatened, endangered and sensitive species mentioned above, and identifies the species that will be analyzed in this Biological Evaluation and Assessment.

Potentially Affected Habitat/Species

Species	Potentially Affected Suitable Habitat Within the Analysis Area	Suitable Habitat Not Available or Not Affected within the Analysis Area	Considered for Further Analysis
Valley Elderberry Longhorn Beetle	---	X	No
Western Red Bat	---	X	No
Sierra Nevada Red Fox	---	X	No
California Wolverine	---	X	No
American Bald Eagle	---	X	No
Willow Flycatcher	---	X	No
American Peregrine Falcon	---	X	No
Great Gray Owl	---	X	No
American Marten	---	X	No
California Spotted Owl	X	---	Yes
Northern Goshawk	X	---	Yes
Pacific Fisher	X	---	Yes
Townsend's Big-Eared Bat	X	---	Yes
Pallid Bat	X	---	Yes

II. CURRENT SPECIES MANAGEMENT DIRECTION

Direction to maintain the viability of Region 5 sensitive species is provided by the National Forest Management Act, the Code of Federal Regulations (219.19), the Forest Service Manual (2672), and the Eldorado National Forest Land and Resource Management Plan (LRMP). The Sierra Nevada Forest Plan Amendment (SNFPA) Final Environmental Impact Statement (EIS) Record of Decision (ROD) (USDA 2001) amends the Eldorado National Forest LRMP. Specific standards and guidelines with regard to TES species potentially affected by the Last Chance Fuels Reduction Project are described below.

California Spotted Owl

The LRMP directs the Forest to use administrative measures to protect and improve habitat for endangered, threatened, and sensitive species. The objective of the conservation strategy for the California spotted owl under the SNFPA ROD is to provide the environmental conditions needed to establish a high likelihood of maintaining viable populations of the California spotted owl, well distributed across the national forests within the Sierra Nevada planning area. Specific standards and guidelines for California spotted owl under the ROD are described in Appendix A (ROD Standards and Guidelines for selected Species) in the project file.

Northern Goshawk

The objective of the goshawk conservation strategy under the SNFPA ROD is to provide the environmental conditions necessary to establish a high likelihood of maintaining viable populations of the northern goshawk well distributed across the Sierra Nevada planning area. The majority of the stand structure requirement standard and guidelines parallel those for the California spotted owl. Specific standards and guidelines relating to the northern goshawk under the ROD are described in Appendix A in the project file.

Pacific Fisher

Standards and guidelines for hardwood, snag and down log, riparian conservation areas, and old forest emphasis areas (USDA 1988, USDA 2001), address some of the habitat elements important to this species. The SNFPA ROD's conservation strategy for fisher contains four critical elements for fisher conservation: (1) Management direction for the Southern Fisher Conservation Area to support fisher habitat requirement; (2) Suitable habitat linkages between southern and northern Sierra Nevada fisher populations; (3) Protection for all den sites; and (4) Suitable habitat for possible fisher re-introductions. Specific ROD standard and guidelines pertaining to the fisher are described in Appendix A in the project file.

Pallid Bat and Townsend's Big-Eared Bat

The LRMP does not provide specific guidelines for the pallid bat and Townsend's big-eared bat. Standards and guidelines for hardwood, snag and down log, and riparian conservation areas (USDA 1988, USDA 2001), address some of the habitat elements important to these species. Riparian Conservation Objectives (RCOs) under the Sierra Nevada Framework aid in sustaining riparian habitat. In addition, Best Management Practices (BMP's), designed to reduce the amount of sediment and erosion created by project activities, are implemented to protect water quality. Adult stages of aquatic insects are used as forage by bat species. ROD Standards and guidelines related to the pallid bat in terms of snags and oak woodland habitat are described in Appendix A in the project file.

III. PROJECT DESCRIPTION

Project Location

The project area is located south and east of the town of Grizzly Flat, south of the Grizzly/Caldor Road, along and north of the Caldor Railroad Grade to the intersection with road number 9N61. This area meets the definition in the Sierra Nevada Forest Plan Amendment for Urban Intermix Defense and Threat Zones due to its close proximity to the community of Grizzly Flats. The project covers portions of five watersheds: Clear Creek, Dogtown Creek, Lower Lower Middle Fork Cosumnes River, Lower Steely Fork Cosumnes, and Upper Steely Fork Cosumnes. The legal location is T.9N., R13E., sections 14-16, 19-25, 27-30 and 33-34.

Alternative One – Proposed Action

The Last Chance Fuels Reduction project is proposed to establish a system of fuel reduction zones along primary ridges in the Henry's Diggings and Leoni Meadow areas, south of Grizzly Flat, in El Dorado County, California. Treatments are designed to strategically connect in with fuel reduction work already accomplished along Caldor Railroad Grade, Plummer Ridge and in the Clear Creek area. The areas proposed for treatment form the base for establishing contiguous fuel treatments along ridges from the community of Grizzly Flat southeast to Leoni Meadow. Map locations and acreages in the Last Chance Fuels Reduction Environmental Analysis (EA) are estimates obtained from orthographic photos, maps and field reconnaissance. Actual acres typically change slightly, as final project layout is completed, and adjustments are made for site-specific conditions, although the total area treated is not likely to fluctuate more than 10%. The table below depicts acres and treatment planned for each unit.

Unit Acreages Proposed for Treatment

Unit	Total Acres	Masticate or Crush Brush Ac	Mechanical Thin Ac	Hand Thin & Pile Ac	Small Tree Thin & Machine Pile Ac	Under Burn Ac	Defense Acres	Threat Acres
121	158	74	---	---	---	---	74	84
144	25	12	---	X	12	25	9	16
146	24	12	---	X	12	24	24	---
148	16	8	---	---	8	---	16	---
150	7	3	---	---	3	---	7	---
169	30	10	15	X	10	30	30	---
227	24	---	11	---	11	---	24	---
228	61	---	61	X	30	---	5	56
229	8	8	---	X	---	---	8	---
230	28	---	8	---	20	---	28	---
231	9	3	6	---	3	---	9	---
232	20	---	17	X	10	---	18	2
234	15	---	15	---	---	---	15	---
237	25	---	10	X	10	25	25	---
246	17	---	17	X	17	10	17	---
247	9	---	5	---	5	9	9	---
248	44	---	44	---	11	44	44	---
250	11	---	6	---	6	11	11	---
254	54	---	25	X	25	54	54	---
255	3	---	3	---	3	3	3	---
256	24	---	16	---	12	24	24	---
257	8	8	---	X	---	8	8	---
259	30	10	10	---	10	30	30	---
263	25	---	20	---	10	25	25	---
264	14	---	7	---	11	---	---	14
268	14	---	7	---	7	5	14	---
269	37	---	18	---	18	37	37	---
274	11	---	6	---	6	5	11	---
275	10	---	5	---	5	---	10	---
277	26	---	26	---	13	26	26	---
290	34	---	---	---	---	34	---	34
291	64	---	64	X	30	---	64	---
292	48	---	24	X	24	48	48	---
293	22	---	20	---	12	22	22	---
296	48	---	24	X	12	48	48	---
297	14	---	7	X	7	14	14	---
298	24	---	24	X	12	24	24	---
299	44	---	40	X	20	44	44	---
300	47	---	---	---	---	47	47	---
301	21	---	---	---	---	21	21	---
302	155	---	---	X	---	155	104	51
303	110	---	---	---	---	110	30	80
304	66	---	---	---	---	66	---	66
544	15	5	---	X	---	15	15	---
616	56	---	---	X	---	56	40	16
623	55	---	---	X	---	55	28	27
646	101	---	---	X	---	101	73	28

The project proposal is to create a defensible space by reducing fuels on approximately 1,700 acres by thinning the understory on approximately 600 acres, masticating brush and burning piles

on approximately 150 acres, hand pruning trees within 100 feet of private property on approximately 50 acres, and low intensity underburning on approximately 1,300 acres.

The Proposed Action would comply with the Eldorado National Forest LRMP as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) Environmental Impact Statement, as described in the SNFPA Record of Decision. Specifically, the proposed action is designed to meet objectives based on Forest-wide standards and guidelines (ROD, pages A-25 to A-32), as well as land allocation standards and guidelines for northern goshawk and California spotted owl Protected Activity Centers (ROD, pages A-33 to 37), and Urban Wildland Intermix Defense and Threat Zone standards and guidelines (ROD pages A-46 and A-47).

The following actions and protective measures for potentially affected resources are directly related to the implementation of the actions described above.

A. Vegetation Treatments

In all stands, silvicultural prescriptions would be based on stand-specific information and designed to meet SNFPA land allocation guidelines for the amount of the stand treated, residual live crown base height, and diameter limits. Generally, silvicultural goals for this area are to protect large trees, increase growth of medium sized trees, and remove smaller trees to reduce fuel ladders. Forest-wide stand structure standards and guidelines pertaining to large trees, canopy cover, snags, and large down wood apply in all land allocations, and would be met where they currently exist. Species preference for residual trees in descending order of priority is: sugar pine, ponderosa pine, Douglas-fir, white fir, and incense cedar. Black oaks would not be designated for removal although some may be removed to facilitate operations. Snags which pose a hazard to treatment operations would be removed or felled and left in log deficient areas.

Where necessary, concentrations of existing or activity generated fuels within the units would be treated by a combination of tractor piling with a brush rake, mastication with a brush shredder, and/or hand cutting and piling. Generally these acres occur where fuels have built up from previous tree mortality, but would also include pockets of decadent brush or thickets of suppressed small diameter trees. Tractor piling would also be utilized in smoke sensitive areas where smoke from burning tractor piles would dissipate more quickly than smoke from prescribed burns. Tractor piling would not occur within riparian conservation areas (RCAs), sensitive areas (such as heritage sites and sensitive plant habitat), or on slopes greater than 35%. Residual trees would be protected from mechanical damage. Piles would normally be burned in the fall and winter after adequate time for curing.

Post treatment evaluations of site-specific fuel conditions would be done to determine the need for follow-up prescribed burning. Prescribed understory burning would occur when weather conditions prescribed in the burn plan are met. Prescribed fire would be allowed to back into the RCAs; however, ignition would not occur in RCAs, except as needed to maintain control.

In preparation for prescribed fire some perimeter line construction may be needed where roads, trails, or natural barriers are absent. This would involve hand cutting of vegetation including trees up to 6” diameter, pruning, and scraping a bare soil control line. All fire lines would follow the established guidelines for water bar construction as outlined in the watershed Best Management Practices (BMPs). Hand lines visible from roads would be camouflaged after burning by raking duff back to discourage use as a trail.

Ground cover objectives for prescribed burns are determined by the LRMP and through consultation with resource specialists. Several years of BMP monitoring of prescribed fire projects indicate that ground cover objectives are being met by implementation of current burn plans. Post burn observations of ground cover and soil stability would be conducted to determine if additional action is needed. Burn prescription parameters would be designed to achieve a fire

with an average of 4-foot or less flame lengths. Burn objectives also include protection of sensitive features such as archaeological sites, sensitive plant populations, nest trees, specific snags or down logs, oak trees, streamside zones, structures, and other improvements. Site-specific prescriptions would be developed for these areas, and range from keeping fire out completely, to allowing fire to burn through but retaining the important features.

Units in defense zones that are fully or partially within California Spotted Owl (CSO) or Northern Goshawk PACs would have mechanical treatments except within the 500' radius buffer around the activity center. Prescribed fire and preparatory hand treatments are allowed in the 500' buffer. Prior to burning, hand treatments, including handline construction, tree pruning, and cutting small trees less than 6 inches in diameter, are allowed within a 1 to 2 acre area surrounding known nest trees as needed to protect these trees (ROD, p. A-35). In CSO PACs that are outside of the defense zone mechanical treatments would not occur. Prescribed fire, with an average flame length of 4' or less, and preparatory hand treatments are planned. Prior to burning, hand treatments (including handline construction, tree pruning, and cutting small trees less than 6 inches in diameter) are allowed within a 1 to 2 acre area surrounding known nest trees as needed to protect these trees (ROD, p. A-35).

B. Air Quality

A smoke permit would be issued for this project by El Dorado County Air Pollution Control District. To reduce effects of prescribed burns on air quality, smoke control and monitoring measures would be identified in the Smoke Management Plan. Avoidance (not burning when smoke would not disperse well, or would carry into sensitive areas), dilution (reducing smoke concentrations by staggering ignitions, or burning when there is good lift and dispersion), and emission-reduction strategies would be utilized.

Desirable meteorological conditions such as favorable winds and an unstable or neutral atmosphere would be required in the project's smoke management plan to facilitate venting and dispersion of smoke from the project area. Piles with larger materials would be cured for a minimum of 90 days. Smaller sized material would cure 30 to 45 days to reduce the duration of smoke emissions.

C. Visual Resources

Blackened trees that negatively affect the viewshed would be felled.

D. Heritage Resources

Archaeological sites in the project area would be protected from ground disturbance associated with mechanical and hand treatments during all phases of this project. A full listing of these sites can be found in the project file. Sites in units or near road maintenance/reconstruction projects would be identified with flagging and avoided during project activities. Sites that are flammable (i.e. cabins, corrals, fences, flumes, trestles) would be protected during prescribed burning. All sites would be avoided during fire line construction.

E. Terrestrial Wildlife

A limited operating period (LOP) for California spotted owls would be in effect from March 1 through August 31, for units within ¼ mile of spotted owl activity centers, unless surveys confirm that owls are not nesting. A LOP for northern goshawks would be in effect from February 15 through September 15, within ¼ mile of goshawk nesting areas, unless surveys confirm that goshawks are not nesting.

An LOP for mule deer would be in effect from October 15 through April 15 for units within critical winter range. An exception to the mule deer LOP (March 15 versus April 15) would be used for the west end of the project area to accommodate burning conditions to treat decadent

brush fields. If adverse winter conditions occur during the year(s) of the planned burn(s) and cause deer to remain in these areas past March 31, the LOP timeframe would be re-evaluated by the wildlife biologist to assess if the standard LOP of April 15 is needed to avoid disturbance.

LOPs generally apply to all project activities except use and maintenance of forest roads. Additional activities may be permitted, such as handwork, dependent on a site-specific analysis of species status. Consultation with the wildlife biologist prior to burning will be done to determine presence of TES and/or species of concern. Burning would be postponed if it is determined potential adverse impacts to these species would occur.

Project design would increase diversity of age classes of brush and oak species to enhance habitat for deer, quail, and migratory birds.

F. Fish and Aquatic Species

Riparian Conservation Objectives (RCOs) would be applied within Riparian Conservation Areas (RCAs) to protect habitat for aquatic species, including western pond turtle and foothill yellow-legged frog. No mechanical treatments would occur, and no piles would be created, within the 600-foot wide RCAs along Steely Fork Cosumnes and Clear Creek. No ignition for underburning (except that necessary to maintain control of the underburn) would occur within these RCAs.

Water drafting guidelines described in the transportation section would protect fish and amphibians. Water holes would be inspected by a fisheries biologist for existing frogs and tadpoles before water withdrawal for dust abatement.

G. Sensitive Plant Protection

Within the project area, there are three occurrences of Pleasant Valley mariposa lily (*Calochortus clavatus* var. *avius*) or CACLA, which would be monitored and flagged prior to implementation to ensure that the sites are not disturbed by equipment. If any other sensitive plant occurrences are discovered during project implementation their habitat would also be flagged and avoided during project activities and the locations reported to the Forest botanist and Placerville District biologist. Lava caps within the project area would be protected from motorized vehicles and equipment. No tractors or other equipment would be allowed to enter these unique habitats.

Mulch or straw used for vegetative soil stabilization would be certified weed free. Weed-free rice straw is readily available and is the preferred mulch for this project. Any seed used for restoration or erosion control would be from a locally collected source (ENF Seed, Mulch and Fertilizer Prescription, March 21, 2000).

H. Noxious Weeds

The project area has been surveyed for noxious weeds. Two occurrences of skeletonweed (*Chondrilla juncea*) and a single scotch broom (*Cytisus scoparius*) site have been documented. A Noxious Weed Risk Assessment has been written (ENF 2002). This assessment looked at the current infestation sites and determined areas of potential invasion/spread from natural, non-project and project related activities. Known occurrences, as well as these potential infestation areas would be analyzed for treatment in the EA. In order to prevent expansion, and eradicate existing infestations, various treatment methods would be utilized.

The prevention and eradication strategy includes the following:

- All off-road equipment would be cleaned to insure it is free of soil, seeds, vegetative matter or other debris before entering National Forest system land if it is known to have most recently operated in an area infested with noxious weeds, or if the last operating location is unknown. In addition, equipment would be cleaned prior to moving from an infested treatment unit, to a unit that is free of such weeds.

- Locations of any new infestations of noxious weeds would be mapped and documented. New sites would be treated by hand pulling or lopping (late summer/early fall lopping treatments have been shown to minimize resprouting).
- Post fuels treatment surveys would be conducted at the documented sites. Populations would be grubbed or hand-pulled prior to seed-set. Where appropriate, seeding of weed-treated areas with native grass species would be done to reduce, through competition, further weed establishment or expansion of existing infestations.

I. Soils and Hydrology

Implementation of measures to ensure protection of soil resources and long-term soil productivity (R5 Soil Quality Standards), are derived from "Best Management Practices" (BMPs) and input provided by the IDT for this project. A listing of the BMPs, to be implemented, is in the project file. Soil monitoring following treatment activities would be completed to confirm effectiveness of applicable BMPs.

Large woody material requirements would be satisfied by meeting SNFPA standards for down log retention. The SNFPA standard of at least 10 tons per acre of the largest down logs available would be maintained within mechanical treatment units, except in areas where existing levels are less than that (5 30" x 32' logs = 10 tons). Where possible, these large down logs would be protected during mechanical treatment activities, and underburning. Class 1 and 2 logs would be recruited from cull logs where they are available.

To control erosion rates, and the resulting sediment delivery, ground cover and fine organic matter would be maintained as follows: a minimum of 40 percent on units with less than 15 percent slope, 60 percent on units with 15 to 30 percent slopes, and 70 percent on units with slopes over 30 percent and in RCAs. The percent of organic matter would vary depending on the amount available at the site or on the site capability. Mechanical treatment activities would be restricted and/or controlled during high soil moisture conditions. The specific restrictions needed would depend on the type of equipment being used and on the condition of the area at the time (e.g. if the ground is covered with slash, some equipment use may be allowed). The type of restrictions applied by the project administrator may include: allowing several days of drying after precipitation prior to resuming activities; restricting motorized equipment to skid trails; or limiting operations to loading and hauling. All applicable BMPs would be implemented to prevent the concentration of waterflows that could increase rill and gully formation.

No new landings would be constructed within RCAs. No existing landing within an RCA would be used if unstable. After use, landings would be scarified, shaped, and ditched as needed to minimize soil displacement, and facilitate revegetation; and replanted.

Wet areas or seeps would be avoided by, and buffered from, all mechanical and fuels treatment activities. Consultation with a geologist or hydrologist would be conducted prior to implementation to assure that hydrological functioning is maintained.

For seasonal streams the RCA would be 150 feet on each side of the stream. Mechanical treatments are allowed in the outer 100 feet of the RCA. The “arm” of a feller buncher (or similar equipment) may be extended into the inner 50 feet to remove trees. Skid trails would not be constructed within RCAs, although some existing trails may be used within RCAs where construction of an additional trail would result in additional disturbance. Equipment would be excluded where slopes within or adjacent to the RCA exceed 30 percent, and within the inner 50 feet of stream RCAs. Designated streamcourse crossings would be agreed to by the project administrator and the operator prior to construction or use. No pile burning would occur within the inner 50 feet of RCAs. Underburning may occur in RCAs as long as fire is allowed to back down toward the stream, and no ignition occurs within riparian vegetation. Constructing of hand

lines will be avoided within the RCA; however if needed to control the fire, then hand lines should be raked over to cover bare soil and reduce runoff.

For perennial streams the RCA would be 300 feet on either side. When the stream or portions of the stream course is within the inner gorge area (adjacent to slopes greater than 70% gradient), then the top of the inner gorge (as defined by the geomorphology map) would define the RCA. No ground disturbing activities or pile burning would occur within the RCA except hand cutting of vegetation. Underburning would occur within the Steely Fork Cosumnes RCA. The fire would back down toward the stream, no ignition would occur (except that necessary to maintain control of the underburn) within the RCA and burning would occur under high fuel moisture conditions.

J. Transportation

The primary access into the area is via the El Dorado County road system of Caldor Railroad Grade (9N45), 9N65, and Grizzly/Caldor Road (9N73). Access to unit 291 is dependent on the Forest Service acquiring rights of way from private landowners. No new road construction needs have been identified. Short temporary roads (low standard roads, which are obliterated after use) may be needed where landings are located away from existing roads. No temporary roads would be constructed within RCAs without consultation with a hydrologist and all nonsystem roads would be obliterated. Maintenance of system roads used by this project would generally consist of the following:

Brushing - Cut and prune brush and small trees along roads 9N65, 9N65A, 9N65B, 9N65C, 9N65D, 9N65E, 9N45, 9N61, and portions of 9N59. Dispose of slash by chipping, scattering, or piling and burning.

Drainage - Existing ditches and culverts would be cleaned out. Additional dips or waterbars would be constructed as needed. Road surfaces would be bladed and compacted.

Dust Abatement and Water Drafting - Water would be used on native surface roads to maintain surface fines, minimize fugitive dust, and maintain surface compaction. Existing water holes, and other sites such as ponds, lakes, or streams, used for water drafting would be inspected by a fisheries biologist or hydrologist for existing amphibians and flow levels prior to use. A Forest Service approved screen covered drafting box, or other device to create a low entry velocity (RCO #4, SNFP ROD p. A-56), would be used while drafting to minimize removal of aquatic species, including juvenile fish, amphibian egg masses, and tadpoles from aquatic habitats. Drafting would be from the deepest water source, near the bottom. The fisheries biologist would be notified if any type of water additive would be applied to roads.

Skid Trails - The project administrator would approve skid trail systems in each unit. Existing skid trails would be used if appropriate, to limit the extent of additional soil compaction. Erosion control measures would be constructed after completing operations in each unit. Skid roads and landings would be ripped or subsoiled, and/or mulched with slash or weed free straw, to alleviate soil compaction and erosion problems, restore infiltration, and discourage OHV use. Culverts would be assessed for proper functioning prior to road closures.

Closure - The transportation analysis and road closure plan identified seven roads that should be closed to travel (maintenance level 1), but are currently open to vehicle traffic. These roads would be stabilized by waterbarring or other erosion control measures to assure proper drainage, and closed to vehicle traffic by gates, guardrail barricades, boulders and/or obliteration.

Road Closure Table

Road Designator	Current Status	Proposed Status	Method of Closure	Coordinating Requirements
9N57	Open	Closed	2 Gates	Remove gates on 9N57A & 9N57B
9N57A	Closed	Decommission	Berm	Replace gate with berm
9N57B	Closed	Decommission	Berm	Replace gate with berm
9N59B	Open	Decommission	Berm	
9N61A	Closed	Decommission	Gate	Decommission after project
9N73B	Open	Decommission	Gate	Decommission portion of road behind gate
9N73C	Open	Decommission	Berm	

Waterholes - Two waterholes would be reconstructed: Waterhole located off 9N57 – rehabilitate the spring adjacent to the waterhole, restore the stream channel above, adjacent, and below the waterhole, install an outlet in the waterhole, rock the loading pad, and install a barrier near the stream channel to prevent vehicle entry. Drafting site on the Steely Fork of the Cosumnes (located off 9N59) – obliterate the portion of the road north of the Steely Fork that is on the National Forest; barricade either end of the road; remove the cement crossing at the drafting site; restrict vehicle access at the drafting site and parking area next to the river.

Alternative Two – No Action

No actions would be initiated for treatment of vegetation on National Forest System lands in the analysis area. Current management practices, such as road maintenance, firewood cutting, and fire suppression, would continue. Public scoping and education programs have been initiated in the Grizzly Flat area, in conjunction with the CDF and the El Dorado County Fire Safe Council. Increased fuels treatments on private lands are anticipated as an indirect result.

IV. AFFECTED ENVIRONMENT

Existing Habitat Conditions

The following table shows existing land allocations under the Framework and existing conditions for areas proposed for treatment. Measurements were obtained utilizing the Forest Vegetation Simulator Model, Eldorado National Forest 2000 existing vegetation data, aerial photos and ocular estimates. Stand exams were conducted primarily for thinning units as reflected in the table below.

Existing Stand Characteristics within Proposed Units

Unit	Acres	Watershed	Timber Strata	Defense Overlap	Threat Overlap	Trees Per Acre >6”	Basal Area	QMD >6” dbh	QDM Dom + Co-Dom	SDI	Canopy Cover
121	158	Upper Steely/Clear	M3N	74	84	---	---	---	---	---	35
144	25	L L Middle	M3P	9	16	---	---	---	---	---	20
146	24	L L Middle	M3P	24	---	---	---	---	---	---	25
148	16	Dogtown	M3P	---	16	---	---	---	---	---	36
150	7	Dogtown	M4G	---	7	---	---	---	---	---	71
169	30	Lower Steely	M4P	30	---	65	160	21	26	38	55
227	24	Clear	M3N	24	---	198	290	16	23	77	65
228	61	Upper Steely	M3G	5	56	232	280	15	24	75	65
229	8	Lower Steely	Brush	8	---	---	---	---	---	---	---
230	28	Clear	M3N	28	---	166	213	15	22	56	70
231	9	Clear	M3N	9	---	204	307	17	25	90	66
232	20	Lower Steely	M3G	18	2	215	195	13	21	57	65
234	15	Clear	M3N	15	---	342	227	11	23	64	65
237	25	Lower Steely	M4N	25	---	160	150	23	26	40	60
246	17	Lower Steely	M3N	17	---	177	227	15	26	71	60
247	9	Lower Steely	M4G	9	---	217	373	17	31	100	70
248	44	Lower Steely	M4N	44	---	120	200	15	26	72	60
250	11	Lower Steely	M3N	11	---	358	373	14	23	114	55
254	54	Lower Steely	M4P	54	---	125	195	17	25	50	60
255	3	Lower Steely	M4N	3	---	82	180	20	26	46	50
256	24	Lower Steely	M4N	24	---	160	150	23	26	40	50
257	8	Lower Steely	M3P	8	---	---	---	---	---	---	---
259	30	Lower Steely	M3P	30	---	120	256	15	26	----	60
263	25	Lower Steely	M4N	25	---	306	293	13	23	85	55
264	14	Clear	M3N	---	14	300	230	11	23	50	50
268	14	Lower Steely	M3N	14	---	181	260	16	20	---	60
269	37	Lower Steely	M4N	37	---	61	160	21	27	42	45
274	11	Lower Steely	M3N	11	---	180	340	15	23	92	65
275	10	Lower Steely	M3N	10	---	20	180	20	23.8	68	60
277	26	Lower Steely	M3N	26	---	261	211	12	21	70	65
290	34	Lower Steely	M3G/M3N	---	34	17	169	17	19	----	70
291	64	Lower Steely	M3G	64	---	215	275	15	21	78	70
292	48	Lower Steely	M3G	48	---	313	270	12	16	80	80
293	22	Lower Steely	M3N	22	---	200	220	14	27	----	50
296	48	Lower Steely	M3N	48	---	142	220	17	21	59	49
297	14	Lower Steely	M4N	14	---	52	187	26	29	49	48
298	24	Lower Steely	M4N	24	---	79	211	22	27	54	50
299	44	Lower Steely	M4N	44	---	274	300	14	27	94	60
300	47	Lower Steely	M4N	47	---	---	---	---	---	---	55
301	21	Lower Steely	M4N/M3N	21	---	---	---	---	---	---	60
302	155	Lower Steely	M4G/M3G	104	51	---	---	---	---	---	50
303	110	Lower Steely	M3G	30	80	---	---	---	---	---	60
304	66	Lower Steely	M4G/M3G	---	66	---	---	---	---	---	75
544	15	Lower Steely	M3N	15	---	---	---	---	---	---	60
616	56	Lower Steely	M4G	40	16	---	---	---	---	---	75
623	55	Lower Steely	M4G	28	27	---	---	---	---	---	77
646	101	Lower Steely	M4G/M3G	73	28	---	---	---	---	---	70

California Spotted Owl

Appendix B (Species Accounts) in the project file. summarizes information about population and habitat status of the California spotted owl, including its status on the Eldorado National Forest, and provides a brief summary of life history information. The SNFPA ROD has specific direction in regards to the California Spotted Owl as described in Section II and Appendix A in the project file. The Proposed Action meets standard and guideline requirements for the California spotted owl in the following manner:

Surveys - Surveys will be conducted in the field season of 2003 following the Forest Service Pacific Southwest Spotted Owl Protocol prior to contract advertisement to determine current activity centers for the PACS. As a result of past surveys, four PACs have been delineated within the area and nine PACs occur within two miles of the project boundary. Coordination between the Leoni Meadow landowner and the Forest Service has not resulted in identification of any additional spotted owls in the area on private land that would be affected by the Last Chance Fuels Reduction Project.

Survey Status for Potentially Affected California Spotted Owl Protected Activity Centers

PAC #	First Year Detected	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
ED007	1991	P	MA,FA	NO	ND	NO	ND	ND	ND	NOIII	MA	NOIII	P
ED017	1991	P	P,2Y	NO	ND	ND	ND	ND	ND	ND	ND	ND	NOI
ED018	1991	MA	NO	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ED019	1990	P	P,1Y	P,1Y	ND	ND	NO	NOII	ND	ND	P,1Y	ND	NOI

ND-No Data/not surveyed NO- No occupancy NOI – Historical stand visited, no occupancy NOII- Two or more visits, non-protocol NOIII – Surveyed to protocol, no detection MA-Male Adult FA-Female Adult P-Pair Y-Young

PAC Designation - PACs ED007, ED018, and ED019 are within the project boundaries. PACS ED017, ED035, ED063, ED110, ED111, ED112, and ED155 are within two miles of the project boundary. No boundary adjustments are needed at this time for any of these PACs.

Home Range Core Designation - Home range core areas were designated for protected activity centers and treatment prescriptions reflect this designation where applicable. Each home range core area provides at least 1,000 acres of suitable habitat.

Avoidance of Breeding Disturbance - Limited operating periods from March 1 to August 31 have been incorporated into the project description to avoid breeding disturbance to owl pairs with activity centers that may occur within a quarter mile of project activities (PACs 007, ED017, and ED019). The activity center for PAC ED018 will not be affected by the project. These LOPs may be adjusted by the district wildlife biologist should 2003 surveys determine they no longer are needed or need shifting based on new information. Special timber sale clauses (C clauses) also enable LOPs to be placed if TES species are located in additional areas during project activities.

In addition to adherence to Framework guidelines, the Last Chance Fuels Reduction Project takes into consideration CASPO Report Factors of Concern to provide a transition from the CASPO interim guidelines and the current Framework Guidelines in regards to California spotted owl habitat components. These factors (i.e. large trees, snags) are addressed under each alternative.

Northern Goshawk

Suitable northern goshawk habitat on the Eldorado National Forest is typically found in a variety of forested habitat types, primarily mixed conifer, red fir/lodgepole pine, white fir, and conifer-hardwood habitat types. Nesting habitat requirements for goshawks are thought to be similar to those of the California spotted owl (USDA Forest Service 1993). Several studies of goshawk

ecology and conservation assessments have occurred in past years, primarily in the southwestern United States and in southeast Alaska (Reynolds et al. 1992, Iverson et al. 1996). These and other assessments suggest the importance of a large (120 - 200 acres) primary nest core area. Few studies and no comprehensive conservation assessments have been completed for the Sierra Nevada for the northern goshawk.

Recently the US Fish and Wildlife Service completed a formal review of the species and determined that the goshawk is currently well distributed throughout its historic range and that there is "no evidence that the goshawk population is declining in the western United States, that habitat is limiting the overall population, that there are any significant areas of extirpation, or that a significant curtailment of the species' habitat or range is occurring" (Federal Register 1998). The Fish and Wildlife Service further found that the goshawk appears to be a "habitat generalist in terms of the variety and age-classes of forest types it uses to meet its life history requirements" and that the "contention that the goshawk is dependent on large, unbroken tracts of old-growth and mature forest" was not supported by available information (Ibid).

Appendix B in the project file summarizes information about the current population and habitat status of the northern goshawk, including its status on the Eldorado National Forest, and provides a brief summary of life history information. The SNFPA ROD has specific direction in regards to the northern goshawk as described in Section II and Appendix B in the project file. The Proposed Action meets standard and guideline requirements for the northern goshawk in the following manner:

Surveys - Surveys will be conducted in 2003 following Pacific Southwest Northern Goshawk Protocols to determine current activity center locations. As a result of past surveys, two PACs are within the project boundary.

Survey Status for Potentially Affected Northern Goshawk Protected Activity Centers

PAC #	First Year Detected	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
G38-01	1994	ND	ND	UA	2UY	NOI	NOII	NOII	NOI	ND	ND	ND
G26-03	1983	ND	NOIII	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND-No Data/Not surveyed NOI – Historical Stand Checked, No Detections Y – Young UA – Unidentified (gender) Adult NOII-No Occupancy, ½ mile radius checked NOIII – Surveyed to Protocol, No Detections

PAC Designation - PACs G-26-01and G-238-01 occur within the project area boundaries. PAC boundary adjustments were done to expand the PACs to 200 acres of the best habitat available. Treatment prescriptions in units reflect PAC designations where applicable.

Avoidance of Breeding Disturbance - Limited operating periods from February 15 through September 31 have been incorporated into the project description for the two PACs. Special C clauses also enable LOPs to be placed if TES species are located in additional areas during project activities. These LOPs may be adjusted by the district wildlife biologist should 2003 surveys determine they no longer are needed or that the boundaries need shifting based on new information.

Fisher

Appendix B in the project file summarizes information about the current population and habitat status of the Pacific fisher, including its status on the Eldorado National Forest, and provides a brief summary of life history information. The SNFPA ROD standards and guidelines refer to the protection of den sites, maintaining suitable habitat for re-introductions, and linkages between southern and northern populations. The project occurs in an area with high landscape level fragmentation and there are no known sightings of fisher within or adjacent to the project area,

although specific surveys have not been conducted. Limited track plate surveys have occurred on the Placerville Ranger District with no detections in 1992 and 1997, or during surveys in 2001 by the Sierra Nevada Monitoring Team. The nearest possible sighting (reported sighting was unconfirmed) was on the Georgetown Ranger District, over 50 miles away, in the Stumpy Meadows Reservoir area in 1995. If fisher are detected during project activities, special C contract clauses for TES species enables protection measures to be established as applicable.

A network of potential fisher use areas (PFUAs) and potential movement corridors (PMCs) were identified based on assessment of best available habitat across the forest. PFUA C overlaps the project area. Based on the analysis in the Fisher BE, using 1991 Vegetation Inventory Maps, FUA C is comprised of 9,018 acres of which 4,089 (45%) are 4G, 752 (8%) are 4N and 3,288 (37%) are 3G/3N. FUA C currently provides close to the structural composition requirements for low capability habitat, and does not exceed the acreage maximums for sparse and open stands, to provide moderate capability habitat. This is based on the relatively high proportion of 3G stands present in FUA C. There are no PMCs within the project area. Mature hardwoods are thought to be important habitat components used by fisher (USDA 1998). Many stands within the project area contain black oak. Young oaks are experiencing conifer encroachment and over time will be out-competed by conifers, reducing or eliminating the potential to mature into large diameter oaks.

The presence of fisher in the project area is unlikely due to the high human use. Riparian areas and ridges may provide movement areas for the fisher but also are heavily roaded and receive disturbance from a multitude of human users. It has been conjectured that based upon the lack of recent sightings and results of limited systematic surveys, across the Sierra Nevada, that it is possible that fisher have been extirpated from the Sierra Nevada north of Yosemite National Park (Zielinski et al. 1997).

Pallid Bat

Habitat for the pallid bat consists of brush, hardwood and coniferous forests, and dry habitats with rocky areas for roosting below 6,000 feet elevation (Philpott 1997). Although the species has been found up to 10,000 feet elevation in the Sierra Nevada (Sherwin 19988), it is considered scarce and localized at this elevation (Barbour and Davis 1969). Pallid bats prefer day roosts where they can conceal themselves from view, such as rock crevices, tree hollows, mines, caves, and a variety of human-made structures (Ibid). Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and sequoias, and bole cavities in oaks (Sherwin 1998). There is a strong association with roosting in black oak cavities (Pierson 1996).

No surveys for the pallid bat have been conducted, and the distribution of this species on the Forest is unknown with the exception of 2001 and 2002 bat inventories conducted by the Sierra Nevada Framework monitoring crew. Pallid bats have been captured in mist nets along the Silver Fork of the American River as a result of the monitoring efforts. No pallid bats were captured at monitoring points along the Steely Fork of the American River, within the Last Chance project area. Hardwoods in the form of individual trees and scattered clumps occur within the project area. Large hardwoods, suitable for roosting, will not be removed in the project except as individual hazard trees in rare cases. Mines and scattered historical wooden buildings in the project area also provide potential habitat. In the absence of species-specific surveys, pallid bats are assumed to be present within the project area based on suitable habitat provided by black oak and man-made features in the project area.

Townsend's Big-Eared Bat

In California, this species is typically found in low desert to mid-elevation montane habitats, although sightings have been reported up to 10,800 feet (Philpott 1997, Sherwin 1998). Habitat

within the project area includes riparian communities, coniferous habitats, mid-elevation mixed conifer and mixed hardwood (black oak)-conifer forests (Kunz and Martin 1982, Brown 1996, Sherwin 1998). Pierson (1996) described the "Mother Lode" of the Sierra Nevada foothills as the primary concentration of known populations of Townsend's big-eared bat in California. Colonies of Townsend's big-eared bats are usually at least 10-12 miles apart (Zeiner et al. 1990). The project area is dotted with known and unknown mine adits and shafts, especially in the historic mining district of Henry's Diggings, providing potential roosting habitat and hibernating sites. The species will also utilize buildings, tunnels and bridges for roosting (Verner and Boss 1980), which occur throughout the project area.

No surveys for the Townsend's big-eared bat have been conducted, with the exception of 2001 and 2002 bat inventories conducted by the Sierra Nevada Framework monitoring crew and the distribution of this species on the Forest is unknown. Townsend big-eared bats were not captured in mist nets at any of the monitoring points on the Forest. Hardwoods in the form of individual trees and scattered clumps occur within the project area. Large hardwoods, suitable for roosting, will not be removed in the project except as individual hazard trees in rare cases. Mines and scattered historical wooden buildings in the project area also provide potential habitat. In the absence of species specific surveys, Townsend big-eared bats are assumed to be present within the project area based on suitable habitat provided by the black oak and man-made features in the project area, especially the historic mining areas.

V. EFFECTS ON SPECIES AND HABITAT

Effects Common to all Species – No Action Alternative

Treatment under the Last Chance Fuels Reduction project would alter the habitat components as they currently exist in the units, whereas, the No Action Alternative would maintain these conditions in the short-term until natural succession or stand altering events occur. No projects such as landing and riparian restoration, road closure or noxious weed removal would occur under this project leaving habitat conditions as they currently are in the short-term and worsening in the long-term with continued erosion and spread of noxious weeds, further degrading habitat value for wildlife. Factors of concern for spotted owl are also listed here as they also apply to northern goshawk, fisher, and pallid bat in regards to similar habitat needs. Effects to these factors under the No Action Alternative are described below.

- **Abundance of large, old trees**
  These would increase slowly over time, with future roadside and special use permit facility hazard tree removal slightly impacting this factor.
- **Long Recovery Period of Habitat**
  There would be no recovery period associated with activities of this alternative. Existing canopy closures and placement of forested stands would continue as they are in the short-term. Natural succession and indirect human activity would alter the vegetation in the area over time. However, in the event of a stand replacing wildfire, caused by human activity or natural causes, habitat recovery would take hundreds of years.
- **Ingrowth of Shade Tolerant Trees and Build-up of Surface Fuels**
  These factors would continue the present pattern of shifting toward shade tolerant species, and increasing the build-up of surface fuels. The area currently is highly vulnerable to stand-replacing wildfires due to the urban intermix and recreational use in the area. Ingrowth of shade tolerant trees would also continue to contribute to the understory canopy closure of individual stands.

- **Abundance of Large Diameter Logs and Decline in Snag Densities**
  These elements would be slowly recruited over time, through natural recruitment of live trees to snags and downed logs. This slow process would be offset by a similar loss of snags and logs through natural processes (decay), and human use such as fuelwood and campfire wood gathering, timber poaching, and to a lesser extent, hazard tree removal. The net expected result would be similar quantities of snags and logs through time assuming the lack of wildfire and prescribed fire. Where wildfire, and to an extent, prescribed fire occurs in the future, large diameter logs are likely to be substantially reduced due to heavy fuel loading. While increases in snag creation from wildfire may offset this loss of logs, it will likely be at the expense of live, large, old trees.

- **Disturbance to duff and topsoil**
  Even though no ground disturbing equipment from the project will occur, it is anticipated that these factors would continue to decline due to the increase of illegal off-highway vehicle use in the area. In addition public fuelwood gathering, hazard tree removal, and special use facility permit maintenance would also continue to occur both on and off designated roads. In the event of wildfire, and to an extent, prescribed fire, duff consumption could be moderate to heavy given the existing fuel loading. Where duff consumption is high, soil hydrophobicity may occur and if consumption occurs over large contiguous areas, soil organisms could be substantially affected. Future soil recruitment from late-stage decaying logs would also be lost if logs are consumed during wildfire. Additional recruitment from recently killed trees would not compensate for the loss of this stage of log for decades.

- **Change in Tree Species Composition**
  This factor would continue to change toward stands with more fir and incense cedar and fewer pines and oaks, reducing the structural diversity in stands. This would increase the risk of stand-destroying fire in areas of heavy fuels. On ridgetops, small wildfires (from lightning) could potentially reduce thickets of conifers and enable existing hardwood stands to rejuvenate once competition from conifers is reduced.

Spotted Owl

Indirect, Direct and Cumulative Effects

There are no activities related to this project therefore, there will be no direct effects to the spotted owl or its habitat. The risk of increased conifer mortality from insect infestations and stand-replacing wildfires would not be reduced, and could result in future indirect effects to spotted owl habitat. These effects could be short-term and slight in the case of light drought-related conifer mortality or long-term and substantial in the case of stand-replacing wildfire. Assuming continued fire suppression and the lack of understory prescribed burning, most forest stands in the project area would continue to develop dense stand structures due to the ingrowth of shade tolerant white fir and incense cedar. In the short-term, this may create habitat conditions more favorable for species, which prefer closed-canopied forests, such as the spotted owl, although as stand density increases the stand becomes more susceptible to stand replacing crown fires.

Since there would be no activities, this alternative would not contribute toward any adverse cumulative effects related to disturbance of individuals or habitat, assuming that a stand-replacing wildfire or drought-related stand degeneration does not occur. However, it would also not aid in cumulative effects from other projects such as Ridgerunner and Simpson in reducing wildfire threat, overstocking of stands or increasing hardwoods, large trees, and future large snags and down logs.

Alternative Conclusion

The No Action Alternative will not directly affect the suitability of spotted owl habitat within the project area and will have no direct effect on the spotted owl. Since fuel levels within the project area will not be reduced under the No Action Alternative, future wildfires may be of sufficient intensity to result in habitat loss, which could result in the effective removal of habitat and reproductive potential for an extended period. Since the occurrence, extent and intensity of future wildfires cannot be accurately predicted it is not possible to quantitatively predict the effects on spotted owls. However, it is not likely that a wildfire in this project area, in and of itself, would lead to a trend toward federal listing or loss of viability due to the Sierra Nevada-wide distribution of the species.

Northern Goshawk

Indirect, Direct and Cumulative Effects

Since key nesting habitat elements required by goshawks are thought to be similar to those for the California spotted owl (USDA Forest Service 1993), the effects of the No Action Alternative would be similar to those described for spotted owls.

Alternative Conclusion

The No Action Alternative would not directly affect suitable goshawk habitat and would not directly affect the species, assuming that the fuel conditions do not lead to a stand-replacing wildfire. In the event of a stand-replacing wildfire in the future, reproductive potential for the area would be lost for more than 80 years. As for the northern goshawk, it is expected that a wildfire in the project area, in and of itself, would not lead to a trend toward federal listing or loss of viability for goshawks across the Eldorado National Forest.

Pacific Fisher

Indirect, Direct and Cumulative Effects

The No Action Alternative will not remove habitat components or reduce habitat quality for these species. The risk of increased mortality from insect infestations and stand-replacing wildfires would not be reduced, which could cause future indirect effects to potential habitat. These effects are not directly quantifiable since they depend upon future conditions of climate and natural and human caused fire ignitions. As described under effects to all species, a wildfire could remove habitat capability for a prolonged period. This alternative would not add to cumulative effects in terms of road density reduction or hardwood enhancement as has been initiated with similar projects such as Ridgerunner Forest Health Project.

Alternative Conclusion

The No Action alternative would not directly affect habitat characteristics and would not directly affect the species, assuming the absence of a stand-replacing wildfire. It is not expected that a wildfire in the project area, in and of itself, would lead to a trend toward federal listing or loss of viability for the fisher on the Eldorado National Forest.

Pallid Bat and Townsend's Big-Eared Bat

Indirect, Direct and Cumulative Effects

The No Action Alternative will not affect habitat components or habitat quality for this species, except to the extent that the potential for future stand-replacing wildfires remains high. The slow development or lack of development of a mature hardwood component, particularly when in competition with conifers, within the project area would perpetuate lower habitat quality. Since there would be no activities, this alternative would not directly or indirectly contribute towards

effects related to disturbance of individuals or habitat. Appendix C Cumulative Effects Table in the project file show that additional projects such as Ridgerunner have also contributed to short and long term enhancement of hardwood stands across the watersheds, however this alternative will not aid in those cumulative efforts.

Alternative Conclusion

The No Action Alternative would not directly affect the pallid bat or Townsend's big-eared bat or their habitat, assuming that the fuel conditions do not lead to a stand-replacing wildfire. In the event of a stand replacing wildfire, habitat in the form of mature hardwoods would be deficient for over 100 years. It is expected that a wildfire in the project area, in and of itself, would not lead to a trend toward federal listing or loss of species viability.

Effects Common to all Species – Proposed Action Alternative

Indirect, Direct and Cumulative Effects

This alternative was designed to follow framework guidelines and still enable commercial harvest of trees up to 30" dbh where applicable. All harvest units will follow Framework Guideline prescriptions and will use understory thinning or prescribed burning in combination with hand thinning. Understory thinning will retain the most valuable habitat components for species associated with mature forest habitat (large diameter trees, snags, logs, and moderate to high canopy closure) while making the treated stands more resilient to the effects of fire and effects related to high stand stocking. In addition, since a moderate to high canopy cover will remain and large diameter trees will be unaffected, understory thinning will not substantially increase landscape fragmentation. This alternative would remove trees from 1" to 29.9" dbh, retain 10 tons of woody material per acre and not intentionally remove snags 15+" dbh unless they posed a hazard to public safety or harvest activities. Snag management is based on currently low level of desired snags within the watersheds for wildlife.

Treatment under the Last Chance Fuels Reduction Project would alter the habitat components as they currently exist in the units. The table below shows predicted changes and residual components after project activities have been completed. Stand exam data was specifically collected for units proposed for thinning as reflected in the following table on the following page.

Stand Characteristic Changes Pre- and Post Treatment

Unit	Total Acres	Acres Thinned	Timber Strata Pre-Tx	Timber Strata Post-Tx	Trees Per Acre >6" Pre-Tx	Trees Per Acre >6" Pre-Tx	Basal Area Pre-Tx	Basal Area Post-Tx	QMD >6" dbh Pre- & Post Tx	Canopy Cover Pre-& Post Tx
121	158	---	M3N	M3N	---	---	---	---	---/---	35/---
144	25	---	M3P	M3P	---	---	---	---	---/---	20/---
146	24	---	M3P	M3P	---	---	---	---	---/---	25/---
148	16	---	M3P	M3P	---	---	---	---	---/---	36/---
150	7	---	M4G	M4G	---	---	---	---	--/---	71/---
169	30	15	M4P	M4P	65	50	160	150	21/26	55/40
227	24	11	M3N	M3N	198	70	290	190	16/23	65/55
228	61	61	M3G	M4N	232	70	280	190	15/24	65/50
229	8	---	Brush	same	---	---	---	---	---/---	--/---
230	28	8	M3N	M3N	166	70	213	165	15/25	70/50
231	9	6	M3N	M4N	204	50	307	190	17/25	66/55
232	20	17	M3G	M3N	215	87	195	180	1/21	65/50
234	15	15	M3N	M4N	342	100	227	160	11/23	65/40
237	25	10	M4N	M4N	160	---	150	140	23/26	60/50
246	17	17	M3N	M4N	177	55	227	180	15/26	60/50
247	9	5	M4G	M4N	217	---	373	200	17/31	70/60
248	44	44	M3N	M4N	120	70	200	200	15/26	60/50
250	11	6	M3N	M4N	358	90	373	200	14/23	55/45
254	54	25	M4P	M4P	125	70	195	160	17/25	60/40
255	3	3	M4N	M4N	82	50	180	160	20/26	50/40
256	24	16	M4N	M4N	160	50	150	140	23/26	50/40
257	8	---	M3P	M4P	---	---	---	---	---/---	---/---
259	30	10	M3P	M4P	120	85	256	200	15/26	60/50
263	25	20	M4N	M4N	306	92	293	200	13/23	55/45
264	14	7	M3N	M4N	300	---	230	160	11/23	50/40
268	14	7	M3N	M3N	181	97	260	200	16/20	60/50
269	37	18	M4N	M4N	61	50	160	150	21/27	45/40
274	11	6	M3N	M3N	180	100	340	200	15/23	65/50
275	10	5	M3N	M3N	20	55	180	160	20/24	60/50
277	26	26	M3N	M3N	261	75	211	180	12/21	65/55
290	34	---	M3G/M3N	M3G/M3N	17	95	169	190	17/19	70/50
291	64	64	M3G	M3N	215	90	275	190	15/21	70/50
292	48	24	M3G	M3N	313	100	270	150	12/16	80/45
293	22	20	M3N	M4N	200	60	220	190	14/27	50/40
296	48	24	M3N	M3N	142	70	220	160	17/21	49/40
297	14	7	M4N	M4N	52	45	187	180	26/29	48/40
298	24	24	M4N	M4N	79	50	211	180	22/27	50/40
299	44	40	M4N	M4N	274	55	300	195	14/27	60/45
300	47	---	M4N	M4N	---	---	---	---	---	55/---
301	21	---	M4N/M3N	M4N/M3N	---	---	---	---	---	60/---
302	155	---	M4G/M3G	M4G/M3G	---	---	---	---	---	50/---
303	110	---	M3G	M3G	---	---	---	---	---	60/---
304	66	---	M4G/M3G	M4G/M3G	---	---	---	---	---	75/---
544	15	---	M3N	M3N	---	---	---	---	---	60/---
616	56	---	M4G	M4G	---	---	---	---	---	75/---
623	55	---	M4G	M4G	---	---	---	---	---	77/---
646	101	---	M4G/M3G	M4G/M3G	---	---	---	---	---	70/---

A change in habitat quality as a result of project activities is expected. In the short-term, a reduction in foraging habitat quality may occur due to a slight reduction in canopy closure and

disturbance of the ground litter, potentially disrupting prey habitats. Research in the Sierra Nevada has indicated that California spotted owls tend to preferentially select habitats with 50% or greater canopy cover (USDA 2001). The above table indicates that about 209 acres that are currently 50% or higher will be reduced below 50% canopy cover. No units will be reduced below 40% canopy cover. Stands would be expected to recover within one to five years as new litter falls and herbaceous and shrub vegetation returns. In the long-term, the change in forest floor vegetation may increase prey habitat, particularly as pockets of shrubs provide habitat for woodrats and oaks provide habitat for flying squirrel. Canopy closure is expected to recover within 10 to 20 years, potentially quicker where young hardwoods are released from competition. Factors of concern for spotted owl are also listed here as they also apply to northern goshawk, fisher, and the pallid bat in regards to similar habitat needs. Effects to these factors under the Proposed Action Alternative are described below.

- **Abundance of large, old trees**
  These would increase slowly over time, with future roadside hazard tree removal slightly impacting this factor. No trees larger than 20" dbh (Defense Zone/PAC) will be removed, except for trees that pose a threat to public or activity related safety. Thinning of understory trees will reduce competition for resources improving health and vigor for the remaining trees, enabling them to develop faster into large, mature trees over time.

- **Ingrowth of Shade Tolerant Trees and Build-up of Surface Fuels**
  These factors would be substantially reduced; resulting in forest stands similar in structure to those likely found had fire played a recurring role in the environment. Shade tolerant understories and surface fuels will be removed, either mechanically and/or with prescribed burning. The area will be more resistant and resilient to stand replacing wildfires. Canopy cover will be reduced in stands from the removal of understory trees; however this will be compensated for in the long term as remaining conifers increase in growth with resultant canopy closure. Hardwoods released from competition with conifers will also increase in size and canopy as well as providing additional recruitment of new trees into the stands. The young oaks will contribute to an increase in understory canopy cover.

- **Abundance of Large Diameter Logs and Decline in Snag Densities**
  These elements would be slowly recruited over time, through natural recruitment of live trees to snags and downed logs. Large snags will not intentionally be removed, except where they pose a threat to safety or where necessary to enable equipment to reach thickets of small understory trees. This may result in a short-term gap in snag creation. This gap will be offset by allowing the trees in the stand to attain a larger diameter overall which will improve future snag quality. Protection and release of existing hardwoods will increase natural cavities in the area for those species dependent on this habitat component. Where thinning and machine piling occur, large snags and logs will be better protected from loss by wildfire and prescribed burning. By reducing the risk of loss to fire, snag and log sustainability over time will be improved in treated units.

- **Disturbance to duff and topsoil**
  The use of ground-based equipment will result in some disturbance to these elements. Best Management Practices for soil and water quality as well as Framework Guideline for Riparian Conservation Areas will be followed to retain ground cover and water quality. Monitoring from similar projects on the forest indicate that soil cover standards are being met utilizing BMPs. While machine piling and existing landing enhancement will result in increased area where duff and topsoil are disturbed, it will also reduce consumption levels of duff and associated heating of the topsoil from both wildfire and prescribed burning. The extent of these tradeoffs on soil organisms is generally not

known. Where duff consumption is high from prescribed burning, soil hydrophobicity may occur and if consumption occurs over large contiguous areas, soil organisms could be substantially affected. Future soil recruitment from late-stage decaying logs would also be lost if logs are consumed during fire. Additional recruitment from recently killed trees would not compensate for the loss of this decay stage of log for decades.

- **Change in Tree Species Composition**
  To the extent that overstory species composition is dominated by shade tolerant species, this trend would continue. In general, this treatment will not create openings large enough to favor widespread pine seedling establishment over large areas. Individual pine seedlings and oak seedlings and sprouts will be favored by the slight increase in sunlight to the forest floor. Where growing space is provided to young pine and oak trees, an increase in health and vigor is expected which will allow their continued growth and dominance. Future projects (thinning or the use of fire) will be required to maintain this improving trend in preferred species composition.

The project area occurs in a fragmented landscape intermixed with private timberland, residential homes and special use facilities. Continued use of the area for recreational use (i.e. OHV, group events, hiking, plinking) will maintain or increase the level of disturbance to species utilizing the area for foraging and/or nesting. Maintenance and necessary expansion of special use facilities will also add to disturbance levels and effect habitat components in site-specific areas through the removal of hazard trees and vegetation removal for road access (i.e. brushing roadsides). Forest Service activities will continue in the form of hazard tree removal along roads as needed and restoration activities for erosion control and noxious weed removal. Restoration activities identified under the Last Chance Project include riparian and landing restoration, noxious weed removal, and road closure. These activities will benefit all five species by improving movement corridors, reducing road density, and removing or reducing the threat of vegetation alteration by evasive species.

Sierra Pacific Industries will continue to harvest their lands resulting in an increase in fragmentation over the landscape and adjacent to the project area. Harvesting consists of a clearcutting prescription, planting of seedlings after harvest, and use of herbicides and pesticides to maintain survival of plantations and reduce competition from brush and other vegetation. The California Department of Forestry in coordination with Sierra Pacific Industries and local homeowner associations will continue the process of creating fuelbreaks on private land, along the ridgetops to protect local communities from wildfire. This will reduce canopy closure and ground security cover for species moving through the area. The Proposed Action Alternative will provide continuity of fuelbreaks on public lands with those on private lands, potentially increasing the effectiveness of fighting wildfire on public land and reducing loss of forested stands.

Spotted Owl

Indirect, Direct and Cumulative Effects

In addition to the general effects to all species, specific direction is provided by the Framework in regards to treatment in spotted owl and northern goshawk habitat. Framework prescriptions for each urban zone within PACs are described in the following table.

Framework Prescriptions in the Urban Intermix

Land Allocation	Mechanical Treatments	DBH Limit	Canopy Cover Reduction Limit	Canopy Cover Minimum %	Snags/Acre (based on 10 acre areas)	Down Wood (tons/acre)
Defense Zone/PAC	To 75% of stand, excluding 500' nest/roost buffer	20" excluding nest/roost buffer	20% excluding nest/roost buffer	50% excluding nest/roost buffer	4 excluding nest/roost buffer	10-20 tons excluding nest/roost buffer
Threat Zone/ PACs	Prescribed fire only outside defense zone. Inside defense zone prohibit within 500' radius of nest tree	6" by hand to protect nest/roost	N/A	N/A	N/A	N/A

Stand Characteristics in Spotted Owl Habitat Pre- and Post Treatment

Unit	Acres thinned out of total acres	Timber Strata Pre-Tx	Timber Strata Post-Tx	Trees Per Acre >6" Pre-Tx	Trees Per Acre >6" Pre-Tx	Basal Area Pre-Tx	Basal Area Post-Tx	QMD >6" dbh Pre- and Post Tx	Canopy Cover Pre-Tx	Acres in owl PAC/ Thinned	Acres in HCRA/ thinned
227	11/24	M3N	M3N	198	70	290	190	16/23	65/55	19/11	24/11
228	61/61	M3G	M4N	232	70	280	190	15/24	65/50	0/0	60/60
230	8/28	M3N	M3N	166	70	213	165	15/25	70/50	0/0	28/8
232	17/20	M3G	M3N	215	87	195	180	13/21	65/50	0/0	17/17
234	15/15	M3N	M4N	342	100	227	160	11/23	65/40	0/0	15/15
237	10/25	M4N	M4N	160	---	150	140	23/26	60/50	25/10	25/10
247	5/9	M4G	M4N	217	---	373	200	17/31	70/60	0/0	9/5
248	44/44	M3N	M4N	120	70	200	200	15/26	60/50	0/0	40/40
250	6/11	M3N	M4N	358	90	373	200	14/23	55/45	0/0	2/2
259	10/30	M3P	M4P	120	85	256	200	15/26	60/50	0/0	10/10
268	7/14	M3N	M3N	181	97	260	200	16/20	60/50	0/0	7/7
277	26/26	M3N	M3N	261	75	211	180	12/21	65/55	0/0	20/20
290	34/34	M3G/M3N	M3G/M3N	17	95	169	190	17/19	70/50	33/0	33/0
291	64/64	M3G	M3N	215	90	275	190	15/21	70/50	0/0	64/64
293	20/22	M3N	M4N	200	60	220	190	14/27	50/40	0/0	20/20
298	24/24	M4N	M4N	79	50	211	180	22/27	50/40	0/0	24/24
299	40/44	M4N	M4N	274	55	300	195	14/27	60/45	0/0	40/40
300	0/47	M4N	M4N	---	---	---	---	---	55/---	21/0	21/0
301	0/21	M4N/M3N	M4N/M3N	---	---	---	---	---	60/---	0/0	0/0
302	0/155	M4G/M3G	M4G/M3G	---	---	---	---	---	50/---	8/0	8/0
303	0/110	M3G	M3G	---	---	---	---	---	60/---	40/0	40/0
304	0/66	M4G/M3G	M4G/M3G	---	---	---	---	---	75/---	50/0	50/0
616	0/56	M4G	M4G	---	---	---	---	---	75/---	52/0	52/0
623	0/55	M4G	M4G	---	---	---	---	---	77/---	47/0	47/0
646	0/101	M4G/M3G	M4G/M3G	---	---	---	---	---	70/---	98/0	98/0

The Proposed Action Alternative will allow entry into PACs for both fuels reduction and commercial harvest to meet prescriptions for the urban defense zone. By removing both understory trees and selected trees for commercial purposes, canopy closure in thinning units within PACs will still meet Framework guidelines of 50 percent canopy cover. It is anticipated that reductions in canopy closure will be short term (5-10 years) due to an increase in oak both in the over- and understories and the increased vigor of mature conifers. Canopy coverage in the stands will continue to provide suitable foraging habitat for spotted owls and potential nesting

habitat in pockets within the stands that maintain higher canopy levels and nesting habitat substrate.

This treatment is most likely to affect PAC ED007 and ED017 as the PACs overlap the defense zone with proposed thinning occurring in these areas. No nests were detected for these pairs but several day roosts were located in the project area. Surveys for spotted owls will be done in the field season of 2003 to determine the current location of the activity centers. Activity centers will be protected as defined in Framework guidelines through close coordination with the wildlife biologist and the project implementers to insure microclimate conditions are met around existing day roosts and that LOPs are adhered to. This will include PACs ED018 and ED019 as well.

PAC	Acres Thinned	Acres Burned	Burn/Thin Acre Overlap	Total Acres	Total %PAC Thinned	Total %PAC Burned	Total %PAC Treated
ED007	11	0	0	11	3%	0%	3%
ED017	10	205	0	215	3%	68%	72%
ED018	0	0	0	0	0%	0%	0%
ED019	0	214	0	214	0%	71%	71%

No treatment will occur within PAC ED018. Treatment through burning and/or thinning will occur within the other three PACs. It is not likely that thinning of 11 acres in ED007 and 10 acres in ED017 will result in abandonment of the PAC or lowered reproductive status due to the low acreage and meeting Framework guidelines for historical and any new nest stands located during 2003 surveys.

Prescribed burning will occur within PACs ED017 and ED019. Sixty eight percent of PAC ED 017 and 71% of PAC ED019 are proposed for burning. Actual acres entered will vary by topography, season, limited operating periods, and existing fuel conditions under the burn plan. Refer to the effects common to all species for the proposed action for potential effects from prescribed burning as well as the fuels section for the Last Chance Environmental Analysis for a discussion on fuel reduction and burning in regards to proposed treatments within units. Prescribed burning and thinning will occur within HCRAs in the project boundary. Due to overlap of HCRAs with the PACs in the project area, refer to the table –Stand Characteristics in Spotted Owl Habitat Pre- and Post Treatment for overall effect to HCRA acres across the landscape for the PACs. RCAs will protect any day roosts along riparian areas with the exception of Lower Steely. Effects here however, should be minimal, if any, as no intentional lighting will occur. Fire that enters will be monitored as it backs into the riparian area from the main burn.

Past activities are shown in the Cumulative Effects Table in the project file. A supplemental analysis was conducted for the Simpson Forest Health Project to assess fragmentation on spotted owls. The analysis showed that habitat connectivity and quality has been maintained for movement of spotted owls. Prescriptions under the framework also strive to maintain characteristics important for habitat connectivity such as canopy closure and large trees. In addition, increase of the hardwood component along ridges will enhance habitat connectivity. The proposed action alternative is not expected to contribute to adverse cumulative effects in combination with any past, present, or reasonably foreseeable future projects. The use of the Framework Guidelines has provided for the maintenance of large, old trees, and associated snags and down logs, which have been identified as important elements of spotted owl habitat. Forest Service activities that are likely to result in disturbance during the nesting season will have limited operating periods. Since no PACs are expected to be rendered unsuitable as a result of this alternative and its associated adherence to Framework guidelines, there will be no change in nearest-neighbor distances between PACs in the project area and beyond the project boundaries on Forest land.

Alternative Conclusion

The Proposed Action Alternative utilizes harvest prescriptions consistent with the Framework Guidelines designed for spotted owls. This alternative, by potentially reducing wildfire through thinning and fuels treatments, may make the habitat more sustainable over time. The Proposed Action Alternative is likely to maintain future management options for the California spotted owl based on implementation of the broader scale conservation strategy provided by the Framework Guidelines. Cumulatively, less than 5% of spotted owl activity centers in the Sierra Nevada occur within the defense zone or the wildland urban intermix and will receive similar treatments (USDA 2001). Since treatments alter vegetation potentially providing suitable foraging habitat for spotted owls, the Proposed Action Alternative may affect individuals and habitat, but is not likely to lead to a trend towards federal listing or loss of viability and is likely to provide a long-term benefit to spotted owls by increasing landscape sustainability.

Northern Goshawk

Indirect, Direct and Cumulative Effects

In addition to effects described for all species, specific guidelines for spotted owl PACs in the urban defense and threat zone also apply to goshawk PACs. Two goshawk PACs occur within the project area. Units and acreage as well as PACs affected are shown in the table below.

Potentially Affected Northern Goshawk PAC Habitat

PAC	Unit	Acres thinned in PAC	Acres Burned in PAC	Timber Strata Pre- & Post Tx	Trees Acre >6" Pre-Tx	Trees Per Acre >6" Pre-Tx	Basal Area Pre-Tx	Basal Area Post-Tx	QMD >6" dbh Pre- & Post Tx	Canopy Cover Pre- & Post Tx
G38-01	232	3	0	M3G/M3N	215	87	195	180	1/21	65/50
G38-01	247	8	0	M4G/M4N	217	---	373	200	17/31	70/60
G38-01	259	7	0	M3P/M4P	120	85	256	200	15/26	60/50
G38-01	268	7	5	M3N/ M3N	181	97	260	200	16/20	60/50
G38-01	303	0	22	M3G/M3G	---	---	---	---	---/---	60/---
G26-03	303	0	47	M3G/M3G	---	---	---	---	---/---	60/---
G26-03	304	0	49	M4G/M3G	---	---	---	---	---/---	75/---

The use of Framework Guideline prescriptions will retain the components of goshawk habitat thought to be important (large diameter trees, snags, logs, and moderate to high canopy closure) to goshawk while improving stand health and making the treated stands more resilient to the effects of fire.

PAC	Acres Thinned	Acres Burned	Burn/Thin Acre Overlap	Total Acres	Total % PAC Thinned	Total % PAC Burned	Total % PAC Treated
G38-01	25	27	0	62	10%	11%	26%
G26-03	0	96	0	96	0%	45%	45%

California spotted owl PACs overlap with Northern goshawk PACs within the Last Chance project area. The overlap of acres analyzed is as follows: unit 303 – 20 acres overlap (burn)

between ED 019 and G38-01; unit 303 – 46 acres (burn) overlap between ED 019 and G26-03; and unit 304 – 46 acres (burn) overlap between ED 019 and G26-03.

Thinning within the understory will provide openings for foraging goshawks to fly through. Thinning and burning will increase herbaceous and shrub growth from decreased duff layers and increased sunlight reaching the forest floor. This in combination with increased oak production will enhance the prey base of the northern goshawk.

Surveys for goshawks will be done in the field season of 2003 to determine the current location of the activity centers. Activity centers will be protected as defined in Framework guidelines through close coordination with the wildlife biologist and the project implementers to insure microclimate conditions are met around existing day roosts and that LOPs are adhered to. As no PACs are expected to be rendered unsuitable as a result of this alternative and its adherence to Framework guidelines, there will be no change in nearest neighbor distances between PACs in the project area and beyond project boundaries on Forest land.

The project will not substantially contribute to adverse cumulative effects on goshawk in combination with any past, present, or reasonably foreseeable future projects. Thinning prescriptions will not increase landscape level fragmentation based upon the canopy closures retained and will reduce future potential cumulative effects to the extent that the potential of a future large wildfire is reduced. Other cumulative effects are similar to those described in the sections for all species and for the spotted owl.

Alternative Conclusion

The Proposed Action Alternative maintains habitat characteristics believed to be important to the goshawk. The use of the Framework Guidelines will retain large trees, moderate to high canopy closure, and large snags and down logs, while improving fire resiliency across the project area. Understory thinning is expected to improve foraging habitat conditions by opening the overstocked stands sufficiently to allow flight through the stands for foraging goshawks and by improving herbaceous vegetation within treated stands over time. Since stand altering activities would occur within and adjacent to goshawk management areas (GMAs), resulting in simplified canopy layers, a short-term reduction in canopy and activities which could result in disturbance, the Proposed Action Alternative may affect individuals, but is not likely to lead to a trend towards federal listing or loss of goshawk viability.

Pacific Fisher

Indirect, Direct and Cumulative Effects

Habitat for fisher in the form of a potential fisher use area occurs within the project area. Existing level of landscape fragmentation are currently high in the project area as described in the existing environment section. Harvest using the Framework Guidelines prescriptions will maintain the habitat attributes believed to be important to this species and may actually benefit this species in the long-term by promoting the growth of mature stand characteristics. Hardwood stands and individual trees will be protected during project implementation (USDA Forest Service 1998). Hardwoods will not be removed, except for hardwoods that are hazards to public and forest worker safety. Since surveys have not been completed, there may be a risk of disturbance to individuals and unknown denning sites; however, this risk is believed to be extremely low due to the high level of human activity, road density, and altered landscape.

The beneficial cumulative effect of road closures will decrease the road density and improve both habitat capability and potential road kill should the species be utilizing habitat in the project area. Enhancement of oaks along ridgetops and protection and restoration of riparian areas both contribute to enhancement of potential movement corridors for the species. Loss of snags in

defense zones can be compensated for by the increase in hardwood component providing additional resting platforms for the species.

The project will not substantially contribute to adverse cumulative effects on fisher in combination with any past, present, or reasonably foreseeable future projects. Considering new information on the forest-wide availability and distribution of habitat, the project will not remove habitat that appears to be critical for maintaining distribution of habitat for the species (USDA Forest Service 1994). Thinning prescriptions will not increase landscape level fragmentation based upon the canopy closures retained and will reduce future potential cumulative effects to the extent that the area of future large wildfires is reduced. Other cumulative effects are similar to those described in the sections for all species and for the spotted owl. The development of sustainable habitat with a larger hardwood component in the Proposed Action Alternative could better improve habitats for recovery efforts in the future.

Alternative Summary and Conclusion

The Proposed Action Alternative will not remove habitat identified as critical for maintaining habitat options for the fisher. Since surveys have not been completed, there is a low risk of disturbance to individuals and unknown denning sites as the species is believed to be extirpated from the Forest. Prescriptions in the Proposed Action are designed to retain and improve the current and future number of large diameter trees, snags and down logs that would maintain and provide habitat for future recovery options. Therefore, the Proposed Action Alternative may affect individuals, but is not likely to lead to a trend toward federal listing or loss of viability.

Pallid Bat and Townsend's Big-Eared Bat

Indirect, Direct and Cumulative Effects

Activities associated with this alternative may disturb individuals that may be roosting in hardwoods or in snags. The alternative does not specifically mention the removal of snags unless they pose a threat to public safety or operations, however, the retention of snags can be exempted in defense zones. If snags need to be removed, ones of highest retention value would be selected (during project layout) based on large size, degree of hollow chambers, and sloughing bark to provide preferred roosting sites. If the minimum number of snags is not retained and no coniferous snags remain it could have an adverse effect on individual colonies of bats. However, live and dead black oaks are thought to provide important roosting sites for the species (USDA 2001). Live black oaks can provide habitat for roosting bats in hollow limbs, trunks or tops as well as cracks within the bark. This allows alternate roosting areas for different members of the colony.

Understory thinning adjacent to individual roost sites may change the microclimate around individual roost trees. Smoke from prescribed burning may also disturb and displace roosting bats during active burning. Prescribed burns occurring during the day could cause displacement of bats and possible increased risk of mortality due to predation and exposure. Thinning within stands may open the stand understory sufficiently to allow for foraging where current undergrowth prevents flight.

Given the changes in forest vegetation that have been described within the Sierra Nevada over the last 100 years, it is likely that there are less mature hardwoods within mid-elevation stands than there were historically. The thinning in the Proposed Action Alternative would improve conditions within stands favoring hardwood growth and development. Appendix A the Cumulative Effects Table in the project file shows that additional projects such as Ridgerunner have also contributed to short- and long-term enhancement of hardwood stands across the watersheds. There are known mines or caves that provide habitat for the species in the project area, especially in the Henry Diggin's area. Since surveys have not occurred to detect the

presence of roost sites or maternity sites, it is not possible to determine the risk of disturbance from this project or other projects to individual colonies. Mitigations to protect heritage resources, including buildings and mines will protect potential roost sites for bats species. Given the presence of preferred roosting and maternity sites (mines, caves, and old buildings), it is possible that disturbance may occur at individual roost sites, but it is unlikely that this project would contribute to adverse cumulative effects overall across the Forest or across the species range.

Alternative Conclusion

In the absence of surveys, it is assumed that individual roost sites may occur in large hardwoods and large snags scattered throughout the project area. Timber harvest and smoke from prescribed burning may result in disturbance or temporary displacement of bats using these resources. Since most large hardwoods and large snags will not be removed, this short-term potential effect is offset by the long-term benefit of reducing the risk of a stand-replacing wildfire and enhancing stand conditions favoring the development and retention of large hardwoods. This Proposed Action Alternative may affect individual pallid bat and Townsend big-eared bats, but is not likely to lead to a trend towards federal listing or loss of viability.

VI. DETERMINATIONS

A Biological Evaluation was completed as part of the SNFPA ROD and concluded that "No sensitive species will experience impacts to its individuals or habitats with a consequence that the impact may contribute to a trend towards Federal listing or cause a loss of viability to the population or species". The ROD also provides a viability conclusion "Based on my review of the record, including the Final EIS, I believe that the old-growth strategy and specific species management prescriptions represent a balance of wildlife habitat conservation measures that considers the best available scientific information within an acceptable level of risk inherent in projecting management effects. It will provide the fish and wildlife habitat and other ecological conditions necessary to maintain well-distributed viable populations of vertebrate species in the planning areas, and maintain the diversity of plants and animals.

No Action Alternative

Based on the analysis conducted in this biological evaluation and by the Sierra Nevada Framework EIS and BE/BA, implementation of the No Action Alternative will have no effect from project activities on the following federally proposed, threatened and endangered, or Region 5 sensitive species potentially occurring on the Forest and therefore no consultation with the USFWS is required.

American bald eagle	California wolverine
Pacific fisher	Great gray owl
Valley elderberry longhorn beetle	Western red bat
American marten	Northern goshawk
Peregrine falcon	Pallid bat
Sierra Nevada red fox	Willow Flycatcher
California spotted owl	Townsend's big-eared bat

Proposed Action Alternative

1. Based on the analysis conducted in this biological evaluation and by the Sierra Nevada Framework EIS and BE/BA, implementation of the Proposed Action Alternative will have no effect from project activities on the following federally proposed, threatened and endangered,

or Region 5 sensitive species potentially occurring on the Forest and therefore no consultation with the USFWS is required.

American bald eagle
American marten
Valley elderberry longhorn beetle
Sierra Nevada red fox
Peregrine falcon
California wolverine
Great gray owl
Western red bat
Willow Flycatcher

Based on the analysis conducted in this biological evaluation and by the Sierra Nevada Framework EIS and BE/BA, implementation of the no action or proposed action alternative may affect individuals or habitat, but is not likely to result in a trend toward Federal listing or loss of viability for the following Forest Service sensitive species:

California spotted owl
Pacific fisher
Townsend's big-eared bat
Northern goshawk
Pallid bat

VII. MANAGEMENT RECOMMENDATIONS

It is recommended that the PACs that were treated on the Placerville Ranger District be monitored for at least 5 years following the vegetation (fuels) treatments to provide information about post-treatment occupancy at these sites. This will aide the district in designing future projects that occur in or near PACs. Monitoring of additional PACs on the District at similar elevations should occur to provide a comparison of occupancy rates. It is also recommended that a wildlife biologist assist in the designation of trees to be marked within the activity centers/PACs.

VIII. REFERENCES, INCLUDING LITERATURE CITED

Banci, V. 1994. Wolverine. Pages 99-127. In: L.F. Ruggiero, et al. Tech. Eds. The Scientific Basis for Conserving Forest Carnivores: American Marten, Lynx, and Wolverine in the Western United States. Gen. Tech. Rep. RM-254. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station. Ft. Collins, CO. 184 pages.

Barbour, R.W. and W.H. Davis. 1969. Bats of America. Univ. Press of Kentucky. 286 pp.

Beck, T.W. and D.L. Craig. 1991. Draft Habitat Suitability Index and Management Prescription for the Great Gray Owl in California. Unpublished Document. Nevada City, CA: Tahoe National Forest, Pacific Southwest Region, and Forest Service, U.S. Department of Agriculture.

Bombay, H.L. 1999. Scale Perspectives in Habitat Selection and Reproductive Success for Willow Flycatchers (*Empidonax traillii*) in the central Sierra Nevada, California. Masters Thesis, Calif. State Univ., Sacramento. 225 pages.

Center for Biological Diversity and Sierra Nevada Forest Protection Campaign. 2000. Petition to list the California Spotted Owl (*Strix occidentalis occidentalis*) as a threatened or endangered species. Unpublished Report.

Center for Biological Diversity and Sierra Nevada Forest Protection Campaign. 2000b. Status Review of the Southern Sierra Nevada Population of the Fisher (*Martes pennanti*). Unpublished Report.

Federal Register. 1998. Endangered and Threatened Wildlife and Plants; Notice of 12- Month Finding on a Petition to List the Northern Goshawk in the Contiguous United States West of the 100th Meridian. 63(124): 35183-35184. June 29, 1998.

Federal Register. 1999. Endangered and Threatened Wildlife and Plants; Proposed Rule to Remove the Bald Eagle in the Lower 48 States from the List of Endangered and Threatened Wildlife. Federal Register 64(128): 36453-36464. July 6, 1999.

Fowler, C. 1998. Habitat Capability Model for the Northern Goshawk. Unpublished Document. Foresthill, CA: Tahoe National Forest, Pacific Southwest Region, and Forest Service, U.S. Department of Agriculture.

Fower, C., B. Valentine, S. Sanders, and M. Stafford. 1991. Habitat Suitability Index Model: Willow Flycatcher. Unpublished Document. Nevada City, CA: Tahoe National Forest, Pacific Southwest Region, and Forest Service, U.S. Department of Agriculture.

Freel, M. 1991. A Literature Review for Management for the Marten and Fisher on National Forests in California. Unpublished Document. San Francisco, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

Hunsaker, C.T., B.B. Boroski, G.N. Steger, and J. Verner. In Press. Relations Between Occurrence and Productivity of California spotted owls and canopy cover.

Iverson, G.C., G.D. Hayward, K. Titus, E. Degayner, R.E. Lowell, D.C. Crocker-Bedford, P.F. Schempf and J. Lindell. 1996. Conservation Assessment for the Northern Goshawk in Southeast Alaska.Gen. Tech. Rep. PNW-GTR-387. Portland, OR: Pacific Northwest Research Station, Forest Service, U.S. Department of Agriculture.

Kaczynski, V. 1994. Wildfire Impacts on Stream Habitats. Prescribed Burning Issues and Notes. Oregon Department of Forestry, November, Vol. 4(1).

Keanne, J. 1999. Ecology of the Northern Goshawk in the Sierra Nevada, California. PhD. Dissertation. Univ. of Calif., Davis.

Maurer, J. 2000. Nesting Habitat and Prey Relations of the Northern Goshawk in Yosemite Park, California. J. of Herpetology, Vol. 33, No. 4, pp. 615-624.

Mayer, K. and W. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. California State Resources Agency. In cooperation with USDA Forest Service, Pacific Southwest Forest and Range Experiment Station. California Department of Fish and Game, Pacific Gas and Electric, and USDA Forest Service Region 5.

Person, E. 1996. Presentations at the Northern California Mine Assessment for Bats Seminar. Redding, California.

Philpott, W. 1997. Summaries of the Life Histories of California Bat Species. Unpublished Document. Pineridge Ranger District, Sierra National Forest, Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

Reynolds, R.T., R.T. Graham, M.H. Reiser, R.L. Bassett, P.L. Kennedy, D.A. Boyce Jr., G. Goodwin, R., R, Smith and E.L. Fisher. 1992. Management Recommendations for the Northern Goshawk in the Southwestern United States. Fort Collins. CO: Rocky Mountain Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture.

Rood, J. 2001. Pers. Comm. District Archaeologist, Eldorado National Forest, and Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

Ruggierro, L.F., K.B. Aubry, S.W. Buskirk, L.J. Lyon, and W.J. Zielinski, Tech. Eds. 1994. The Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx and Wolverine in the Western United States. Gen. Tech. Rep. RM-254. Ft. Collins, CO: Rocky Mountain Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture.

Schempf, P.F. and M. White. 1977. Status of Six Furbearer Populations in the Mountains of Northern California. San Francisco, CA: California Region, Forest Service, U.S. Department of Agriculture.

Sherwin, R. 1988. Presentation of the Western Bat Working Group Workshop, Reno.NV.

Sierra Nevada Ecosystem Project. 1996. Status of the Sierra Nevada: Sierra Nevada Ecosystem Project Final Report to Congress. Davis, CA. University of California, Centers for Water and Wildland Resources. USDA Forest Service. 1988. Land and Resource Management Plan, Eldorado National Forest. San Francisco, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

USDA Forest Service. 1991. Protocol for Surveying for Spotted Owls in Proposed Management Activity Centers and Habitat Conservation Areas. Unpublished Document. San Francisco, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture. 3/12/91.

USDA Forest Service. 1991b. Forest Service Manual 2672, Amendment No. 2600-91-5: Wildlife, Fish and Sensitive Plant Habitat Management; Planning for Management and Recovery. Forest Service, U.S. Department of Agriculture.

USDA Forest Service. 1992a. Revised Guide

USDA Forest Service. 1993. California Spotted Owl Sierran Province Interim Guidelines Environmental Assessment. San Francisco, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

USDA Forest Service. 1994. Biological Evaluation of Habitat Requirements for Fisher on the Eldorado National Forest in Relation to Twenty-Four Sold Timber Sales. Placerville, CA: Eldorado National Forest, Pacific Southwest Region, and Forest Service, U.S. Department of Agriculture.

USDA Forest Service. 1995. Managing California Spotted Owl Habitat in the Sierra Nevada National Forests of California: An Ecosystem Approach, Draft Environmental Impact Statement. San Francisco, CA: Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

USDA Forest Service. 1995b. Marten Habitat. Unpublished Paper. Placerville, CA: Eldorado National Forest, Pacific Southwest Region, and Forest Service, U.S. Department of Agriculture. May 12, 1995.USDA Forest Service. 1998d. Species Accounts for the Townsend's Big-Eared Bat and Western Red Bat. Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.

USDA Forest Service. 1999. Bald Eagle Management Plan (draft). Pollock Pines, CA: Eldorado National Forest, Pacific Southwest Region, U.S. Department of Agriculture.

USDA Forest Service, January 2001. Sierra Nevada Framework Environmental Impact Statement Record of Decision. Pacific Southwest Region, U.S. Department of Agriculture.

USDA Forest Service. 2003. Sensitive, Threatened, Proposed and Endangered Species Maps and Files and Related Project Files. Eldorado National Forest, Pacific Southwest Region, Forest Service, U.S. Department of Agriculture. USDI Fish and Wildlife Service. 2003. Quarterly Species List for the Eldorado National Forest. http://sacramento.fws.gov/es/spp_lists/NFActionPage.cfm

Verner, J., K.S. McKelvet, B.R. Noon, R.J. Gutierrez, G.I. Gould, Jr., and T.W. Beck. 1992. The California Spotted Owl: A Technical Assessment of Its Current Status. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture. Wilderness

Research Institute. 1980. Peregrine Falcon Nesting Habitat Survey in the Eldorado National Forest –1980. Wilderness Research Institute, Inc., Sebastopol, CA.

Zielinski, W.J., R.L. Turex, C.V. Ogan, and K. Busse. 1997. Detection Surveys for Fishers and American Martens in California, 1989-1994: Summary and Interpretations. *In*: Goulx, H.N. Bryant, and P.M. Woodard (Eds.), *Martes*: Taxonomy, Ecology, and Management (pp. 372-292). Edmonton, Alberta, Canada: Provincial Museum of Alberta.