

**Biological Evaluation and Biological Assessment:
McKenzie Ranch Fuel Reduction Project**

Threatened, Endangered, Proposed and Sensitive Species

**Hume Lake Ranger District
Sequoia National Forest and
Giant Sequoia National Monument**

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Prepared by:

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Date: _____

I. INTRODUCTION

This evaluation documents analysis of the effects of the proposed McKenzie Ranch Fuels Reduction Project on Forest Service Region 5 Sensitive terrestrial animal species and provides an assessment of impacts on Federally Threatened, Endangered, or Proposed species, which may inhabit the McKenzie Ranch Project area. The project is located in the Mill Creek and Dry Creek watersheds of the Hume Lake Ranger District, Sequoia National Forest/Giant Sequoia National Monument.

It has been determined that no Threatened, Endangered, or Proposed terrestrial animal species are known or are likely to occupy the project area or be adversely affected by implementation of the proposed action or alternatives. The updated species list from the Fish and Wildlife Service (USFWS) and rationale for exclusion from further analysis for species protected under the Endangered Species Act are found in Appendix A.

Table 1 lists the Region 5 Forest Service Sensitive wildlife species that are either known to occur, or are likely to occur in or near the project area. Appendix B lists Forest Service Sensitive Species and the rationale for excluding species from further discussion.

Hume Lake Ranger District wildlife records, District fisheries and wildlife survey records, Sequoia National Forest Reptile and Amphibian Data Base, the California Natural Diversity Data Base, and species habitat requirements, and species range information from the California Wildlife Habitat Relationships database were used to develop the list of known and likely species within the project area.

| Order | Common and Scientific Names |
|--------------|---|
| Birds | Northern goshawk (<i>Accipiter gentilis</i>) |
| | California spotted owl (<i>Strix occidentalis occidentalis</i>) |
| Mammals | Pacific Fisher (<i>Martes pennanti pacifica</i>) |

II. CONSULTATION TO DATE

Consultation with the Fish and Wildlife Service is not required. No federally threatened, endangered or proposed species would be affected by this project.

III. CURRENT SPECIES MANAGEMENT DIRECTION

Direction for sensitive species management is provided in the Forest Service Manual (FSM 2672.1), and the Sequoia Forest Land and Resource Management Plan (LRMP) (USDA 1988) as amended by the Sierra Nevada Forest Plan Amendment (SNFPA 2001). Guidance is also provided by the 2000 Presidential Proclamation establishing the Giant Sequoia National Monument and the Sequoia National Forest Mediated Settlement Agreement (MSA; USDA 1990). Forest Service manual direction ensures through the Biological Evaluation/Assessment (BE/BA) process that all Federally Threatened, Endangered, Proposed, and Regional Sensitive species receive full consideration in relation to proposed activities.

Direction to maintain the viability of Region 5 Sensitive Species is provided by the National Forest Management Act, the Code of Federal Regulations (CFR 219.19), the Forest Service Manual (FSM 2672), the Sequoia National Forest Land and Resource Management Plan (LRMP) as amended by the Sierra

Nevada Forest Plan Amendment (2001). The LRMP provides general direction to utilize administrative measures to protect and improve endangered, threatened, and sensitive wildlife species.

Both the McKenzie and Ranch areas are within identified Wildland Urban Interface (WUI) defense or threat zones. The 2001 Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement classified both areas as within the Southern Sierra Fisher Conservation Area, with direction to manage habitat consistent with the standards and guidelines for old forest emphasis.

IV. DESCRIPTION OF ALTERNATIVES

Alternative A – No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. No thinning of small and intermediate size trees in the general forest and plantations or prescribed burning would be implemented to accomplish project goals.

Alternative B – Proposed Action

The Sequoia National Forest, Hume Lake Ranger District proposes to reduce fuels on approximately 975 acres of McKenzie Ridge and 313 acres in the Ranch area. An estimated 604 acres of the McKenzie portion (Table 2) and all 313 acres of the Ranch portion (Table 3) would be mechanically treated. Portions of the McKenzie area would also be prescribed burned as two or three units totaling 726 acres. This would occur across both the mechanically treated and untreated areas in order to begin restoring the natural fire cycle.

Table 2 - McKenzie Area Units

| Stand Number | Acres | | | Predominant Vegetation |
|---------------------------|-----------|-------------------------|----------------|--------------------------------------|
| | Masticate | Masticate and Underburn | Underburn Only | |
| 115-2 | | 16 | | Pine plantation (pl. 1956) |
| 115-3 | | 27 | | Pine plantation (pl. 1956) |
| 115-4 | | 72 | | Pine plantation (pl. 1956) |
| 115-25 | 68 | | | Conifers and oaks |
| 115-26 | 20 | | | Brush |
| 115-27 | 19 | | | Brush |
| 115-28 | 103 | | | Conifers |
| 115-29 | 13 | | | Conifers and oaks |
| 115-30 | 26 | | | Brush and pine plantation (pl. 1957) |
| 115-31 | | 81 | | Pine plantation (pl. 1956) |
| 115-32 | | 41 | | Conifers and brush |
| 115-33 | | 14 | | Oaks |
| 115-34 | | 104 | | Conifers |
| Outside of current stands | | | 371 | Brush, conifers, and oaks |
| Total | 249 | 355 | 371 | |

In plantations and natural stands where equipment can operate safely, dense small trees and brush would be ground up using a masticating attachment on an excavator or similar machine. A tractor may be used to crush and pile brushy areas. The largest conifers and oaks would be left to grow. To help maintain vegetation heterogeneity and wildlife habitat, clumps of vegetation totaling about ten percent of the area would not be treated. Some stands would also be under-burned to reduce surface and ladder fuels. Plantations in these stands were established after the 1955 McGee wildfire and are now large enough to be under-burned after the existing ladder fuels are mechanically treated. Areas too steep or rocky to masticate would also be under-burned. These treatments would occur over a two to three year period. No trees would be logged or removed from the sites. Once these initial fuel treatments take place, it is anticipated that future fuel treatment needs could be periodically accomplished by under-burning alone, under conditions resembling a natural fire regime for this area.

Thinning would reduce average stocking on conifer sites from about 125 trees to 75 trees per acre. The residual stands would be at about one half of full stocking, instead of the current 80%. The thinning and brush treatment would increase tree growth and vigor, reduce susceptibility to bark beetles, diseases, and wildfire, increase understory tree and shrub diversity, and restore old forest habitat more quickly. Growth after thinning should restore stocking density levels to what they are today in about 20 years. Stands would be fully stocked in 30 to 35 years (Meyer 1938).

Table 3 - Ranch Area Units

| Stand | Unit | Acres | Year Planted |
|---------|-------------------|---------------|--------------|
| 114-1 | Hyde salv 1 | 2 | 92 |
| 114-16 | Dry 16 | 14 | 89 |
| 114-188 | Pebble 8 | 3 | 76 |
| 114-191 | Ranch 2 | 8 | 81,94 |
| 114-192 | Ranch 3 | 7 | 81,94,96,00 |
| 114-193 | Ranch 4 | 7 | 81, |
| 114-196 | Ranch 7 | 5 of 9 | 81,96 |
| 114-197 | Ranch 8 | 10 | 81,96 |
| 114-198 | Pebble 1 | 25 | 71 |
| 114-199 | Pebble 4 | 9 | 72 |
| 114-2 | Dry 2 | 12 | 87,88,89 |
| 114-203 | Hyde ins salv 7 | 2 | 93 |
| 114-226 | Grouse ins salv 2 | 2 | 95 |
| 114-23 | Redhill 3 | 54 | 99 |
| 114-24 | Redhill 4 | 22 | 99 |
| 114-288 | Dry-eshom 188 | Est. 8 of 254 | NA |
| 114-3 | Dry 3 | 40 | 89 |
| 114-34 | Ranch add on | 4 | 96,01 |
| 114-38 | Ranch add on | 4 | 96,01 |
| 114-39 | Ranch add on | 7 | 96,01 |
| 114-40 | Redhill | 9 | 96 |
| 114-41 | Redhill 2 | 8 | 96 |
| 114-6 | Dry 6 | 9 | 87,88 |
| 114-60 | Hyde ins salv 5 | 2 | 93 |
| 114-64 | Grouse ins salv 3 | 2 | 95 |

| | | | |
|--------|-----------------|-----|-------|
| 114-66 | Holiday1 | 4 | 76 |
| 114-7 | Pebble 6 | 5 | 73 |
| 114-8 | Dry 8 | 17 | 87,88 |
| 114-85 | Hyde ins salv 6 | 2 | 93 |
| 114-9 | Dry 9 | 4 | 87,88 |
| 114-92 | Hyde ins salv 3 | 1 | 93 |
| 114-93 | Hyde ins salv 3 | 3 | 93 |
| 114-94 | Hyde ins salv | 2 | 94 |
| | | 313 | |

All fuel reduction in the Ranch area would be done within ponderosa pine plantations established between 1971 and 1999. An excavator or a small tracked machine with a masticating attachment would be used to shred small trees and brush contributing to fuel ladders. On treated areas, approximately 100 to 125 conifers and oaks per acre would remain to grow. As in the McKenzie stands, clumps of vegetation totaling about ten percent of the area would not be treated.

Ranch plantations are relatively young and generally have not reached high levels of inter-tree competition. At an average stocking of 175 trees per acre, they would not reach fully stocked conditions until about age 50 (Meyer 1938). At this time the biggest hindrance to growth and vigor is competition from the brush species growing in the plantations. Proposed shredding would temporarily reduce the volume of brush cover and permit the trees to better utilize the sites. Along with fuel reduction, these plantations would benefit from increased tree growth and vigor, and reduced susceptibility to bark beetles and diseases. Benefits would continue until fully stocked conditions would be reached at about age 60 or 65 (Meyer 1938). Because these plantations are relatively young, the smaller trees are more susceptible to damage from prescribed fire. Therefore, one more mechanical fuel treatment, in about 20 years, may be needed before controlled under-burning would be used in the Ranch stands.

These proposed treatments would be similar to the mastication of trees and brush on 175 acres in six plantations that was completed in 2005, also within the upper Dry Creek watershed. Those plantations averaged about 35 years old, and were thinned back to about 105 residual trees per acre to increase vigor and bark beetle resistance, as well as to improve wildfire resistance. Fuels reduction by shredding the Ranch units should achieve similar, successful, results. Costs should also be lower at this time, due to the younger, smaller trees and brush to be treated.

On all project areas, the coarse textured soils, as well as the use of tracked equipment would help avoid soil compaction problems. Since work would be contracted, the exact equipment used is not known at this time. But tracked equipment like posi-tracks, excavators, and small tractors have ground pressures in the range of about 3 to 11 pounds per square inch, not enough to create significant compaction. (Windell and Bradshaw 2000).

Working with shredding equipment would expose some mineral soil to possible colonization of noxious weeds like yellow starthistle and cheat grass. However, leaving shredded material on site would act as a mulch to help keep weed seeds from becoming established. Also, the contractor's equipment would be washed free of seed-contaminated soil between moves, and before entering and leaving the area, to prevent spread of weed seeds.

Wildlife Habitat – Several project design features would be implemented to protect wildlife habitat during project implementation:

- Maintain large live oaks/hardwoods and snags within units to allow natural regeneration.

- Leave approximately 10% of the area within each unit in untreated islands of 5 to 8 trees, with 6 to 8 of these clumps scattered per acre. The goal is to provide dense multi-storied canopies to begin restoring old forest habitat and to provide thermal and hiding cover for wildlife.
- Retain an additional 10% cover in preferred browse to provide a food source for deer, bear and other wildlife.
- In mixed conifer forest, snag retention guidelines would require retaining the largest snags available on site for an average of 4 of the largest trees per acre where possible. Preference would be given to retain snags that contain dead tops, existing cavities, evidence of fresh excavation by woodpeckers or other cavity-nesting birds.
- Maintain roadside screening sufficient to hide 90% of a standing deer at 100 yards from open roads and trails.

Alternative C –Hand Treatment and Burning

Alternative C responds to the issue raised during appeal to consider an alternative that uses only hand thinning treatments and no heavy equipment. Alternative C treats the same acres as Alternative B. No tracked or wheeled machinery would be used; all work would be performed by hand methods and burning. Table 4 summarizes the proposed thinning and fuel treatments. Altogether, Alternative C would hand cut 917 acres, and underburn 726 acres.

Table 4- Alternative C Treatment Acres

| Area | Hand Cut, Lop/Scatter, Hand Pile/Burn | Hand Cut, Lop/Scatter, Underburn | Prescribed Burn | Total Acres |
|-----------------------|---------------------------------------|----------------------------------|-----------------|-------------|
| McKenzie | 249 | 355 | 371 | 975 |
| Ranch | 313 | 0 | 0 | 313 |
| Total treatment acres | 562 | 355 | 371 | 1288 |

One or more hand crews would cut trees and brush that are contributing ladder and/or surface fuels into manageable pieces using chainsaws. As under Alternative B, this work would be performed by contractors, following Forest Service contract specifications. The cut material would be put into numerous piles scattered throughout the treatment units. No trees would be commercially logged or removed from the sites. To reduce the fuel loadings, the piles would be burned by Forest Service personnel at a later date under proper fuel moisture and weather conditions to meet safety and smoke standards.

On an estimated 604 acres of the McKenzie portion, trees and brush would be hand thinned, but the treated material would be lopped into manageable sizes and hand scattered, instead of piled for burning. Then the stands would be underburned to reduce the surface and ladder fuels. These areas are plantations and wild stands where the trees are older and large enough to survive underburning, due to thicker bark and higher crowns. An additional 371 acres on steeper slopes would be treated by underburning alone, the same areas as in Alternative B.

The second area, Ranch is estimated at 313 acres and is described under Alternative B (Map 2). The stands in the Ranch area are younger than those in the McKenzie area, and are more susceptible to damage from an underburn. Therefore, hand fuel treatment would include lop and scatter, piling hand piles in the open areas away from the clumps of 5 to 8 trees for forest wildlife habitat, and chipping along road ways.

Also as in Alternative B, not every spot would be treated. Approximately ten percent of the area within stands would be left in scattered clumps of 5 to 8 trees, with 6 to 8 of these clumps per acre. The goal is to provide some areas with dense, multi-storied canopies to help restore old forest wildlife habitat. In the McKenzie area, the underburning would be under prescriptions for low intensity, backing fire to minimize potential to burn up these dense clumps of vegetation for wildlife habitat.

None of the proposed activities would occur within any riparian areas in accordance with the 2001 Sierra Nevada Forest Plan Amendment and 1990 Sequoia National Forest Mediated Settlement Agreement guidelines. Equipment would also be washed prior to moving to the work site, between work sites, and after the work is completed to prevent the spread of noxious weeds.

V. EXISTING ENVIRONMENT

The McKenzie Ranch project is located in the Mill Creek and Dry Creek watersheds. Project boundaries encompass approximately 1,288 acres. The map quads of the project area are: Verplank Ridge, Miramonte and General Grant Grove.

The McKenzie portion of the project is estimated at 975 acres along State Highway 180, near McKenzie Ridge (Map 1). The vegetation in these stands is a mix of pine plantations established after the 1955 McGee wildfire, natural conifer stands, mixtures of conifers and oaks, and areas of native chaparral. This area is adjacent to and up slope of Highway 180, which increases the potential for human-caused wildfire, as happened on the nearby 2001 Highway Fire.

The second area, Ranch, is estimated at 313 acres and centered in the Dry Creek drainage, approximately two miles east of Pinehurst, California (Map 2). The action alternatives would treat live fuels and reduce inter-tree competition in conifer plantations established between 1971 and 1999. These plantations consist of small sapling to pole-sized conifers that were planted following timber sales, brushfield conversions, or bark beetle outbreaks. Trees are now beginning to compete with each other for the water and nutrients on site. There is a heavy concentration of fuels consisting mainly of chaparral brush forming fuel ladders into the treetops in these plantations.

**Table 5. Dominant Cover Types in the Mill Creek and Dry Creek Watersheds
(Analysis Area) vs. McKenzie Ranch Project Area**

| Cover Type | Current Acres | Project Area Acres * |
|-----------------------|----------------------|-----------------------------|
| Conifers | 7,113 | 651 |
| Hardwood/Oak Woodland | 3,324 | 539 |
| Shrubland | 2,214 | 63 |

*Note: The proposed project would change seral stages within habitat type but not change the dominant cover type.

SPECIES AND HABITAT ACCOUNTS

California spotted owl and Northern Goshawk

These species are addressed together since habitat requirements and effects are similar. Although these species have been shown to use a wide range of habitats, preferences for these species appear to include mature forest with large trees (greater than 40 inches dbh) and high canopy cover. Although spotted owls use large trees (> 40" dbh) preferentially for nest and roost trees, canopy cover appears to be more important than tree size at the landscape level (USDA, 2001). Preferred foraging habitat has greater than 40 percent canopy cover and nesting habitat ranges from 40 -100 percent canopy cover with habitats over 50 percent preferentially selected when available. Home ranges tend to have high numbers of large snags and down woody debris.

Spotted owls and goshawks appear to prefer forests with open flight paths below a multiple layered forest canopy. The project area, due to the lack of large trees and low canopy cover, is not an area that would be expected to support spotted owls or other species dependent on dense, mature forest conditions.

Historically occupied Protected Activity Centers (PACs) for both spotted owls and goshawks are located within a few miles of the project area. A goshawk nest was located on the east side of McKenzie Ridge in 1994. The habitat was altered by the Mill Pine Project in 1996 and is not currently suitable for goshawks. Determination of nest site and occupied territories through surveys is relatively easy. The project area has been surveyed to protocol for these species and no spotted owls or goshawks have been detected.

Pacific Fisher

Pacific fishers are mesocarnivores belonging to the mink family (Mustelidae). Fishers are habitat specialists and are considered to be among the western North American carnivore species most vulnerable to human disturbance and habitat alteration (Powell and Zielinski 1999, Zielinski et al. 2005).

In the southern Sierra Nevada, the preferred habitats include mixed conifer, ponderosa pine (*Pinus ponderosa*) and montane hardwoods. Oaks, particularly black oak (*Quercus kelloggii*) appear to be a key component of the habitat (Carroll et al. 1999, Zielinski et al. 2004a). Forest structural characteristics within fisher home ranges are strongly skewed toward mid- to late-seral stands with high canopy cover; large, cavity-forming trees are required for resting and denning habitat (Seglund 1995, Zielinski et al. 2004b, Yaeger 2005). Geographic conditions correlated with core fisher habitat in California include complex topography, steep slopes, and proximity to water (particularly in the southern Sierra Nevada) (Zielinski et al. 2004b, Carroll 2005).

Riparian corridors (Heinemeyer and Jones 1994) and forested saddles between major drainages (Buck 1983) may provide important dispersal habitat or landscape linkages for the species. Riparian areas are important to fishers because they provide concentrations of large rest site elements, such as broken top trees, snags, and coarse woody debris (Seglund 1995), perhaps because they persisted in the mesic riparian microtopography through historic fires.

Purcell, et al. (2009), studied resting structures used by Pacific fishers on an area of Sierra National Forest. They determined that canopy cover was the most important variable distinguishing areas used as rest sites by fishers. Large live trees and large snags made up the majority of the rest structures. Trees used as resting sites were often the largest available in the area. Resting sites were on steeper slopes, closer to streams and with smaller and more variable trees than random sites.

Habitat suitable for resting and denning sites is thought to be most limiting to the population; therefore, these habitats should be given more weight than foraging habitats when planning or assessing habitat management (Powell and Zielinski 1994, Zielinski et al. 2004a). Fishers generally use at least one rest site per day, and rarely reuse rest site structures (Kilpatrick and Rego 1994, Seglund 1995, Zielinski et al. 2004a). Zielinski et al. (2004a) argue that retaining and recruiting trees, snags and logs of at least 39 in. dbh, encouraging dense canopies and structural diversity, and retaining and recruiting large hardwoods are important for producing high quality fisher habitat and resting/denning sites.

Status and trend monitoring for fisher and American marten was initiated in 2002; the monitoring objective is to be able to detect a 20 percent decline in population abundance and habitat (USDA Forest Service 2006). This monitoring includes intensive sampling to detect population trends on the Sequoia National Forest. Preliminary results indicate that fishers are well-distributed in portions of the Sequoia NF; annual occupancy rates are consistently higher on the Sequoia (33.3% to 41.1%) than the Sierra National Forest (14.5% to 22.7%) (USDA Forest Service 2005). Comparisons to southern Sierra Nevada survey data from the 1990's suggest that the areal extent of occurrence for fisher may have expanded during the past 10 years (USDA Forest Service 2005). Additionally, although results may change a bit as modeling progresses by employing data subsequent to the 2002-2008 period, seven years of monitoring results suggest that there has been no conspicuous difference in occupancy rates among years (Truex et al. 2009).

The project is within the Southern Sierra Fisher Conservation Area, and fishers are known to forage within the Mill Creek and Dry Creek watersheds. The most recent detection documented tracks on McKenzie Ridge in March 2007. While the project area provides foraging habitat for fishers, it lacks the mid- to late-seral stands and high canopy cover that are required for resting and denning habitat.

Effects - California spotted owl, Northern Goshawk and Pacific Fisher

Direct and indirect effects

Alternative A (No Action)

This alternative would maintain current conditions in the short-term. It is recognized that conditions are not static and that there are limitations on sustainability of dense habitats under poor site conditions.

Density (canopy cover, basal area)

Existing basal area and canopy cover would be maintained in the short-term. Long-term effects would depend on random chance of ignition and weather conditions. Current trends appear to be toward warmer conditions that would lead to drought-related mortality and greater fire severity.

Availability of large trees (> 40" dbh); number and size of large snags (> 15" dbh);

There would be no change in availability of large trees unless influenced by a stand replacing event such as high severity fire or drought related mortality

Large (> 20" diameter at small end) down woody debris;

Crowded conditions would continue to result in high mortality and subsequent contribution to down woody debris. Logs would tend to be smaller in the absence of thinning because there are few large trees in the project area.

Multiple-layered canopies including hardwoods.

The understory would tend to remain suppressed and undeveloped until a stand replacing event. Stand

replacing events would depend on random chance on timing and severity or extent. Opportunity to increase growth of hardwood and retain suppressed hardwoods in the stand would be foregone.

Alternative B (Proposed Action)

The project would reduce canopy cover and increase tree size classes in 539 acres (Table 5) of hardwood habitat. This is 16% of the oak hardwood habitat available in the Mill Creek and Dry Creek watersheds. Vegetation management activities would have an indirect effect of improving foraging habitat for deer. A reduction in shrub ground cover and size class of 63 acres out of 2,214 acres of shrubland habitat (Table 5) would not alter the existing trend in the habitat. This alternative would result in a reduction of canopy cover and increase in tree size classes in 651 acres of conifer habitat (Table 5). This is 9% of the early and mid seral conifer habitat in the Mill Creek and Dry Creek watersheds. Therefore, the total direct effects of the McKenzie Ranch Project would be a short term reduction of canopy cover on only 10% of the existing habitat in the analysis area.

Medium to Large trees

The proposed project retains all trees over 10" dbh. This retains all large and most intermediate trees. Over the long-term this may result in periods with fewer large trees as the existing large and intermediate trees become decadent and are removed from the stand by natural events. This would be compensated to some extent by rapid growth of remaining trees after thinning, future recruitment and lower rate of loss of large trees to drought, insect attack and disease in the treated stand.

Multiple layered canopies

Alternative B would result in a focus of canopy cover in larger trees but very little low cover in small to intermediate trees. Oaks would be favored where possible to provide a diversity of cover and important food crops while reducing the potential for crown fire due to their lower flammability compared to pine and fir.

Alternative C (Hand Treatment and Burning)

The direct and indirect effects of this alternative would be the same as Alternative B except the method of treatment would cause less disturbance to wildlife and habitat at one time but the disturbance would occur over a longer time period. There would be less impact to soils because no machinery would be utilized so the risk of habitat changes for small mammals (potential prey for spotted owls, goshawks, fisher) would be less.

Wildlife Cumulative Effects

Cumulative Effects Analysis

The spatial scale for the cumulative effects of the McKenzie Ranch Project is the 12,836 acres of the Mill Creek and Dry Creek watersheds. The temporal scale for the analysis is 1998 to 2015. Five years from the present is the period of time the direct effects of the project should occur and for which there is information on reasonably foreseeable future actions in the analysis area. Below are descriptions of all actions that are included in the cumulative effects analysis.

Climate changes will likely cause changes in the distribution of individual species in the project area. The precise effects of climate change on individual species are difficult to predict and will not be addressed in the effects analysis.

Past and Current Activities

Grazing: The McKenzie Ranch area is within the Hoist/Converse and Buck Rock cattle grazing allotments. Livestock grazing of these allotments has been an ongoing activity from 1935 through present, with current stocking rates of 180 cows on Hoist/Converse and 380 cows on Buck Rock generally from May through October. The allotment management plans (AMP) allow a maximum of 50% utilization on grasses and shrubs, a level set to ensure there is sufficient forage for both deer and cattle without detriment to the health of forage and browse species. Because grazing is a past, ongoing, and foreseeable future action and because use levels and associated impacts from this activity are not expected to change as a result of implementation of the proposed action, cattle grazing activity is not expected to contribute measurable impacts to habitats.

Timber Harvest: The area of the McKenzie Project area was logged commercially under Forest Service supervision in 1996 under the Mill Pine Project. Since it falls outside the temporal scale for the analysis, its effects will not be considered.

Silviculture Treatments: A mastication of trees and brush on 175 acres in six plantations was completed in 2005, also within the upper Dry Creek watershed. Those plantations averaged about 35 years old, and were thinned back to about 105 residual trees per acre to increase vigor and bark beetle resistance, as well as to improve wildfire resistance. This treatment affected only 2% of the available coniferous forest habitat in the Dry Creek watershed.

Yellow-star Thistle Treatments: Approximately 160 acres in the Mill Creek and Dry Creek watersheds were sprayed to treat yellow-star thistle in 2005-2007. Because yellow-star thistle is already present in the project area, it is likely further treatments will be necessary.

Recreation: The McKenzie Ranch Project Area is used regularly by campers, hunters and OHV users. Forest Service Roads 13S97 and 14S43, along with State Highway 180 provide ready vehicular access. Millwood OHV area is adjacent to the project area. Because recreation is a past, ongoing, and foreseeable future action and because use levels and associated impacts from this activity are not expected to change as a result of implementation of the proposed action, recreation is not expected to contribute measurable impacts to habitats.

Potential Future Activities: Anticipated future fuel management needs in the McKenzie area will be met by periodic light under burning, starting in about 10 to 15 years. Mechanical thinning may occur again in some Ranch units, but not for 20 or more years.

Cumulative Effects Conclusion: It is anticipated that implementation of the McKenzie Ranch Project, in combination with the 2005 thinning project, would reduce canopy cover and increase tree size classes in 1,428 acres. Therefore, the cumulative effects of the McKenzie Ranch Project, in combination with past present, and reasonably foreseeable actions would lead to a short term reduction of canopy cover on 11% of the existing habitat in in the Mill Creek and Dry Creek watersheds. The long-term effects would be the creation of more diverse, multistoried habitat with larger trees, more old oaks and a greater resilience to stand replacing fires. This is anticipated to improve denning/nesting habitat for Pacific fishers, Northern goshawks and California spotted owls.

VI. DETERMINATION

This biological evaluation analyzes the potential effects of the proposed project on federally protected and Forest Service Region 5 Sensitive Species. For this analysis, it is assumed that the project mitigations as stated in section IV are incorporated into the project design.

FEDERALLY LISTED SPECIES

No federally listed species is likely to occupy the project area or be affected by implementation of the proposed action or alternatives.

REGION 5 FOREST SERVICE SENSITIVE SPECIES

California spotted owl, Northern goshawk:

It is my determination that Alternatives B and C of the McKenzie Ranch Fuels Reduction Project **may affect individuals**, but is not likely to result in a trend toward Federal listing or loss of viability of the California spotted owl or Northern goshawk. There are no known nests within the project area and surveys failed to detect either species. This project only removes smaller trees and is focused on non-breeding habitat for these species. With retention of cover for prey species, the proposed action may temporarily affect foraging habitat but is unlikely to affect reproduction or have long term adverse consequences. The long-term effects of the project would be larger trees, with greater canopy cover and resilience to stand-replacing effects.

Pacific Fisher:

The McKenzie Ranch Project area currently lacks the mid- to late-seral stands and high canopy cover that are required for fisher resting and denning habitat. While the project area contains large numbers of small trees and Purcell et al. (2009) found this common near rest sites, the area lacks large trees and snags. In addition, riparian areas, which have a greater likelihood of containing rest sites (Purcell et al. 2009) would not be treated. Based upon the knowledge that the area provides foraging but not resting or denning habitat for Pacific fishers it is my determination that Alternatives B and C **may affect individuals**, but are not likely to contribute to the need for federal listing or result in a loss of viability in the planning area. The project retains all trees over 10" dbh and would therefore not remove any potential resting trees. With retention of cover for prey species, these alternatives may temporarily affect foraging habitat but is unlikely to affect reproduction or have long term adverse consequences.

X. LITERATURE REVIEW AND CITATIONS

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| Appendix A. Federally Threatened, Endangered, & Proposed Species, Sequoia National Forest | | | | |
|--|-----------------------|--|------------------------------|---|
| Species list for Sequoia National Forest, updated via FWS web site (http://www.fws.gov/sacramento/es/spp_lists/NFFormPage.htm) | | | | |
| Report Date: 3/9/2010; Database last updated by USFWS: 12/1/2009 | | | | |
| Common Name (Scientific Name) | Listing Status | Habitat Requirements | Effects Determination | Rationale |
| Tipton kangaroo rat (<i>Dipodomys nitratoides</i>) | FE | Alkali sinks and valley floor habitat. | No effect | Project area is outside known historic range and is not suitable habitat. |
| California bighorn sheep (<i>Ovis canadensis californiana</i>) | FE | Rugged mountain areas, mostly eastern Sierra with small historic range on western edge of Kern Drainage. | No effect | Project area is located outside known historic range. |
| San Joaquin kit fox (<i>Vulpes macrotis mutica</i>) | FE | Valley floor annual grassland, alkali washes generally below 1,000'. | No effect | Project area is located outside known historic and elevation range. |
| SW Willow flycatcher (<i>Empidonax trailii extimus</i>) | FE | Riparian forest and meadow with dense willow habitat and standing water. | No effect | Project area is located outside known range of this subspecies. |
| California condor (<i>Gymnogyps californianus</i>) | FE, CH | Mountain and foothill rangeland and forest habitats; nests on cliffs and in large trees. | No effect | No roost areas, critical habitat, or historic nest areas in the project area. |
| Least Bell's vireo (<i>Vireo bellii pusillus</i>) | FE | Riparian forest. | No effect | No current or historic detections within the project area. Historic range limited to Kern Valley. |
| Blunt-nosed leopard lizard (<i>Gambelia sila</i>) | FE | Open grassland, valley floor below 1,000'. | No effect | Project area is located outside known historic and elevation range. |

Appendix A. Federally Threatened, Endangered, & Proposed Species, Sequoia National Forest

Species list for Sequoia National Forest, updated via FWS web site (http://www.fws.gov/sacramento/es/spp_lists/NFFormPage.htm)
Report Date: 3/9/2010; Database last updated by USFWS: 12/1/2009

| Common Name (Scientific Name) | Listing Status | Habitat Requirements | Effects Determination | Rationale |
|---|-----------------------|---|----------------------------------|---|
| Giant garter snake (<i>Thamnophis gigas</i>) | FT | Valley floor aquatic habitats. | No effect | Project area is located outside known historic range. |
| California red-legged frog (<i>Rana aurora draytonii</i>) | FT | Low gradient streams and ponds with emergent vegetation. | No effect | No current or historic detections within project area. |
| California tiger salamander (<i>Ambystoma californiense</i>) | FT | Annual grassland and grassy understory of valley-foothill hardwoods. Breed in vernal pools, not in streams. | No effect | Project area is located outside known historic range. |
| Delta smelt (<i>Hypomesus transpacificus</i>) | FT | Limited to San Joaquin/Sacramento Delta. | No effect | No potential effect on species because there is No outlet from project area to Delta. |
| Little Kern golden trout (<i>Oncorhynchus mykiss whitei</i>) | FT, CH | Native to cold water streams in Little Kern Drainage. | No effect | Project area is located outside known range. |
| Vernal pool fairy shrimp (<i>Branhinecta lynchi</i>) | FT | Valley floor annual grassland, alkali washes generally below 1,000'. | No effect | Project area is located outside known historic range and no contains no suitable habitat. |
| Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>) | FT | Elderberry plants with base > 1" diameter in chaparral and riparian habitats below 2,900'. | No effect | Project area is above known elevation range. |
| Kern primrose sphinx moth (<i>Euproserpinus euterpe</i>) | FT | Valley foothill, oak woodland and chaparral associated with evening primrose. Range limited to Walker Basin area. | No effect | Project area is located outside known historic range. |

FE = Federally Endangered; FT = Federally Threatened; PT = Proposed for Federal listing; CH = Designated Critical Habitat

| Appendix B. Forest Service Sensitive Animal Species in Sequoia National Forest (List Updated 10/15/2007) | | | | |
|---|---------------|---|---|---|
| Species | Status | Habitat | Effects Determination | Rationale |
| Birds | | | | |
| Northern goshawk (<i>Accipiter gentilis</i>) | FSS, CSSC | Dense mixed conifer forest to open eastside pine | may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability | See analysis and effects determination above. |
| Western yellow billed cuckoo (<i>Coccyzus americanus occidentalis</i>) | FSS, FC, SE | Dense riparian forest. On SQF, only known from Lake Isabella. | No effect | Project area outside known range and lacks suitable habitat. |
| Little Willow flycatcher (<i>Empidonax trailii brewsterii</i>) | FSS,SE | Large meadow complexes with dense willow and standing water, up to 8,000' | No effect | No detections or suitable habitat in or near the project area. |
| Bald Eagle (<i>Haliaeetus leucocephalus</i>) | FSS, SP, SE | Lakes and open water. Nests on large trees. | No effect | Winter resident along Kings River. Occasional visitor to Hume Lake. Species and habitat not impacted by the proposed action. |
| Great gray owl (<i>Strix nebulosa</i>) | FSS, SE | Large meadows & openings 2,500 – 9,000'. Dense forest and large snags for nesting. | No effect | No detections or suitable habitat in the project area. |
| California spotted owl (<i>Strix occidentalis occidentalis</i>) | FSS, CSSC | Dense forest (>40% canopy closure), preference for stands with ≥2 layers, but open enough to allow for observation and flying space to attack prey. Substantial amounts of dead woody debris are desirable. | may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability | See analysis and effects determination above. |
| Mammals | | | | |
| Pallid bat (<i>Antrozous pallidus</i>) | FSS, CSSC | Open habitats, rocky crevices, tree cavities, mines, caves, or buildings for maternity roosts. Deep crevices are important for day roosts. | No effect | Presumably forages near the project area. No known maternity roosts on the Hume Lake District. Species and habitat not impacted by the proposed action. |
| Townsend's big eared bat (<i>Corynorhinus townsendii townsendii</i>) | FSS, CSSC | Nocturnal, roosts in caves, uses wide variety of habitats although usually mesic areas for foraging. | No effect | May forage near the project area. No maternity roosts documented on the Hume Lake District. Species and habitat not impacted by the proposed action. |

Appendix B. Forest Service Sensitive Animal Species in Sequoia National Forest (List Updated 10/15/2007)

| Species | Status | Habitat | Effects Determination | Rationale |
|--|-------------|--|---|---|
| Western red bat (<i>Lasiurus blossevillii</i>) | FSS, CSSC | Associated with riparian habitat, roosts in trees and forages over open woodlands and grasslands | No effect | No riparian habitat or large trees suitable for roosting would be affected by the proposed action. |
| California wolverine (<i>Gulo gulo luteus</i>) | FSS, ST, SP | Remote habitats, sensitive to human presence. 4000' to 13,000' mixed habitats | No effect | Unlikely to be found near project area due to human disturbance. Species and habitat not impacted by the proposed action. |
| American marten (<i>Martes americana</i>) | FSS, CSSC | Dense forest (>30% canopy cover), high number of large snags and down logs, close proximity to dense riparian corridors for movement, and an interspersed of small (<1 acre) openings with good ground cover for foraging. Potential occupied elevation 4,000-13,000 ft. | No effect | Project area is below the typical elevational range for this species. |
| Pacific fisher (<i>Martes pennanti pacifica</i>) | FSS, FC | Dense forest (>40% canopy cover). high number of large snags and down logs, close proximity to dense riparian corridors for movement, and an interspersed of small (<1 acre) openings with good ground cover for foraging. Potential occupied elevation 3,500-8,000 ft. | <u>may affect individuals</u> , but are not likely to contribute to the need for federal listing or result in a loss of viability. | See analysis and effects determination above. |
| Sierra Nevada red fox (<i>Vulpes vulpes necator</i>) | FSS, ST | Appears to prefer red fir and lodgepole forests in sub alpine and alpine zone. Forages in meadows & riparian zones. Mostly above 7,000' | No effect | No confirmed historical reports in area. Outside currently occupied range. Species and habitat not impacted by the proposed action. |
| Amphibians | | | | |
| Yellow blotched salamander (<i>Ensatina escholtzii croceator</i>) | FSS, CSSC | Valley foothill/hardwood habitats and conifer, moist habitats and down logs in | No effect | Project area is outside of known range for this species. |

Appendix B. Forest Service Sensitive Animal Species in Sequoia National Forest (List Updated 10/15/2007)

| Species | Status | Habitat | Effects Determination | Rationale |
|--|---------------|---|-----------------------|---|
| | | tributaries of the lower Kern River. | | |
| Inyo Mountain slender salamander (<i>Batrachoceps campi</i>) | FSS, CSSC | Down logs and moist areas in desert. Known range limited to Inyo Mountains. | No effect | Project area is outside of known range for this species. |
| Relictual slender salamander (<i>Batrachoceps relictus</i>) | FSS, CSSC | Down logs and moist areas, generally in mixed conifer zone. | No effect | Project area is outside of known range for this species. |
| Tehachapi slender salamander (<i>Batrachoceps stebbensii</i>) | FSS, ST | Down logs and moist areas, below 3,500'. Limited to canyon and desert areas Tehachapi to Caliente. | No effect | Project area is outside of known range for this species. |
| Kern Canyon slender salamander (<i>Batrachoceps simatus</i>) | FSS, ST | Down logs and moist areas, below 3,500' Limited to Kern Canyon | No effect | Project area is outside of known range for this species. |
| Kern Plateau slender salamander (<i>Batrachoceps sp.</i>) | FSS, CSSC | Down logs and moist areas, ~7,000-8,000'. Limited to Kern Plateau | No effect | Project area is outside of known range for this species. |
| Breckenridge slender salamander (<i>Batrachoceps sp.</i>) | FSS, CSSC | Down logs and moist areas in the Breckenridge area. | No effect | Project area is outside of known range for this species. |
| Foothill yellow-legged frog (<i>Rana boylei</i>) | FSS, CSSC | Low gradient streams and ponds generally below 6,000' | No effect | Historically present in the Hume Lake District but no known extant populations near the project area. |
| Mountain yellow-legged frog (<i>Rana muscosa</i>) | FSS, FC, CSSC | Historically found in lakes and streams from 4,500-12,000' | No effect | Historically present in the Hume Lake District but no known extant populations near the project area. |
| Reptiles | | | | |
| Southwestern pond turtle (<i>Actinemys marmorata pallida</i>) | FSS, CSSC | Low gradient ponds and streams with basking sites below 5,000 feet. Can be found up to 1 mile from perennial water. | No effect | The project would not affect riparian areas. Species and habitat not impacted by the proposed action. |
| Sierra night lizard (<i>Xantusia vigilis sierrae</i>) | FSS, CSSC | Annual grasslands. Not known outside of limited range near Granite Station, Kern county. | No effect | Project area is outside of known range for this species. |
| California legless lizard (<i>Anniella pulchra</i>) | FSS, CSSC | Loose, moist soil in chaparral and valley foothill woodland. | No effect | Project area is outside of known range for this species. |

Appendix B. Forest Service Sensitive Animal Species in Sequoia National Forest (List Updated 10/15/2007)

| Species | Status | Habitat | Effects Determination | Rationale |
|--|---|---|--|--|
| | | Generally below 6,000'. | | |
| Fish | | | | |
| Hardhead (<i>Mylopharodon conocephalus</i>) | FSS, CSSC | Warm water rivers at low elevation | No effect | Project area is outside of known range for this species. |
| Volcano Creek (California) golden trout (<i>Oncorhynchus mykiss aguabonita</i>) | FSS, CSSC | Cold water tributaries of the South Fork of the Kern River above Rockhouse Basin. | No effect | Project area is outside of known range for this species. |
| Listing Status Key: FE= Federally Endangered FT= Federally Threatened FC= Federal Candidate | FSS= USFS Sensitive Species CSSC=CA Species of Special Concern | | SP= State Fully Protected SE= State Endangered ST = State Threatened | |

Maps of Project Area:



