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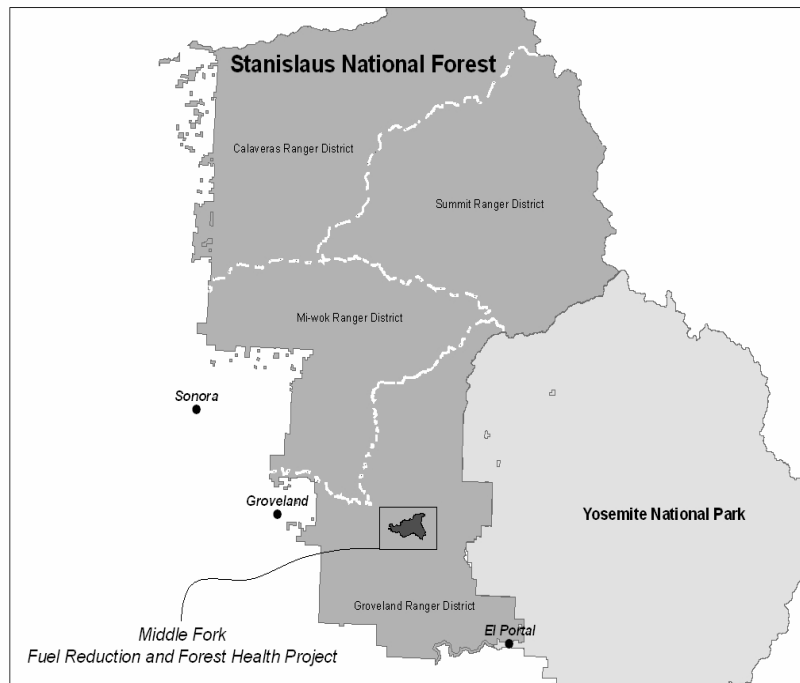


Environmental Assessment

Middle Fork Fuel Reduction and Forest Health Project (17476)

**Stanislaus National Forest, Groveland Ranger District,
Tuolumne County, California**

Sections 21-23 and 26-29 T1S, R18E



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Middle Fork Fuel Reduction and Forest Health Project (17476) Environmental Assessment

**Stanislaus National Forest
Groveland Ranger District
Tuolumne County, California**

INTRODUCTION

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant laws and regulations. It discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and two alternatives.

The action alternatives respond to goals and objectives outlined in the Stanislaus National Forest Plan Direction as amended in 2004 and 2007. Additional documentation including detailed analyses of project-area resources is located at the Groveland Ranger District Office in Groveland, CA. The Forest will request Stewardship contracting authority from the Regional Forester for contractual completion of this project.

Background

The Stanislaus National Forest released the Stewardship and Fireshed Assessment (SFA) in 2005. This assessment provided a vegetation management program of work which prioritized areas for treatment based on major watersheds and predicted fire regimes. The highest priority areas were those next to the Wildland/Urban Interface (WUI). WUIs are areas where structures and other human developments meet or intermingle with undeveloped wildlands. The Middle Fork Fuel Reduction and Forest Health Project is one of the high priority areas revealed by the assessment process, due to its proximity to WUI and high fuel loading.

Proposed project treatments are located largely between the Middle Fork Tuolumne River and the South Fork Tuolumne River. The area ranges in elevation from approximately 2,500 feet to 4,200 feet and is in the Tuolumne River watershed, one of the four major rivers on the Stanislaus National Forest. Highway 120 and an arterial road system consisting of paved two lane roads, single lane dirt roads and driveways are also located within the project boundary. Middle Fork Land Allocations are comprised of general forest, wildlife habitat, scenic corridor associated with Highway 120, a small amount of proposed wild and scenic river associated with the South Fork of the Tuolumne River, spotted owl protected activity centers (PACs), home range core areas (HRCAs), and developed sites (Sweetwater Campground, San Jose Family Camp, and Rainbow Pool). A highly dispersed summer recreation population and several privately owned parcels are also within the project boundary. The southern boundary of the Middle Fork project is shared with Harden Flat which is listed in the Federal Register as a community at risk from wildfire (FR/ Vol. 66, No. 160/Friday, August 17, 2001/Notices), and is considered a WUI area.

Forest vegetation types in the Middle Fork project are typically westside ponderosa pine and mixed conifer communities, which contain ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*) and Douglas fir (*Pseudotsuga menziesii*). Black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*) and interior live oak (*Quercus wislizenii*) are the major oak species. Young ponderosa pine plantations make up 63 acres of the project area. Manzanita (*Arctostaphylos* sp.) provides important cover and forage value for wildlife. It occurs in the understory in several habitats, and is the dominant species in other areas. Deer brush (*Ceanothus integerrimus*) and buckbrush (*Ceanothus cuneatus*) also occur in scattered areas.

Historic fire suppression has allowed an accumulation of small trees and brush, small downed woody debris, and needle-cast in timbered areas. Competition among smaller trees has increased the risk of die-off from drought conditions which further compounds fire hazard potential. The relatively low elevation and proximity to private property increases the threat of destructive stand-replacing wildfire.

Purpose and Need for Action

The primary purpose of this project is to reduce future wildfire intensity and spread by reducing ladder fuel profiles in and around WUI areas. Additional reasons for treating this project area are to: enhance general forest health, reduce susceptibility to insect and drought related mortality, maintain recreational and visual values over the long-term, and improve wildlife habitat. See Table 8 in the Comparison of Alternatives Section for additional project goals that are associated with specific resources.

There is a need to treat forest vegetation in order to return the area to a low and moderate severity fire regime. Current fire prone conditions pose a high risk to people and property, and increase the potential for long-lasting negative effects on the watersheds from wildfire.

These actions are needed at this time to protect the summer recreation population, the private landholdings within and adjacent to the project area, and to maintain or improve project area natural resources.

Proposed Action

The Middle Fork project area encompasses a total of about 2950 acres. The Proposed Action treats approximately 1772 acres and includes mechanical thinning, hand thinning, biomass removal, shredding, piling and burning, and broadcast burning. Initial treatments would occur over a one to three year period. Follow-up treatments (broadcast burning) would be completed one to seven years after initial treatments. This project is entirely within a Wildland Urban Intermix area and fuels treatments take precedence in these areas. Some road segments in the project area would be treated to implement fuel reduction and forest health improvement actions, and to maintain and improve water quality and watershed conditions. Actions involving the road system would vary by segment and include some reconstruction, temporary road construction, and side-road barriers.

Fuels Treatments

The purpose of the fuels reduction treatments is to reduce an unhealthy accumulation of dead and live forest vegetation using hand and mechanical treatments, prescribed fire, or some

combination of these treatments. See Table 2 for maximum amount of prescribed fire (items 1, 2, and 4 below) in the proposed action.

Middle Fork fuel reduction treatments will focus primarily on two key objectives: to decrease the amount of dead and down material on the ground, and increase the height to tree crowns by reducing ladder fuels that can carry fire into the forest canopy. Specific treatments are:

1. Prune, hand thin, and hand pile and burn: These treatments consist of selectively pruning lower tree branches to increase canopy height, hand thinning selected trees and brush smaller than 10" dbh, and then hand piling and burning cut and dead vegetation. These treatments would occur in the vicinity of the Rainbow Pool, San Jose Family Camp, Sweetwater Campground, and along common public – private boundary lines and roadsides. Roadside vegetation treatments would occur along roads 1S03, 1S03B, 1S08, 1S09, 1S15Y, 1S28, 1S62A, and 1S64. No treatments would occur where these roads cross private property.
2. Mechanical pile and burn: Within stand 28050 only; concentrations of natural and treatment generated slash would be mechanically piled and burned. This unit is designed to be a major fuel break along the southernmost ridgeline where there are significant amounts of down woody fuels.
3. Shred (masticate): Masticating vegetation would reduce concentrations of heavy dead and down material, standing small trees and brush.
4. Broadcast burn: Prescribed broadcast understory burning would occur one to seven years after completion of other treatments, to reduce residual fuels, and to re-introduce fire into the ecosystem. In unit 20025 a helicopter with an attached aerial ignition device would be used to burn 206 to 290 acres of the 412 acre area. The objective is to break up the continuity of the chaparral to reduce fire spread and severity in the event of a wild fire. This area is within the boundaries of the 1999 Pilot Fire.

Road Treatments

Middle Fork Fuel Reduction and Forest Health project treatments would require access for logging machinery, logging trucks, crew vehicles and fire engines. Project completion would include stabilizing roads needed for safe and efficient access for fire protection, public, and administrative use. Erosion, sedimentation and associated impacts on watershed resources and wildlife habitat would be minimized. Table 1 shows the proposed action road treatment plans. Although different treatments would be applied, the following objectives would be met for both action alternatives:

1. Creating or restoring drainage features in selected areas to make the road system more sustainable and less prone to erosion damage in the absence of regular road maintenance.
2. Reconditioning the roadway, placing crushed rock and soil on the road surface, brush removal and minor widening of the traveled way for safe chip van passage. Roads needed for log or chip haul would be improved to a higher standard than those roads needed only for fire engine, shredder and crew access.

Table 1. Middle Fork Proposed Action Road Treatments¹

| Route No. | Miles | Proposed Action | System | Current Status |
|-----------|-------|-----------------|--------|----------------|
| 1S03 | 1.9 | MAINTAIN | NFSR | OPEN |

| Route No. | Miles | Proposed Action | System | Current Status |
|-----------|-------|-----------------|--------|-----------------|
| 1S03A | 0.4 | RECONSTRUCT | NFSR | OPEN |
| 1S03A | 0.2 | RECONSTRUCT | NFSR | CLOSED |
| 1S03B | 1.8 | RECONSTRUCT | NFSR | CLOSED |
| 1S04 | 0.3 | RECONSTRUCT | NFSR | OPEN |
| 1S04A | 0.8 | MAINTAIN | NFSR | OPEN |
| 1S08 | 1.5 | MAINTAIN | NFSR | OPEN |
| 1S09 | 4.7 | MAINTAIN | NFSR | OPEN |
| 1S11Y | 1.3 | MAINTAIN | NFSR | OPEN |
| 1S11Y | 0.2 | RECONSTRUCT | NFSR | OPEN |
| 1S15Y | 3.3 | RECONSTR FUEL | NFSR | OPEN |
| 1S15YA | 1.5 | RECONSTR FUEL | NFSR | IMPASSABLE |
| 1S15YB | 0.2 | NO ACTION | NFSR | OPEN |
| 1S1826A | 0.1 | MAINTAIN | UNAUTH | OPEN |
| 1S28 | 0.8 | NO ACTION | NFSR | SEASONALLY OPEN |
| 1S34Y | 0.3 | NO ACTION | NFSR | CLOSED |
| 1S28B | 0.6 | NO ACTION | NFSR | CLOSED |
| 1S62 | 1.4 | RECONSTRUCT | NFSR | OPEN |
| 1S62A | 0.4 | RECONSTRUCT | NFSR | OPEN |
| 1S64 | 0.4 | NO ACTION | NFSR | OPEN |
| 1S64 | 0.6 | RECONSTRUCT | NFSR | OPEN |
| 1S68 | 0.4 | NO ACTION | NFSR | CLOSED |

See Table 8 for summary information.

3. Some road reconstruction for watershed restoration would be approved. Such areas are mostly on hydrologically connected road segments with erosion related to culvert failure and are on roads 1S04, 1S11Y, 1S15Y and 1S15YA. Funding for this work would be independent of the fuel reduction project.
4. Some short road segments may be needed for access to log landings. These are temporary roads and would be decommissioned after project use. Most temporary roads would be less than 250 feet in length, total less than ½ mile over the whole project area, and would most often use old abandoned or decommissioned roads.
5. Roads should be watered during reconstruction and maintenance for good compaction, and during log haul to reduce dust and loss of fine particle road surface material.

Silvicultural Treatments

The long-term silvicultural goal for the project is to retain larger trees and canopy cover in mature conifer forest that is less susceptible to stand replacing fires. Understory thinning and mastication is expected to increase the vigor of the remaining trees, reduce insect induced tree mortality and increase tree growth rates. Mechanical thinning and mastication treatment acres are listed in Table 2.

Thinning would focus on removing the smaller trees. Large trees will be favored for leaving, regardless of species, to maintain structure and stand diversity. Designated trees less than 10” diameter at breast height (dbh) would be removed as woodchips, and designated trees 10” to 29.9” dbh trees would be removed as saw timber. Specific prescriptive information is:

- Generally, a post harvest canopy cover of at least 40%-50%, would be retained.

- Tree removal would generally consist of the smaller and less vigorous trees. Locally abundant conifer tree species are ponderosa pine, sugar pine, Douglas-fir, incense cedar, and white fir and these are the species targeted for harvest. Other tree species are less numerous and would be maintained where possible.
- All trees 30" dbh and greater, and all oaks greater than 12" dbh will be left, unless they pose a safety hazard or need to be removed for road or landing construction.
- Hand thinning, pruning, and piling and burning saplings would be done along roads, private boundary lines, and in plantation areas too steep to mechanically shred. This will be accomplished using chainsaws or loppers with approximately 20' between residual trees; leaving the most vigorously growing oak, sugar pine and ponderosa pine trees. Slash will be piled in areas big enough to burn without killing neighboring residual trees.
- To the extent practicable leave large dead trees (snags) standing for wildlife habitat.
- Other considerations: Fences, private property, established campsites, and other improvements would be protected during mechanical operations.

Table 2. Middle Fork Proposed Action: Number of Treated Acres¹

| Treatment activity | Proposed Action |
|----------------------------|-----------------|
| Mechanical thinning, total | 671 |
| Mastication, total | 902 |
| Prescribed Fire | 1396 |
| Total treatment acres | 1772 |

¹ The listed acres are for whole unit treatments. Unit treatments would only be applied where needed to achieve project purpose and need objectives.

Decision Framework

The purpose of the EA is to disclose environmental effects of the Proposed Action and alternatives. As the Responsible Official, the Groveland District Ranger will make a decision based on a review of the EA. The District Ranger will decide: 1) whether to proceed with one of two action alternatives, or the "No Action" alternative, and 2) whether the decision that is selected will have a significant impact on the quality of the human environment or not. If a determination is made that the impact is not significant, then a "Finding of No Significant Impact" (FONSI) will be prepared, and the decision of the District Ranger would be documented in a Decision Notice (FSH, 1909.15, 43.2). Significant impacts on the quality of the human environment would require the preparation of an Environmental Impact Statement [NEPA, 1501.4 I and (e)].

Public Involvement

The Middle Fork Fuel Reduction and Forest Health Project is listed in the Schedule of Proposed Actions (SOPA), as of October 1, 2006. The Stanislaus National Forest distributes the SOPA to more than 70 individuals and organizations. The current SOPA can be viewed on the internet at: [<http://www.fs.fed.us/r5/Stanslaus/projects/sopa>]. In addition, the Proposed Action was sent to 46 individuals and interested agencies during a scoping period that started December 19, 2006. Eight respondents commented on the Proposed Action as described in the scoping letter.

Issues

Several issues were raised during the scoping process. Issues with the Proposed Action are points of dispute or disagreement, based on some effect. A list of issues to address was developed using comments from agency specialists and the public.

The Forest Service separated public and internal scoping issues into two groups; significant and non-significant. Significant issues were defined as those directly or indirectly caused by implementing the Proposed Action. Non-significant issues were identified as those: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality NEPA regulations requires this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A list of non-significant issues and reasons regarding their categorization as non-significant may be found in the appendix; titled Public Scoping Comment Summary.

The Forest Service identified 2 significant issues during scoping: 1) Mechanically thinning in Spotted Owl Protected Activity Centers (PACs) may not be necessary to meet fuels objectives; and 2) Mechanical tree thinning in some units with low volumes is not cost effective. Alternative 2 was developed to address these issues.

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Middle Fork Fuels Reduction and Forest Health project and provides a clear basis for choice among alternatives by the decision maker and the public. See Table 3 for vegetation treatments associated with the Proposed Action and Alternative 2. The Proposed Action treats a maximum of 1722 acres and includes the fuel and silvicultural treatments outlined in the scoping letter. Public and internal scoping prompted changes based on revised PAC boundaries, public comments, and further analysis of vegetation in the area. These changes are presented as Alternative 2, and would treat 1800 acres. The second alternative is described below. The effects of not treating the area (Alternative 3) are compared with the action alternatives in Table 8.

Alternatives

Some of the information used to compare the alternatives is based upon the design of the alternative (i.e., mastication versus mechanical thinning), and some of the information is based upon the environmental, social and economic effects of implementing each alternative (i.e., the amount of erosion).

Two tables show differences between alternatives: Table 3 compares treatments for each alternative and Table 8 compares these treatments by the affected resource. A map of treatment plans for each Alternative, with 2 treatment exceptions, is located in the appendix. Hazard tree removals are not shown on the maps, nor are pruning, hand piling and burning treatments. These treatments cover small acreages, are mostly along roads and private

Table 3. Middle Fork Project Fuel Reduction and Forest Health Project: Proposed Action and Alternative 2 Treatment Table

| Project Unit / Number of Affected Acres | Alternative 1: Proposed Action ¹ | Alternative 2 ¹ | Affected Land Allocations and Improvements ² |
|---|---|---|---|
| 17144 / 24 | Prune, hand thin-pile-burn 150-200' width surrounding San Jose Camp. Allow for hazard tree removal within camp | Prune, hand thin-pile-burn 150-200' width surrounding San Jose Camp. Allow for hazard tree removal within camp | San Jose Camp, Middle Fork Tuolumne River |
| 20013 / 17 | Mechanically thin | Mechanically thin, hand thin-pile-burn, underburn, masticate plantation patch | General Forest |
| 20014a / 35 | Mechanically thin, masticate, prune, hand thin-pile-burn | Mechanically thin, masticate, prune, hand thin-pile-burn, underburn | HRCA |
| 20014b / 9 | Mechanically thin, masticate, prune, hand thin-pile-burn | Masticate, prune, hand thin-pile-burn, underburn | HRCA, PAC |
| 20021 / 11 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20025 / 397 | Aerial ignition broadcast burn | Aerial ignition broadcast burn | Middle Fork Tuolumne River |
| 20027 / 15 | Mechanically thin, masticate, prune, hand thin-pile-burn 150-200' width along private boundary | Mechanically thin, masticate, prune, hand thin-pile-burn 150-200' width along private boundary, underburn. | HRCA, State Buildings, Easement, Highway 120 |
| 20028 / 2 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20029 / 4 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20030 / 6 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20037 / 17 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20039 / 5 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20044 / 57 | Masticate | Masticate | HRCA |
| 20044a / 8 | Mechanically thin, masticate | Mechanically thin, masticate | HRCA |
| 20045 / 5 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20076a / 85 | Mechanically thin, masticate, prune, hand thin-pile-burn 150-200' width along private boundary | Masticate, prune, hand thin-pile-burn 150-200' width along private boundary, underburn | Highway 120, HRCA, PAC |
| 20076b / 10 | Masticate | Masticate | HRCA |
| 20076c / 21 | Masticate | Masticate | HRCA |
| 20080 / 45 | Masticate | Masticate | PAC, Highway 120 |
| 20113 / 6 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 20119 / 6 | Masticate, hand thin | Masticate, hand thin-pile-burn | General Forest |
| 21084 / 94 | Mechanically thin, masticate | Mechanically thin, masticate | Highway 120 |
| 28039a / 50 | Mechanically thin, broadcast burn | Broadcast burn | PAC |
| 28039b / 66 | Mechanically thin, broadcast burn | Mechanically thin, broadcast burn | HRCA |
| 28039c / 31 | Mechanically thin, broadcast burn | Broadcast burn | PAC |
| 28039d / 16 | Broadcast burn | Broadcast burn | HRCA |
| 28039e / 8 | Broadcast burn | Broadcast burn | HRCA |
| 28042 / 28 | None | Mechanically thin | Highway 120, HRCA |
| 28050 / 179 | Mechanically thin, masticate, tractor pile, broadcast burn, hand thin-pile-burn | Masticate, tractor pile, broadcast burn, hand thin-pile-burn | HRCA, PAC |
| 28051 / 10 | Mechanically thin, prune, hand thin-pile-burn 150-200' width along private boundary | Masticate, prune, hand thin-pile-burn 150-200' width along private boundary | General Forest |
| 28055 / 10 | Mechanically thin, hand thin, prune, hand pile and burn 150-200' width along both sides of Hwy 120 and along private property | Mechanically thin, hand thin, prune, hand pile and burn 150-200' width along both sides of Hwy 120 and along private property | HRCA, Highway 120 |
| 28057 / 62 | Mechanically thin, masticate | Masticate | HRCA |
| 29035 / 93 | Masticate, broadcast burn | Masticate, broadcast burn, hand thin-pile-burn | General Forest |
| 29036 / 5 | Prune, hand thin-pile-burn 150-200' width surrounding Sweetwater campground | Prune, hand thin-pile-burn 150-200' width surrounding Sweetwater campground | Highway 120, Sweetwater Campground |
| 29043 / 13 | Prune, hand thin-pile-burn 150-200' width surrounding Rainbow Pool area | Prune, hand thin-pile-burn 150-200' width surrounding Rainbow Pool area | Highway 120, Rainbow Pool |
| Highway 120 Corridor / 223 | Prune, hand thin-pile-burn 150-200' width along each side of Highway 120 corridor | Prune, hand thin-pile-burn 150-200' width along each side of Highway 120 corridor | Scenic Corridor, various other land allocations |
| Secondary Roads within Project Area / 127 | Masticate, prune, hand thin-pile-burn 20' width along each side of Forest Service roads | Masticate, prune, hand thin-pile-burn 20' width along each side of Forest Service roads | Various land allocations |

¹ Burn treatments will be planned and conducted by professional resource manager after silvicultural treatments are completed.

² Listed Land Allocations do not encompass entire area of listed units in all cases.

Table Definitions: Masticate – shredding trees and brush up to 9" diameter and leaving chips on-site.

Mechanical thin – cutting and removing selected trees 4" - 29.9" diameter. The cut trees would be removed as both sawlogs and as chips for biomass.

property, and are designed to provide fuel breaks and safety accommodations. See the proposed action and Alternative 2 for specific information on these treatments.

Proposed Action

This is the alternative described in the scoping letter. See the proposed action section of this document, the scoping letter, or Table 3 for specific information on fuels reduction, roads, and silvicultural treatments.

Alternative 2

Data analysis completed after scoping showed that units partially composed of PAC acres contained less than 2000 board feet per acre, in the areas where treatments were prescribed, and that it is possible to meet fuel objectives in these units without mechanical thinning. Mechanical thinning these low volume/acre units is not cost effective, therefore they were changed from mechanical thinning prescriptions to mastication, broadcast burn and/or hand thin-pile-burn prescriptions in Alternative 2 (see Table 3).

Other changes to treatment units are: a discontinuation of mechanical thinning in units 28050, 28051, and 28057, to increase cost efficiencies to the mechanical thinning treatments; adding mechanical thinning to unit 28042 to thin understory; adding hand thinning, and handpiling and burning to unit 29035 to remove small fuels. In addition, trees that present a hazard to powerlines in the project area would be cut down or removed. See table 4 for a summary of Alternative 2 area treatments.

Table 4. Middle Fork Alternative 2: Number of Treated Acres¹

| Treatment activity | Proposed Action |
|----------------------------|-----------------|
| Mechanical thinning, total | 273 |
| Mastication, total | 929 |
| Prescribed Fire | 1475 |
| Total treatment acres | 1800 |

¹ The listed acres are for whole unit treatments. Unit treatments would only be applied where needed to achieve project purpose and need objectives.

In Alternative 2 the road maintenance and reconstruction was reduced to the minimum needed for timber harvest, fire suppression and watershed impact repair (Table 5). Most of the road reconstruction proposed in Alternative 2 is for the development of haul roads for tree thinning. Road reconstruction for watershed restoration described in the Proposed Action would also occur in Alternative 2. Roads needed for access to shredding and burning units only were reclassified from reconstruction to maintenance, to reflect the lower intensity of work needed and lower costs expected on those road segments.

Table 5. Middle Fork Alternative 2 proposed road treatments

| Route No. | Miles | Proposed Action | System | Current Status |
|-----------|-------|-----------------|--------|----------------|
| 1S03 | 1.9 | MAINTAIN | NFSR | OPEN |
| 1S03A | 0.4 | RECONSTR HAUL | NFSR | OPEN |
| 1S03A | 0.2 | RECONSTR HAUL | NFSR | CLOSED |
| 1S03B | 0.6 | RECONSTR HAUL | NFSR | OPEN |
| 1S03B | 1.2 | MAINTAIN | NFSR | OPEN |
| 1S04 | 0.3 | RECONSTR OTHER | NFSR | OPEN |

| Route No. | Miles | Proposed Action | System | Current Status |
|-----------|-------|-----------------|--------|-----------------|
| 1S04A | 0.8 | MAINTAIN | NFSR | OPEN |
| 1S08 | 1.5 | NO ACTION | NFSR | OPEN |
| 1S09 | 2.5 | MAINTAIN | NFSR | OPEN |
| 1S11Y | 1.3 | NO ACTION | NFSR | OPEN |
| 1S11Y | 0.2 | RECONSTR OTHER | NFSR | OPEN |
| 1S15Y | 3.1 | MAINTAIN | NFSR | OPEN |
| 1S15Y | 0.2 | RECONSTR OTHER | NFSR | OPEN |
| 1S15YA | 0.1 | RECONSTR OTHER | NFSR | IMPASSABLE |
| 1S15YA | 1.4 | MAINTAIN | NFSR | IMPASSABLE |
| 1S15YB | 0.2 | NO ACTION | NFSR | OPEN |
| 1S1826A | 0.1 | MAINTAIN | UNAUTH | OPEN |
| 1S28 | 0.8 | NO ACTION | NFSR | SEASONALLY OPEN |
| 1S34Y | 0.3 | MAINTAIN | NFSR | CLOSED |
| 1S62 | 1.4 | MAINTAIN | NFSR | OPEN |
| 1S62A | 0.4 | MAINTAIN | NFSR | OPEN |
| 1S64 | 0.4 | NO ACTION | NFSR | OPEN |
| 1S64 | 0.2 | RECONSTR HAUL | NFSR | OPEN |
| 1S64 | 0.4 | MAINTAIN | NFSR | OPEN |
| 1S68 | 0.4 | NO ACTION | NFSR | CLOSED |

¹See Table 8 for summary information

These changes in treatments and other scoping efforts prompted some changes in management requirements as well. The management requirement changes are specified in the section Management Requirements Common to All Alternatives. See the next section for more information on the content of the Alternatives associated with this project.

Alternative 3 (No Action)

Under the **No Action** alternative, current management plans would continue to guide management of the project area. No specific treatment activities would be implemented to accomplish project goals. No road treatments would be applied to the project area under authorities associated with this environmental analysis.

Management Requirements Common to All Action Alternatives

The interdisciplinary team identified the following management requirements to ease potential impacts of the action alternatives. Management requirements listed here are from the Resource specialists reports completed during the scoping process. See specialists' reports on file at the Groveland Ranger District for more information

Air Quality

An approved Burn Plan, including a Smoke Management Plan, is required for prescribed burning on the Stanislaus National Forest. All prescribed burning would be done in accordance with Title 17, Smoke Management Guidelines for Agricultural and Prescribed Burning, as required by the California Air Resources Board, Forest Plan direction, and Forest Fire Management Plans. The effects of prescribed burning on air quality would be minimized by monitoring, mitigation and contingency measures identified in the Smoke

Management Plan. Desirable meteorological conditions such as favorable mixing layer and transport winds would also be required in the Smoke Management Plan, to facilitate venting and dispersion of smoke from the project area.

Aquatic Species

No specific management requirements are listed for the Proposed Action for aquatic species.

Grazing

- Coordinate activities with the range permittee during the grazing season.
- Damage to fences or other improvements will be repaired to standard as soon as possible by contractors responsible for the damage.

Heritage Resources

1. Project implementation under the proposed alternatives shall comply with the stipulations of the *Programmatic Agreement Among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer and the Advisory Council on Historic Preservation Regarding the Identification, Evaluation, and Treatment of Historic Properties managed by the National Forests of the Sierra Nevada, California* (PA), dated October 1996.

The Project shall meet Stipulation VII.A. of the PA ‘Undertakings That Would Not Affect Historic Properties’, through the application of the Standard Protection Measures, delineated in Attachment 7 of the PA and in the Annex to Stipulation XIV of the PA titled *Interim Protocol for Non-Intensive Inventory Strategies for Hazardous Fuels and Vegetation Reduction Project*, dated June 2004.

2. The Standard Protection Measures require that heritage resources be excluded from any undertaking activity boundary, unless agreed otherwise under the provisions of the PA. Heritage Resource specialists shall work closely with all specialists to ensure project treatments have No Effect to cultural resources eligible for inclusion in the National Register of Historic Places (NRHP). All unevaluated cultural resources will be treated as eligible resources. For this project:

- Heritage resources shall be protected from all ground disturbing activities associated with mechanical treatment during all phases of the project and land disturbance activities shall not pedestal or isolate a site from its surroundings.
- Heritage resources with flammable features shall be protected from prescribed burning operations. Non-flammable sites may be burned through only after having been hand thinned.
- Hand thinning of small trees and brush may take place on historic railroad grade segments and historic ditches. However, larger trees may be removed from a grade or ditch only after consultation and the on-site presence of heritage staff or the district archaeologist, and only when they are accessible from outside the boundary of the site.
- Logs shall not be skidded, nor roads constructed, in ways that may obliterate the observation of a ditch’s course (e.g. lengthwise or near a ditch).

- Historic earthen ditches may be temporarily breached or filled and traversed under certain conditions outlined in the PA. Any breach requires consultation with and approval by the district archaeologist.
 - The continued use of a facility that traverses a historic resource (e.g. an access road across a historic road or ditch), shall be considered to have No Effect on the historic resource, so as long as it was created within the last 50 years, its use is consistent with its original function, and its use does not further affect the resource.
3. All known Native American cultural sites, including gathering sites, shall be avoided during project implementation.
 4. In the event that new cultural resources are discovered during project implementation, the district archaeologist must be notified and all activities in the vicinity (50 meters) of the resource shall cease until consultations are completed; in accordance with Stipulations VII.E.1 of the PA.
 5. Any work outside of the scope of the existing project proposal must comply with the regulations of Section 106 of the National Historic Preservation Act of 1966, as amended.

Hydrology

Management requirements designed to protect water quality and watershed condition are derived from Water Quality Management for Forest System Lands in California, Best Management Practices (BMPs) and Riparian Conservation Objectives (RCOs). Riparian resources within Riparian Conservation Areas (RCAs) will be protected through compliance with the Riparian Conservation Objectives in the LRMP.

Project planners and administrators are responsible for consulting with a hydrologist and/or soil scientist prior to or during project implementation for adjusting or interpreting application of watershed management requirements.

1. Mechanized Equipment Operations in Riparian Conservation Areas (RCAs)

Operations in Perennial and Intermittent Stream RCAs:

The RCA is divided into three zones to provide a wide, graduated buffer so that riparian conservation objectives and management objectives can be achieved. The zone nearest the stream is an exclusion zone that prohibits mechanized equipment. The next zone is a transition zone that allows light use. The third zone is an outer zone that allows additional use as distances increase from the stream. See Figure 1 for a diagram of the three zones. The objective of the exclusion and transition zones is to retain a high percentage of ground cover and prevent detrimental soil compaction and displacement. The intent of the outer zone is to allow activity to increase from light use in the transition zone to standard operations beyond the RCA.

Exclusion Zone

- The exclusion zone starts at:
 1. The edge of the active channel where slopes rise uniformly from the stream, or at the outer edge of the following features, whichever is furthest from the stream.
 2. The first slope-break adjacent to the stream (e.g., streambank, outer gorge)
 3. Flat or nearly flat ground adjacent to the channel (e.g., floodplain or terrace)
 4. Obligate riparian shrub and/or tree communities associated with any of the above.

For example, if the edge of the active channel is 2 feet from the water's edge, the first slope break is 5 feet from the water's edge, the floodplain is 15 feet from the water's edge, and the obligate riparian vegetation extends 25 feet from the water's edge, then the exclusion zone would start at the edge of the obligate riparian vegetation, since it is furthest from the stream. In Figure 1, this start of the exclusion zone is labeled as 0 feet.

- Skidding equipment (e.g., rubber-tired skidders and track-laying tractors) may not come within 50 feet of the start of the exclusion zone, and mechanical harvesting and shredding equipment (e.g., feller-bunchers and masticators) may not come within 15 feet from the start of the exclusion zone. In the example described above, where the obligate riparian vegetation extends 25 feet from the water's edge, mechanical harvesting equipment would remain 40 feet from the water's edge (25 feet to the start of exclusion zone + 15 foot exclusion zone) and skidding equipment would remain 75 feet from the water's edge (25 feet to the start of exclusion zone + 50 foot exclusion zone).
- Operation created debris would be removed from stream channels. No damage to streambanks from equipment would be allowed. All vegetation that is maintaining streambank stability would be retained. All obligate riparian shrubs and trees (i.e., willows, alders) would be retained.

Transition Zone

- The transition zone for skidding equipment is 50 feet wide and starts at the end of the exclusion zone (labeled as 50 to 100 feet in Figure 1).
- Where skidding equipment is operating, retain a minimum of 50% evenly distributed ground cover in the tracked area. Existing skid trails should be used except where unacceptable impact would result. Do not create new skid trails within 100 feet of a stream. The number of perennial and intermittent stream crossings should not exceed an average of 2 per mile.
- The transition zone for mechanized harvesting and shredding equipment is 85 feet wide and starts at the end of the exclusion zone (labeled as 15 to 100 feet in Figure 1).
- For the first 35 feet of the transition zone for mechanized harvesting equipment (labeled as 15 to 50 feet in Figure 1), operations may only be allowed when continuous ground cover can be retained in 90% of the tracked area, and where 90% of the total tracked area is rutted less than 4" deep. For the last 50 feet of the transition zone for mechanized harvesting equipment (labeled as 50 to 100 feet in Figure 1), retain a minimum of 50% evenly distributed ground cover in the tracked area.

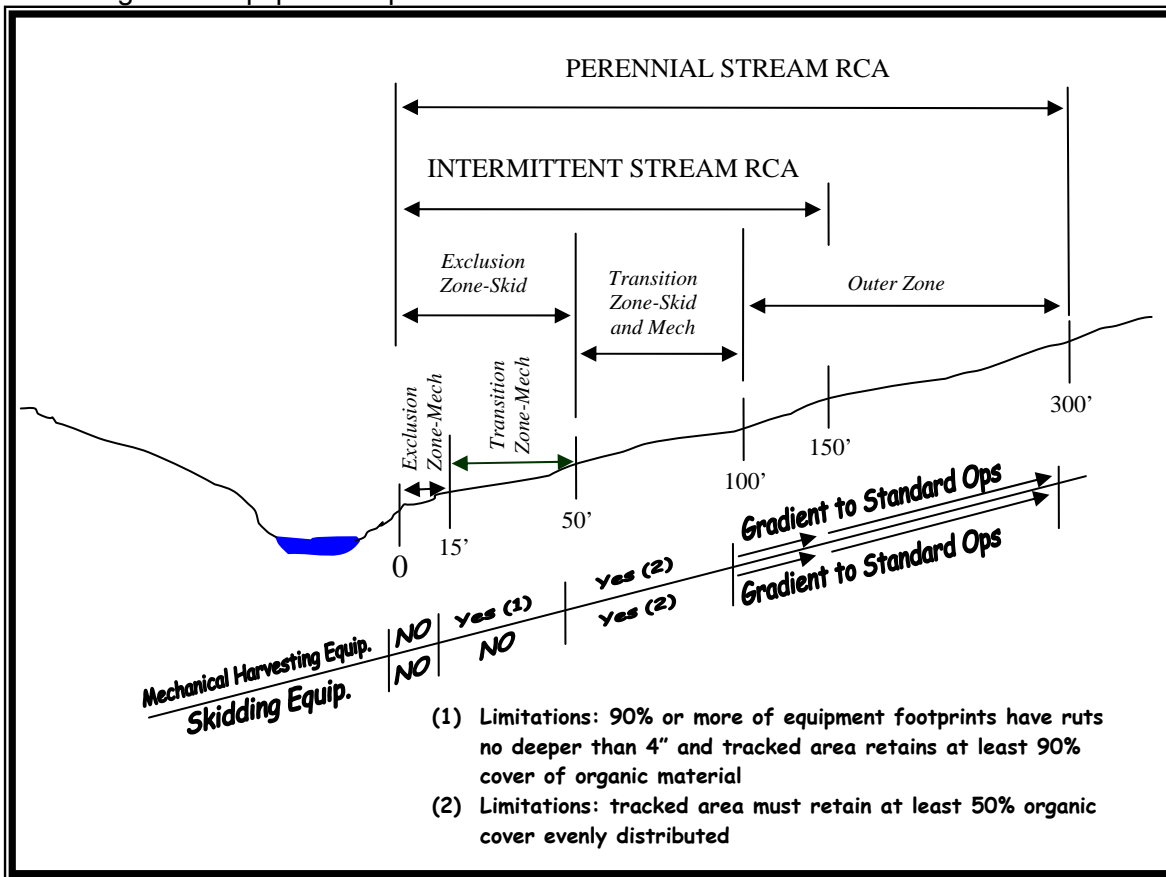
Operations in Ephemeral Stream RCAs:

Ephemeral streams have running water only during or shortly after rainfall and/or snowmelt, and show evidence of annual channel scour.

Exclusion Zone

- The exclusion zone begins at the edge of the active channel where slopes rise uniformly or at the edge of the streambank, whichever is furthest from the stream.
- The exclusion zone for skidding equipment near ephemeral streams is 25 feet from the start of the exclusion zone. The exclusion zone for mechanical harvesters and shredding equipment is 15 feet from the start of the exclusion zone.

Figure 1: Equipment Operations in Perennial and Intermittent Stream RCAs



Transition Zone

- The transition zone for skidding equipment is 25 feet wide and starts at the end of the exclusion zone.
- The transition zone for mechanical harvesting equipment is 35 feet wide and starts at the end of the exclusion zone
- Within the transition zone for both skidding and mechanical harvesting equipment, retain a minimum of 50% evenly distributed soil cover in project-created tire or tracked vehicle footprints. The number of ephemeral stream crossings should not exceed an average of 3 per mile.

Operations Adjacent to Special Aquatic Features such as lakes, wet meadows, bogs, fens, wetlands, vernal pools, and springs:

The exclusion zone and transition zone widths and operating requirements are the same for special features as for perennial streams.

Exclusion Zone

- The exclusion zone begins at the outer edge of obligate trees, shrubs or herbaceous plants in wet meadows, and springs, or the high water line of vernal pools, or the top of the first slope-break immediately adjacent to the special aquatic feature if further than the obligate vegetation or high water line.

The preceding management requirements for mechanical operations in RCAs implement the following applicable Best Management Practices (BMPs): 1-8; 1-10; 1-18; 1-19; 5-3; 5-6; 7-3.

Special Conditions:

- South Fork Tuolumne River: Due to steep slopes, no mechanized equipment will be allowed within 300 feet of the river unless the equipment stays on an existing road bed.
- 2. Log Landings:** Re-use log landings to the extent feasible. New landings should not be constructed within 100 feet of perennial or intermittent streams and 50 feet of ephemeral streams. Subsoil all landings when harvest/biomass operations are complete. Applicable BMPs: 1-12; 1-16.
 - 3. Roads:** Service and refuel equipment outside of RCA's. Road watering for dust abatement and road surface protection should be conducted using existing water source locations. Water use should not adversely deplete pool volume. Screens should be installed on water intake lines to prevent entrainment of fish and amphibians. Maintain roads during the life of the project and control road use during wet periods to prevent or minimize entrainment of sediment into stream courses. Road improvements will focus on hydrologically connected segments of forest roads that deliver sediment to streamcourses. Applicable BMPs: 2-1; 2-7; 2-12; 2-17; 2-21; 2-22; 2-23; 2-24; 7-3.
 - 4. Slope Limitations:** See soils requirements. Applicable BMP: 5-2.
 - 5. Prescribed Burning:** Avoid damage to obligate riparian vegetation (e.g., willows, alders, cottonwoods). Retain 75% ground cover within 100 feet of perennial and intermittent streams and 50 feet of ephemeral streams. New dozer lines should not be constructed within 100 feet of perennial and intermittent streams and 50 feet of ephemeral streams. Constructed fire lines should be restored upon completion of prescribed burning and/or prior to each winter when fire lines are exposed to erosion. Restoration should consist of water barring hand and dozer lines, re-contouring of benched trails, and subsoiling of detrimentally compacted dozer lines. Applicable BMP: 6-3.

Special Conditions:

- Stand 20025: A 300-foot unburned buffer should be maintained between the treatment and the Middle Fork Tuolumne River. A 150-foot unburned buffer should be maintained between the treatment and tributaries to the Middle Fork Tuolumne. Minimal creeping into the unburned buffers is acceptable. However, at least 90% ground cover should be retained within these buffers.
- 6. Burn Piles:** Burn piles should be placed a minimum of 50 feet away from perennial and intermittent streams and 25 feet from ephemeral streams unless otherwise approved by hydrologist and/or soil scientist. They should also be located outside of areas that may receive road runoff. Applicable BMP: 6-3.
 - 7. Proposed Wild and Scenic Rivers:** A segment of the South Fork Tuolumne River is proposed for Scenic classification under the Wild and Scenic Rivers Act. While the river

itself is not within the Middle Fork Project area, the ¼ mile buffer of the river overlaps with the western end of the project area. This area will be managed the same as if it were a designated Wild and Scenic River. All activities within the ¼ mile buffer will protect and/or enhance the long-term Outstandingly Remarkable (OR) values of the South Fork Tuolumne Proposed Wild and Scenic River segment.

- 8. Monitoring:** Conduct implementation and effectiveness monitoring. Focus evaluations on mechanized equipment operations in sensitive watershed locations. Applicable BMP: 7-6.

Sensitive Plants

In order to reduce, minimize or alleviate possible adverse effects to sensitive plants, the following management requirements will be implemented:

- Flag and avoid occurrences of Sensitive Plants except as allowed below.
- Hand thinning and pruning may take place within *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* or *Mimulus pulchellus* occurrences only during the dry non-growing period. Refer to Table 6 for the dry non-growing periods for these species. Material generated during hand thinning or pruning may not be piled, lopped and scattered or otherwise placed within Sensitive Plant occurrences.
- Broadcast burning or underburning may be conducted within occurrences of *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* or *Mimulus pulchellus* only during the dry, non-growing period. Refer to Table 6 for the dry non-growing periods for these species.
- Shredding and skid trail legacy compaction subsoiling may be conducted within *Clarkia australis* occurrences only during the dry non-growing period. Refer to Table 6 for the dry non-growing periods for this species.
- Any new occurrences of Sensitive Plants discovered in the project area will be evaluated for possible effects from project activities and protective measures will be implemented to prevent loss of these new occurrences.
- Foot traffic by contractors, forest workers or work inspectors will not be allowed within or through occurrences of Sensitive Plants, except as allowed in #2, above.

Monitoring

The objective of monitoring Sensitive Plant occurrences is to ensure that the project design, including the Sensitive Plant protective measures, are sufficient to protect these resources.

- Monitoring should take place during project activities and directly after project activities end in the vicinity of Sensitive Plants, to ensure that protective measures are sufficient. This monitoring can be conducted by the Forest Service project inspector concurrently with project inspections. Any occurrences or suitable habitat areas which are impacted other than as allowed in the management requirements shall be reported immediately to the District Botanist.

- Monitoring of Sensitive Plant occurrences impacted during the non-growing period should take place every two years for six years to determine whether impacts will have lasting adverse effects.
- Monitoring of occurrences impacted during the growing period should take place yearly for five years to determine whether or not the occurrences are still extant (have not been extirpated) and to determine whether impacts will have lasting adverse effects.

Table 6. Approximate Phenological Stages of Sensitive Plants in Middle Fork Area

| Species | Growing Season | I.D. Period | Dry, Non-growing Period* |
|---|-------------------|-------------------|--------------------------|
| <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i> | Mar. 1 – Aug. 31 | April 15 – May 15 | Sept. 1 – Nov. 30 |
| <i>Clarkia australis</i> | Dec 1 - Aug. 15 | June 15 - Aug. 15 | Aug 15 - Nov 30 |
| <i>Clarkia biloba</i> ssp. <i>australis</i> | Dec 1 - July 31 | May 15 - July 15 | Aug 1 – Nov 30 |
| <i>Mimulus filicaulis</i> | Mar. 15 - July 15 | Apr. 15 - June 30 | July 15 – Nov 30 |
| <i>Mimulus pulchellus</i> | Mar. 1 - June 15 | Apr. 1 - June 1 | June 15 – Nov 30 |

*The actual dry, non-growing period will be determined by field observations year to year by the District Botanist

Noxious Weeds

The following management requirements would reduce the likelihood of introducing new noxious weed infestations and reduce the risk of spreading existing noxious weeds in the project area.

- All off-road logging equipment, shredding equipment, road grading or construction equipment, clothing, particularly footwear, and other equipment, including the transport vehicle should be free of soil, mud (wet or dried), seeds, vegetative matter or other debris that could contain seeds in order to prevent new infestations of noxious weeds in the project area. Dust or very light dirt, which would not contain weed seed, is not a concern. Standard clauses will be used for timber contracts.
- Flag and avoid noxious weeds in all mechanical project activities. Manual methods such as hand thinning or pruning may take place within noxious weed sites if timed for before seed set.
- Where it is not possible to keep heavy equipment out of sites infested with noxious weeds, clean heavy equipment so that it is free of soil, seeds, vegetative matter or other debris prior to being moved from infested sites to uninfested sites and prior to being transported out of the project area.
- When needed for soil stabilization, use certified weed-free mulches where available, mulches with low risk of weed introduction where certified weed-free is not available, and certified weed-free seed mixes. Seed mixes must conform to the Region 5 Policy on the Use of Native Plant Material in Restoration or Revegetation Projects.
- Monitor through time for noxious weeds in the project area to determine if existing weeds are being spread, or if weeds are being accidentally introduced by Forest

management activities. Hand pull any newly discovered infestations. Assess the need for a long-term eradication strategy, if needed.

Soil Quality

Management requirements for the protection of soil quality are standard for the area. The standards used are Region 5 Soil Quality Standards, and the Forest Plan. Specific soil management requirements and mitigation measures for soil parameters are:

1. Soil Organic Cover:

- Maintain fifty percent (post treatment) well distributed organic soil cover per treatment unit. Organic cover is typically grass, forbs, leaf litter, small woody debris (< 3 inch in diameter), and decaying logs. In areas where soil cover is less than 50% (the natural plant community is not capable of producing 50% soil organic cover) disturbance to soil cover should be minimized to maintain soil nutrient levels, maintain forest health, and lower the potential for detrimental soil erosion.
- Tractor piling must leave at least 60% soil cover.
- If treatment causes soil organic cover to be reduced to an extent that significantly increases the potential for detrimental soil erosion or a significant loss in soil nutrient status additions of soil cover through the use of straw, logging slash, or chipped biomass will be made at the discretion of the soil scientist or sale administrator. **(This is a management requirement not found in Proposed Action).**

2. Soil Environmental Health:

- Protect large downed logs (LDL) > 20 inches in diameter and > 10 feet long. Large downed logs should be protected as well as not being shredded due to their importance to ecosystem and soil health (Brown et al., 2003). At least 5 well spaced LDL per acre should be retained.
- When the depth of masticated fuels exceeds 3 inches across greater than 25% of the burn area, adequate soil moisture (greater than 15% by volume soil water) should be present in the upper 6 inches of the soil profile when burning. **(This is a management requirement not found in Proposed Action).**

3. Soil Erosion and Loss:

- Ground based machine skidding should be limited to slopes less than 35%. Tracked low ground pressure harvesting and shredding equipment should be limited to slopes less than 45%. Tractor piling is limited to slopes less than 25%. In areas with soils having a very high erosion hazard, ground-based equipment should be limited to 30% slope and tracked low-pressure equipment should be limited to 40% slopes. Areas where soils have multiple characteristics for a severe displacement hazard should have the same lower slope limits for equipment traffic.
- A D-6 or smaller dozer equipped with a brush rake will be used for tractor piling operations. The operator will be informed about the desired conditions and the potential impacts to soil resources. The operator should be instructed to avoid pushing the brush blade into the soil (keep the blade a minimum 3 inches above

ground level), to minimize soil disturbance, and to achieve soil cover requirements. **(This is a management requirement not found in Proposed Action).**

4. Soil Porosity and Soil Bulk Density and Soil Hydrologic Function:

- All landings, temporary roads, and main skid trails are to be subsoiled using a winged ripper to restore soil hydrologic function and reduce compaction resulting from timber and biomass harvest operations. Determination of sub-soiled area will be done in conjunction with timber harvest design. Other skid trails may require sub-soiling at the discretion of the soil scientist if detrimental compaction is found and if sub-soiling would be effective and produce beneficial results.
- A soil scientist experienced with subsoiling will advise the COR/sale administrator on soil-site conditions (i.e., rock content, slope gradient, moisture conditions, erosion hazard). This is particularly important on trail gradients approaching 15%. Technical specifications (i.e., 24 inch subsoiling depth, example tool design) will be included in the contract. Substandard subsoiling that creates furrowed trenches greater than 8" in depth will be back-bladed to prevent rill and gully formation
- There are a number of pre-existing landings and main skid trails that will also require sub-soiling to meet Region 5 Soil Quality Standards for the project site. Sub-soiling of pre-existing compacted areas will occur after treatment of project area. **(This is a management requirement not found in Proposed Action).**
- Equipment with a ground pressure rating of 8.0 psi or less with an articulating arm capable of reaching 15 feet should be used for mechanical felling and bunching as well as for mastication treatments. **(This is a management requirement not found in Proposed Action).**
- Saw-log and thinning operations should occur under dry soil moisture conditions. Wet season operations should be monitored. Most of the soils in the project area have a moderate to high compaction hazard. The soil scientist should advise concerning operational start dates.

Note: Alternative 2 does not mechanically harvest in unit 28057, the succeeding mitigation is for the Proposed Action only:

Treatment Unit 28057 exceeds the 15% aerial extent threshold for detrimental soil compaction from soil data transects conducted in this unit. This unit has had up to 3 previous timber harvest entries and legacy skid trails are obvious across the landscape. There is sufficient evidence to suggest that this unit was harvested during high soil moisture conditions. For this unit additional mitigations concerning timber harvest are necessary to protect the soil resource and are as follows:

- No wet season operations will occur in Unit 28057.
- The existing skid trail network will be utilized to the fullest extent possible, new skid trails will not exceed 5% of the existing skid trail network.
- If site conditions allow effective subsoiling, additional subsoiling of legacy skid trails should be conducted.

Terrestrial Wildlife

The following management requirements are included in the project design, and are either directly from the Forest Plan, or are intended to prevent adverse effects to wildlife species:

1. Retain all riparian vegetation, such as alder and willow. Where feasible and where it occurs in a stand, retain less common shrub species such as redberry, coffeeberry, dogwood, chokecherry, bittercherry, and Sierra plum.
2. Elderberry plants below 3,000 feet elevation will be flagged and avoided prior to activities within 100 feet. Protect flagged elderberry plants from any damage from mechanical activities or prescribed burning. If additional elderberry plants with stems over 1" diameter are found prior to or during project implementation, they will be similarly avoided and the district biologist will be notified.
3. Retain all hardwood tree species 12" diameter at breast height (dbh). Retain additional smaller diameter hardwood trees wherever feasible to provide a variety of age classes.
4. Retain vegetation as wildlife cover and roadside screening along roads 1S09, and 1S03 (**Highway 120 was in this list in Proposed Action**), where it would not compromise the fuels treatment by providing continuous fuels or ladder fuels. Screening will be set back 30-70 feet in discontinuous segments with gaps less than 50 feet in length and staggered in order to limit visibility into the stand. Screening may be supplemented with features such as cut-banks or rock outcrops, which also prevent visibility into a stand.
5. Retain the four largest snags per acre over 15" dbh and retain 10-20 tons per acre of the largest downed woody material over 12" in diameter. These standards do not apply in fuelbreaks, where needed to address safety hazards such as adjacent to the highway or roads, or if levels are reduced as a result of incidental loss during burning.
6. For all mechanical thinning treatments, design projects to retain all live conifers 30 inches dbh or larger. Exceptions are allowed for road or landing construction and to meet safety requirements.
7. For mechanical thinning treatments in mature forest habitat (CWHR types 4M, 4D, 5M, 5D, and 6) *outside* WUI defense zones:
 - a. Retain at least 40 % of the existing basal area. The retained basal area should generally be comprised of the largest trees.
 - b. Where available, retain 5 % or more of the total treatment area in lower layers composed of trees 6 to 24 inches dbh within the treatment unit.
 - c. Avoid reducing pre-existing canopy cover by more than 30 % within the treatment unit. Percent is measured in absolute terms (for example, canopy cover at 80 % should not be reduced below 50 %.)
 - d. Where existing vegetative conditions are at or near 40 % canopy cover, projects are to be designed to remove the material necessary to meet fire and fuels objectives.

- e. Where existing vegetative conditions permit in HRCA and surrounding general forest, retain at least 50 percent canopy cover within the treatment unit. Exceptions are allowed where necessary to adequately reduce ladder fuels, provide for safe and efficient equipment operations, minimize re-entry, design cost efficient treatments, and/or significantly reduce stand density. Where canopy cover must be reduced below 50 percent, retain at least 40 percent canopy cover averaged within the treatment unit.
- 8. Mechanical treatments may be conducted to meet fuels objectives in PACs located in WUI defense zones. Within California spotted owl PACs: where treatment is necessary, remove only material needed to meet project fuels objectives. Focus on removal of surface and ladder fuels.
- 9. In PACs located in WUI threat zones, mechanical treatments are allowed where prescribed fire is not feasible and where avoiding PACs would significantly compromise the overall effectiveness of the landscape fire and fuels strategy. Mechanical treatments should be designed to maintain habitat structure and function of the PAC.
- 10. While mechanical treatments may be conducted in PACs, they are prohibited within a 500-foot radius buffer around the spotted owl nest stands. These buffers will be clearly flagged prior to operations. Prescribed burning is allowed within the 500-foot radius buffer. Hand treatments, including handline construction, tree pruning, and cutting small trees (less than 6 inches dbh), may be conducted prior to burning as needed to protect important elements of owl habitat. Treatments in the remainder of the PACs use the forest-wide standards and guidelines for mechanical thinning.
- 11. No mechanical activities shall occur within the portions of units within ¼-mile of known spotted owl PAC boundaries during the Limited Operating Periods (LOPs) (Table 7). These LOPs do not apply to laying out units, log hauling, or early season burning operations, and may be reduced to a ¼-mile area around a nest site if surveys are conducted, or may be lifted altogether at the discretion of the district wildlife biologist, if the species is not nesting or is not likely to suffer from disturbance from the activity.

Table 7. Unit Locations of Spotted Owl Limited Operating Periods

| Species | Unit (portions of) | Limited Operating Period (No Mechanical Operations) |
|------------------------|---|--|
| California Spotted Owl | 20013, 20014, 20014a, 20025, 20027, 20044, 20049, 20057, 20076, 20076a, 20080, 20080a, 20080b, 28039a, 28039b, 28039c, 28050, 28055 | March 1 – August 15 |

- 12. If breeding spotted owls, northern goshawks, or great gray owls are discovered in or within ½-mile of the project area outside the designated PACs prior to or during

project activities, activities must comply with the appropriate LOPs and the district wildlife biologist will be notified.

Visual and Recreation Resource Measures

Several areas of the Middle Fork Project have high public use or visual importance. A section of the Scenic Corridor portion of Highway 120 lies within the project area. As noted above, a small portion of the project also lies within the buffer zone of a proposed Wild and Scenic section of the Tuolumne River. Sweetwater Campground and the Rainbow Pool Day Use Area are both inside the Middle Fork Project boundary.

- Manage vegetation to provide optimum diversity of species, with a range of age and size classes, up to and including trees with old growth characteristics. Keep a natural appearing setting that functionally and aesthetically satisfies visitors when viewed from within or immediately adjacent to the developed recreation sites and along Highway 120.
- Limit the timing of mechanical operations to mitigate the effects of dust and noise, and provide Forest visitor safety near developed recreation sites. Include hauling and mechanical use restrictions on weekends, late evening and early morning hours of operation near concentrated recreation use areas.
- Maintain facilities and roads within the recreation sites in order to be as obscure as possible when viewed from within or immediately adjacent to the site.

Comparison of Alternatives

This section provides a summary, in table form, of the effects of implementing each alternative (Table 8). Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 8. Comparison of Treatment Effects on Middle Fork Project Area

| Project Activity and Resource Goals | Proposed Action Resource Effects | Alternative 2 Resource Effects | No Action Resource Effects |
|--|----------------------------------|--------------------------------|----------------------------|
| Total treatment acres | 1,772 | 1,800 | 0 |
| Total prescribed fire acres | 840 | 1001 | 0 |
| Hand thin-pile burn (Maximum treatment acres; FL ¹ ;RS ²) | 438; FL ≤ 1; RS ≤ 2 | 438; FL ≤ 1; RS ≤ 2 | 0; FL ≥6 feet; RS ≥ 7 |
| Broadcast burn (Maximum treatment acres; FL; RS) | 750; FL ≤ 1; RS ≤ 1-3 | 954; FL ≤ 1; RS ≤ 1-3 | 0; FL = 5-16t; RS = 7-79 |
| Machine pile & burn (Maximum treatment acres; FL; RS) | 179; FL ≤ 1; RS ≤ 1.5 | 179; FL ≤ 1; RS ≤ 1.5 | 0; FL ≥5 feet; RS ≥ 7 |
| Total mechanical thinning acres | 671 | 273 | 0 |
| Total mechanical thinning | 116 | 0 | 0 |

| Project Activity and Resource Goals | Proposed Action Resource Effects | Alternative 2 Resource Effects | No Action Resource Effects |
|--|--|--|---|
| in PAC acres | | | |
| Mechanical thinning [Total volume (MMBF ⁴); average volume (MBF ⁵ per acre); green tons of biomass chips] | 1.3; 2; 2000 | 1.25; 4; 1000 | 0 |
| Mastication (Maximum treatment acres; CBH ⁶ ; FL; RS) | 926; CBH = 12-78; FL = 3-3.5; RS = 4.8-5.2 | 953; CBH = 12-78; FL = 3-3.5 feet; RS = 4.8-5.2 | 0; CBH = 1-2 feet; FL = 5-7.5; RS = 6-8 |
| Mastication in PACs (Maximum treatment acres; CBH; FL; RS) | 130; CBH = 12-49; FL = 2.5-3.5; RS = 3.5-5.2 | 130; CBH = 12-49; FL = 2.5-3.5; RS = 3.5-5.2 | 0; CBH = 1-2 feet; FL = 5.8-6.9; RS = 5.7-7 |
| Road Treatments (Miles of road maintenance; miles of road reconstruction) | 10.2; 10.1 | 13.5; 2.2 | 0; 0 |
| <u>Air Quality</u> Burning in accordance with Title 17, Smoke Management Guidelines | Approximately 876 tons of PM ₁₀ emissions produced under controlled conditions. Smoke managed, minimal impact to human health. | Approximately 954 tons of PM ₁₀ emissions produced under controlled conditions. Smoke managed, minimal impact to human health. | Approximately 1075-1180 tons of PM ₁₀ emissions produced during wildfire conditions. No smoke management, greater impacts to human health. |
| <u>Aquatics</u> Protect Aquatic and Riparian Resource values | No effect on California Red-Legged Frog. May affect individuals, but is not likely to result in a trend toward Federal Listing or loss of viability of Western Pond Turtle or Foothill Yellow-legged Frog. | No effect on California Red-Legged Frog. May affect individuals, but is not likely to result in a trend toward Federal Listing or loss of viability of Western Pond Turtle or Foothill Yellow-legged Frog. | Wildland fire would reduce canopy cover and increase sediment delivery to the South and Middle Forks of the Tuolumne River and their tributaries. This would likely result in an adverse modification to the existing habitat. |
| <u>Botany</u> Sensitive Plants: Protect sensitive plant occurrences | Reduced brush and tree competition lowers risk of <i>Cypripedium montanum</i> loss to wildfire and improves habitat for <i>Clarkia biloba</i> , <i>Mimulus filicaulis</i> , and <i>M. pulchellus</i> . | Reduced brush and tree competition lowers risk of <i>Cypripedium montanum</i> loss to wildfire and improves habitat for <i>Clarkia biloba</i> , <i>Mimulus filicaulis</i> , and <i>M. pulchellus</i> . | High intensity wildfire would threaten habitat for <i>Cypripedium montanum</i> . Increased brush and tree competition reduces habitat for <i>Balsamorhiza macrolepis</i> , <i>Clarkia australis</i> , <i>C. biloba</i> , <i>Mimulus filicaulis</i> , <i>M. pulchellus</i> . |

| Project Activity and Resource Goals | Proposed Action Resource Effects | Alternative 2 Resource Effects | No Action Resource Effects |
|---|--|---|---|
| <p><u>Economics</u> Costs and benefits to local community and government.</p> | <p>Revenue to Government \$26,000 from tree removal, \$100 from biomass removal Cost to Government Contract preparation and administration – \$170,000. Mastication – 926 acres - \$463,000 Hand thinning, and piling, and burning – 438 acres - \$351,000 Mechanical piling and burning – 179 acres - \$62,650 Prescribed Burning – 750 acres - \$101,375 Road reconstruction and maintenance costs – \$60,600 Net Cost to Government \$1,182,525.00 Costs are expected to be spread over two to five years. Some opportunities for direct employment from timber harvest and service contracts would occur.</p> | <p>Revenue to Government \$25,000 from tree removal, \$65 from biomass removal Cost to Government Contract preparation and administration – \$170,000. Mastication – 953 acres - \$476,500 Hand thinning, and piling, and burning – 438 acres - \$351,000 Mechanical piling and burning – 179 acres - \$62,650 Prescribed Burning – 954 acres - \$129,000 Road reconstruction and maintenance costs – \$15,600 Net Cost to Government \$1,179,685.00 The costs are expected to be spread over two to five years. Some opportunities for direct employment from timber harvest and service contracts would occur.</p> | <p>No direct revenues or costs. Costs associated with suppression of a moderate to large wildfire would be expected to exceed costs of either action alternative. No new employment opportunities.</p> |
| <p><u>Grazing</u> Avoid negative effects on livestock grazing</p> | <p>Grazing opportunities improve after planned treatments</p> | <p>Grazing opportunities improve after planned treatments</p> | <p>No change in current grazing opportunities</p> |
| <p><u>Heritage Resources</u> Protect cultural resources</p> | <p>Possibility of wildfire damage is reduced</p> | <p>Possibility of wildfire damage is reduced</p> | <p>Increased potential for damage to heritage resources from wildfire</p> |
| <p><u>Hydrology</u> Maintain/Improve water quality and watershed conditions</p> | <p>Detrimental watershed impacts unlikely. Reduced potential for high intensity wildfire</p> | <p>Detrimental watershed impacts unlikely. Reduced potential for high intensity wildfire</p> | <p>Increasing potential for high intensity wildfire with subsequent detrimental watershed impacts</p> |
| <p><u>Soils</u> Protect productivity, and ecological function</p> | <p>Reduced potential for detrimental soil impacts caused by high intensity wildfire. Short -term erosion increase during project activities, with recovery to natural erosion patterns after project completion</p> | <p>Reduced potential for detrimental soil impacts caused by high intensity wildfire. Short -term erosion increase during project activities, with recovery to natural erosion patterns after project completion</p> | <p>Increasing potential for high severity wildfire with detrimental soil impacts. Unnatural soil erosion patterns expand and resulting sediment is delivered to watercourses</p> |

| Project Activity and Resource Goals | Proposed Action Resource Effects | Alternative 2 Resource Effects | No Action Resource Effects |
|---|--|--|--|
| <p><u>Visual Quality & Recreation</u></p> <p>Retain natural appearance in Scenic Corridor. Protect improved campsites from wildfire. Protect recreating campers from undue negative effects of treatment activities</p> | <p>Treatments along roadways meet LRMP standards. Forest will appear more open along Highway 120. Fire resistance in camp sites is increased; Limited Operating Periods are used where needed to protect campers from treatment activities</p> | <p>Treatments along roadways meet LRMP standards. Forest will appear more open along Highway 120. Fire resistance in camp sites is increased; Limited Operating Periods are used where needed to protect campers from treatment activities</p> | <p>No change from current conditions</p> |
| <p><u>Wildlife</u></p> <p>Protect threatened, endangered, & sensitive species.</p> <p>Reduce/minimize loss of habitat from wildfire, treatment actions, and other management activities</p> | <p>Mechanical thinning in PACs limited to trees 12" dbh or less.</p> <p>Reduced risk of high intensity, stand-replacing fire increases the future likelihood of mature forest habitat and habitat connectivity for California Spotted Owl and protects roosting trees, prey habitat, snags, and foraging habitat for Townsend's Big-Eared Bat, Pallid Bat, & Western Red Bat</p> | <p>Mastication of trees 10" dbh or less in PACs.</p> <p>Reduced risk of high intensity, stand-replacing fire increases the future likelihood of mature forest habitat and habitat connectivity for California Spotted Owl and protects roosting trees, prey habitat, snags, and foraging habitat for Townsend's Big-Eared Bat, Pallid Bat, & Western Red Bat</p> | <p>No mechanical thinning in PACs</p> <p>Potential for loss of habitat values from conifer die-off due to competition or stand-replacing wildfire</p> <p>No direct effects to threatened, endangered, or sensitive species</p> |

¹ FL = Flame length (in feet) which is the height of flames from the ground. ² RS = Rate of Spread (in chains per hour) which is the speed that fire expands. ⁴MMBF = thousand board feet. ⁵BF = board feet. ⁶CBH = Canopy base height (in feet) which is the height to lowest branches of a tree. The higher this number is the less likely a crown fire will occur.

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in Table 8.

Effects Relative to Significant Issues

The two significant issues identified during scoping were the consideration of mechanical tree thinning in PACs and cost effective tree thinning. These issues are affected by the presence of a WUI land allocation which contains management objectives calling for the creation of defensible space near communities, and economically efficient fuel reduction treatments. This simultaneous need to protect WUI areas and PACs, as well as provide for economic efficiencies presents significant challenges. A second action alternative was developed to allow for differing combinations of treatments, in order to adjust for economic efficiencies, and maintain a viable mix of WUI and PAC protection.

The Proposed Action has 116 acres of mechanical thinning in spotted owl PACs that are changed to either mastication or underburning in Alternative 2. Units 28039a and 28039c (in the WUI threat zone) are changed to underburning, and units 20014b and 20076a (in the defense zone) are changed to mastication. See the Terrestrial Wildlife section of the environmental consequences and the project Wildlife Biological Evaluation for additional information on the effects to spotted owls. The treatments under both action alternatives were determined to meet the strategy for protecting the WUI in the project Fuels Report.

Effects of the Proposed Action Relative to Mechanical Thinning in Spotted Owl PACs

The Spinning Wheel PAC appears to be relatively productive, considering the pair produced young in 2006, when no other spotted owls monitored on the Groveland district were breeding. The effects to the Spinning Wheel PAC are expected to be minimal, because only 12% of the PAC would be treated and the effected unit is 3/10-mile from the nest site, in a separate subdrainage. Much of the PAC is marginally suitable, particularly the areas proposed for thinning.

The effects to the PAC on the south side of the highway (TL085) would be greater, because a larger portion of the relatively contiguous habitat would be affected and the units are adjacent to the historic nest stand. The last known breeding in PAC TL085 occurred in 1997.

Because breeding has not been documented in this PAC in over 10 years, thinning in portions of the PAC may not adversely affect nesting success. Much of the HRCA associated with this PAC would also be treated, either thinning trees or understory fuels thinning. Treatment of a substantial portion of both the PAC and the HRCA may reduce habitat quality in the short term such that it would adversely affect breeding. Because owls are not particularly productive in this PAC and because the majority of PACs in the surrounding watershed will receive minimal fuels treatments, the temporary loss of breeding habitat in this PAC would likely be offset by the continuing contributions of productive territories, such as the Spinning Wheel PAC. In addition, the long-term effect of the treatment will increase the likelihood of this PAC surviving wildfires and developing a denser canopy, and maintaining connectivity for dispersing owls from better habitat in nearby PACs.

Effects of Alternative 2 Relative to Mechanical Thinning in Spotted Owl PACs

The effects of Alternative 2 to spotted owls would also be similar to the Proposed Action; however fewer middle and overstory trees would be removed, 116 acres in the spotted owl PACs would not be treated, and no trees over 12" dbh would be removed from within the PAC boundaries. Although the stands that wouldn't be commercially thinned would be at somewhat greater risk of decline due to tree density, and at greater risk of stand-replacing fire, the planned and additional fuels treatments would still reduce understory density in several units, while the remaining stands outside the PACs would be mechanically treated, greatly reducing the risk of fire in the PACs.

Reducing treatment in the PACs under this alternative would reduce the risk of disturbance and maintain more important stand characteristics such as snags, logs, overstory trees, and canopy cover in the PACs. Retaining more overstory trees in the PACs would reduce the risk of reproductive failure due to loss of canopy cover or other important habitat characteristics, particularly in PAC TL085. The No Action Alternative effects are described below in the wildlife consequences.

Effects of All Alternatives Relative to Cost Effective Tree Thinning

Many units in the project area have large quantities of small diameter trees and shrubs yet low merchantable volumes. The proposed action has 426 more acres of mechanical tree thinning units than Alternative 2. These units are estimated to average less than two thousand board feet per acre of timber removal. Harvest in those acres is almost entirely in trees less than 16" diameter, and substantial proportion of the trees are less than merchantable size. Unit 76a will also require approximately ¼ mile of temporary road construction with a drainage crossing. These units were not expected to be economical as a commercial timber sale. See the economics section in the comparison of alternatives above.

Effects Relative to Significance Factors

The following is a summary of how the Proposed Action responds to significance elements as defined by the CEQ. According to the NEPA Regulations adopted by the President's Council on Environmental Quality (CEQ) (40 CFR 1500-1508), the term "significantly" is based on the twin criteria of *context* and *intensity* (40 CFR 1508.27). Context means the affected environment in which a Proposed Action would occur; it can be local, regional, national, or all three, depending upon the circumstances. Intensity means the degree to which the Proposed Action would involve one or more of the following 10 factors:

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

The following is a description of resource areas and the direct, indirect and cumulative effects to resources as affected by project activities, and the no action alternative. Biological Evaluations (BEs), Biological Assessments (BAs), Management Indicator Species Reports (MISs), and Resource Specialist Reports prepared for this project are incorporated by reference in this section of the environmental assessment. The associated reports are located in the Middle Fork Fuel Reduction and Forest Health Project Folder on file at the Groveland Ranger District, and are available upon request.

Air Quality

Affected Environment:

The air quality of the Middle Fork project area is highly influenced by the neighboring Yosemite National Park. Prescribed burning must be conducted in accordance with Title 17, Smoke Management Guidelines for Agricultural and Prescribed Burning as required by the California Air Resources Board. Prescribed burning would manage these emissions utilizing Best Available Control Measures (BACMs) and coordinate burn timing with the Tuolumne County Air Pollution Control District, the California Air Resources Board, the Yosemite National Park and other federal and local fire agencies.

The Proposed Action - Direct, Indirect, and Cumulative Effects to Air Quality:

The direct and indirect effects from using the Proposed Action are that enough biomass would be removed to significantly reduce emissions if wildfires occur. There would be a cumulative increase in emissions from prescribed fire associated with this project and others

on the Stanislaus National Forest, Yosemite National Park and private lands within the area. This would be mitigated by utilizing the previously listed BACMs.

Alternative 2 - Direct, Indirect, and Cumulative Effects to Air Quality:

Alternative 2 treatments would differ from the Proposed Action in that 261 more acres would be prescribed burned, emitting more air particulates during prescribed burning than the Proposed Action. As in the Proposed Action, the short-term effects on air quality in the air basin are reduced during wildfires and future prescribed fires.

Alternative 3 - Direct, Indirect, and Cumulative Effects to Air Quality:

There would be a decrease in cumulative emissions associated with prescribed fire on the Stanislaus National Forest, Yosemite and adjacent private lands by not burning the proposed acres on the Middle Fork project. There is a potential for degradation of air quality within the air basin from smoke produced by unwanted wildfire in combination with pollutants from other sources.

Aquatic and Terrestrial Wildlife Species

Aquatic Wildlife Species

Affected Environment:

There are approximately 4 miles of perennial and intermittent streams, and 3 springs inside the project area. There are no ponds located on Forest Service administered lands in the Middle Fork project area; however, two (2) ponds on private property lie within ¼ mile of the project boundary, in the vicinity of Harden Flat.

The California red-legged frog is the only federally listed Threatened or Endangered (T&E) Aquatic species analyzed for this project. No other T&E species are found within 10 miles of the Middle Fork project planning area. Sensitive aquatic species include the Foothill yellow-legged frog (*Rana boylei*) and the Western pond turtle (*Emys marmorata*). Effects to these three species are addressed in this document.

All treatment units more than 200 feet from any perennial stream were eliminated from detailed aquatic analysis under both action alternatives because the 200 feet would act as a buffer to intercept and assimilate soil lost through erosion and prevent indirect soil delivery to perennial channels. A buffer of 200 feet would also maximize stream shading so there would be no expected changes in stream temperature.

The Proposed Action and Alternative 2 - Direct, Indirect, and Cumulative Effects to Aquatic Species:

There is very little difference in the potential for adverse or beneficial effects if either action alternative were implemented. The Proposed Action appears to be the action alternative with the greatest level of ground disturbing activity and Alternative 2 employs more pile and burn and broadcast burn prescriptions. In general, the effects of implementing the proposed Middle Fork Project would benefit aquatic systems. The two most important effects to aquatic species if initiating either action alternative are reduced risk and extent of high severity wildland fire and a reduction in soil disturbance based sediment delivery.

The following threatened and sensitive aquatic species were analyzed for cumulative effects:

California red-legged frog

Since there would be no direct or indirect effects expected to occur to individual California red-legged frogs or their habitats, implementation of the Middle Fork Project would not contribute to cumulative effects to the frog or its habitats.

Foothill yellow-legged frog

Implementation of the Middle Fork Fuel Reduction and Forest Health Project may affect individual foothill yellow-legged frogs but would not lead to a trend in federal listing or result in a loss of viability within the planning area. This determination is based on the limited duration and intensity of physical disturbance within the riparian area along both forks of the Tuolumne River, in the vicinity of the San Jose Camp and Rainbow Pool recreation areas. Injury or mortality of individuals is not likely to occur. There could be a minor increase in sediment delivered to the Middle Fork as a result of prescribed fire activities in unit 20025, however, large buffers in the unit are expected to reduce the potential for sediment delivery to the river.

Western pond turtle

The Middle Fork Fuel Reduction and Forest Health Project may affect individual western pond turtles but would not lead to a trend in federal listing or result in a loss of viability within the planning area. This determination is based on the limited duration and intensity of physical disturbance within the riparian area along the Tuolumne River forks, in the vicinity of the San Jose Camp and Rainbow Pool recreation areas. There is a low potential for injury or mortality to individuals resulting from pile and burn operations, if turtles occupy the piles during ignition. This treatment also has the potential to modify upland habitat for 2 to 3 years after treatment by making it less suitable for overwintering.

Alternative 3 - Direct, Indirect, and Cumulative Effects to Aquatic Species:

In the short-term, the probability of wildland fire in the project area would remain low and there would be no direct or indirect effects to individual foothill yellow-legged frogs, western pond turtles, California red-legged frogs, or their habitat. In longer-term (3-10 years), the indirect effect would be an increased risk of wildland fire. The strategic reduction in fuels would not occur and the project area would remain in a state susceptible to large, stand replacing wildfire. Direct and indirect impacts to individual frogs and western pond turtles from wildfire are listed in Table 9.

Terrestrial Wildlife Species

Affected Environment:

The proposed project area is within the geographic and elevation range of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), which is federally-listed as Threatened. No elderberry bushes would be treated during the proposed project. Therefore, the Valley Elderberry Longhorn Beetle would be largely unaffected by the Middle Fork project, directly, indirectly, or cumulatively. No other federally-listed terrestrial wildlife species occur in the project area. The project also lies within the geographic and elevational range of the following Forest Service Sensitive Species: Great Gray Owl (*Strix nebulosa*), California Spotted Owl (*Strix occidentalis occidentalis*), Northern Goshawk (*Accipiter*

gentilis), Pallid Bat (*Antrozous pallidus*), Townsend's Big-eared Bat (*Corynorhinus townsendii*), and the Western Red Bat (*Lasiurus blossevillii*). Two spotted owl PACs and an associated HRCA are located in the project area which require tree cover values of 40% and greater, to maintain spotted owl habitat (Table 11).

Table 9. Spotted Owl Habitat Areas Affected by the Middle Fork Fuels Reduction Project

| Spotted owl designated habitat name | Acres |
|-------------------------------------|-------|
| Spotted Owl PAC TL085 | 108 |
| Spotted Owl PAC (Spinning Wheel) | 49 |
| Spotted Owl HRCA (Both) | 483 |

Swainson's hawk (*Buteo swainsoni*) is a Sensitive species occurring on the Stanislaus National Forest but not considered in this document because the project area is outside their known nesting range. Sensitive species not considered here because the project is below known habitat elevations are: American marten (*Martes americana*), California Wolverine (*Gulo gulo luteus*), Sierra Nevada Red Fox (*Vulpes vulpes necator*), and Pacific fisher (*Martes pennanti*). Large water bodies needed for foraging do not exist for bald eagles, and there is no suitable cliff habitat for peregrine falcons (*Falco peregrinus*), or wet meadows or willow thickets for willow flycatchers (*Empidonax traillii*).

Proposed Action- Direct, Indirect and Cumulative Effects to Threatened, Endangered, Proposed, and Sensitive Wildlife Species:

Important habitat components for the California Spotted Owl would be retained using the Proposed Action project plans. In addition, the Proposed Action is not expected to result in disturbance to great gray owls or northern goshawks, and all three species would benefit from a reduced risk of stand-replacing fires. Projects listed in Table 10 would contribute to habitat values by removing understory vegetation and maintaining overstory canopy. This would reduce the likelihood of stand-replacing fires and maintain stand connectivity.

The project area is within foraging distance of mines, caves, privately-owned buildings, and riparian habitat which contains suitable roosting and breeding habitat for Townsend's Big-Eared Bats, Pallid Bats, and Western Red Bats. These habitats currently provide moderate to low quality breeding and roosting habitat in the project area due to human presence and limited mature forest and snag habitat. The project is not expected to result in substantial adverse indirect effects to bat habitat in the project areas because the project is not expected to greatly affect the availability of foraging and breeding habitat, prey, nor greatly increase the level of human disturbance during foraging or in roosting habitat. The removal of shrubs and small trees from the Middle Fork project is not expected to contribute to an adverse cumulative effect on Sensitive bat species.

Alternative 2- Direct, Indirect and Cumulative Effects to Threatened, Endangered, Proposed, and Sensitive Wildlife Species:

Approximately the same direct, indirect, and cumulative effects to species described under the Proposed Action apply in this alternative except that approximately 175 fewer forested acres would be affected. The direct, indirect, and cumulative effects to Valley Elderberry Longhorn Beetle, Townsend's Big-Eared Bat, Pallid Bat, and Western Red Bat, great gray

Table 10. Large Vegetation Management Projects near the Middle Fork Project.

| Project Name | Year Planned | Project Type | Distance from Project (miles) |
|-------------------------|--------------|------------------------|-------------------------------|
| Aqueduct | 2013 | Fuels | Adjacent |
| Ascension | 2011 | Thin/ fuels | Adjacent |
| Gravel Range | 2012 | Fuels | Adjacent |
| Buck Meadow | 2012 | Fuels | Adjacent |
| Soldier Creek | 2009 | Thin/ fuels | 1 Mile |
| China/Scott/Pilot Ridge | 2010 | Plantation thin/ fuels | 1 mile |
| Crocker | 2014 | Fuels | 2 Miles |
| Bear Mountain | Ongoing | Thin/ fuels | 3 |

owls, and northern goshawks under this Alternative 2 would be the same as the Proposed Action. The direct, indirect and cumulative effects of this alternative to spotted owls would be similar to the Proposed Action with exceptions: No trees over 10” dbh would be removed from within PAC boundaries, unless a safety issue or hazard tree is involved. Stands not commercially thinned would be at risk of decline due to overly dense tree spacing, and at greater risk of a of stand-replacing fire.

When the treatments under Alternative 2 are considered cumulatively with other planned and ongoing projects in the area, the overall effects would be very similar to the Proposed Action. Overall, Alternative 2 produces less short-term risk to spotted owls by reducing stand-altering activities, while providing most of the beneficial stand-thinning benefits.

Alternative 3 – No Action - Direct, Indirect, and Cumulative Effects to Threatened, Endangered, Proposed, and Sensitive Wildlife Species:

There would be no direct effects to any threatened, endangered, or sensitive wildlife species if the No Action alternative is implemented.

The indirect effects of the No Action Alternative would be that of retaining existing stands of small and medium-sized conifers and shrub understory. This would create a dense understory and conifer stands would be at risk of die-off from insect, disease, and stand-replacing fire. Given current fuel levels and local fire history, there is a high probability for fire in this project area. Without a stand-replacing fire; canopy cover, snag number, and downed woody debris would increase more quickly than in either treatment alternative. If a stand-replacing fire did occur, these components would be lost for an unknown length of time.

Using the no treatment alternative, wildlife habitat values associated with oaks, meadows, and riparian habitat would be limited by dense conifer stands or burned over in a stand-replacing fire. Some areas of dense brush would gradually be overgrown by conifers which may eventually become conifer-dominated habitat, but the risk of stand-replacing fire in these stands would remain high in the short term.

Without treatment, the project area would mature slowly or suffer high tree mortality from some combination of fire, disease, and insect damage. This effect could be offset substantially by the other fuels reduction and thinning activities occurring elsewhere in the watershed, and throughout the Stanislaus National Forest, but the Groveland District remains limited in mature forest characteristics due to past logging and numerous large stand-replacing fires. The No Action alternative would contribute to this adverse affect, as the stands continue to decline and fire risk increases.

Management Indicator Species: Direct, Indirect, and Cumulative Effects

A Management Indicator Species report was prepared for the Middle Fork project. The report described the following habitats that occur in the project area: shrubland, oak-associated hardwoods and hardwood conifers, riparian, lacustrine/ riverine, early seral coniferous, mid-seral coniferous, later seral open canopy coniferous, late seral closed canopy coniferous, and snags in green forest. The difference between the action alternatives would be minimal with regard to most habitat types, while the no action alternative would increase the risk of stand-replacing wildfire and associated effects. If implemented, the Middle Fork project would affect various components of these habitats but the project would not result in any effect on the distribution or abundance of the habitats or the associated species.

Fire and Fuels

Affected Environment:

The previous and current management practices combined with fire exclusion have shifted the fire regime from frequent low to moderate severity surface fires to infrequent high intensity stand replacing fires. Down dead woody debris inventories show a range of 1 to 53 tons per acre with an average fuel loading of 14 tons per acre. The current surface fuelbed, in combination with brush and conifer reproduction have created a ladder that will carry fire into the crowns of overstory trees. This has created conditions favorable for torching and passive crown fire. In addition, the increased fuel loading in combination with surface fire flame lengths greater than 4 feet creates a condition where suppression of unwanted wildfires becomes difficult.

Proposed Action - Direct, Indirect, and Cumulative Effects to Fire and Fuels:

The application of a basic set of fuel treatment principles: reducing surface fuels, increasing height to live crown, decreasing crown density and keeping big trees of resistant species have cumulative effects on changing fire behavior. Forests treated with these principles will be more resilient to wildfires. The reduced fire hazard from fuels treatments in the project area may also moderate wildfire severity in adjacent areas. Vegetation treatments here may serve as a break in fuel continuity, which could lessen severe fire behavior over a larger area. When applied to the Middle Fork project the following beneficial effects would result from the activities of the Proposed Action:

- Crown fire initiation would be unlikely in units where ladder fuels and surface fuels have been treated.
- Flame lengths and fire spread rate would be reduced by approximately 88% from existing conditions.
- The strategic placement of treatments would provide cumulative beneficial effects by modifying fire behavior in the project area. The combination of mechanical treatments and prescribed fire along the divide between the Middle and South Forks of the Tuolumne River (Units 28051, 28050, 29035, 28039 a, b, c, d & e) would provide an effective control point for wildfires. Treating fuels (thinning, mastication piling & prescribed fire) adjacent to property boundaries would also enhance further treatment by adjacent owners and help create defensible space near developments.

- The construction and maintenance of fuelbreaks along Highway 120 and next to campgrounds and other developments would modify fire behavior and aid in the protection of adjacent and surrounding resources. Combining fuelbreaks with area-wide fuel treatments in adjacent areas can reduce the size and intensity of wildland fires.
- Modifying forest structure and treating surface fuels will create fire resilient stands and restore the ecological characteristics associated with high frequency, low to moderate severity fire regimes.
- The effects of the combined treatments support the Forest Plan Amendment and Fire Management Plan direction to adopt an integrated strategy for vegetation management that reduces the risk of wildland fire to communities and modifies fire behavior over the broader landscape.

Alternative 2 - Direct, Indirect, and Cumulative Effects to Fire and Fuels:

Although there is a difference in the amount of prescribed treatments by type; the primary difference between the Proposed Action and Alternative 2 is a reduction in canopy fuel treatments (thinning and biomass) in Alternative 2. The direct and indirect effects of all treatments combined (mechanical and prescribed fire) are the same for Alternative 2 as for the Proposed Action. The Proposed Action proposes to mechanically treat 261 more acres than Alternative 2. The fuels analysis determined that underburning these acres would still meet the fuels strategy for the area and provide protection to the WUI. The differences in the amount of prescribed treatments by type have no cumulative effects on the treatment area that differ from those listed in the Proposed Action.

Alternative 3 - Direct, Indirect, and Cumulative Effects to Fire and Fuels:

In this alternative the proposed fuels reduction would not occur. There would be no change in the existing condition and the project area would remain vulnerable to large, high intensity fires. The potential for damage to public and private property and natural resources from unwanted wildfires would be high using this alternative. Fire suppression would be difficult, control options would be limited to indirect attack and the potential for an increase in acres burned will be high. This would not meet the standards and guidelines for the Forest Plan or the site-specific objectives of the Forest Fire Management Plan.

The cumulative effects to fuels would be that stands in the area would not be fire resilient and the ecological characteristics of high frequency; low to moderate severity fire regimes would not be restored. This area of the Stanislaus National Forest has a history of large, stand replacing wildfires that have occurred including the 146,000 acre Stanislaus Complex fire in 1987 and the 4,028 acre Pilot fire in 1999. The effects of these fires include loss of structures, critical habitat for threatened and endangered species, timber, plantations and damage to soils, watershed and recreational values. The financial costs of suppression, emergency rehabilitation and restoration of these fires have been high. There is a cumulative impact from the loss and/or damage to property and natural resources and the associated financial costs of mitigating these negative effects under this alternative.

Hydrology

Affected environment:

This project is in the Tuolumne River watershed. The Tuolumne River is one of the four major rivers on the Stanislaus National Forest within the Tuolumne River watershed. Over 1,200 acres of the project area is located in the Lower Middle Fork Tuolumne River west watershed, while over 500 acres is located in the Lower South Fork Tuolumne west watershed. The focus of analysis is on these two watersheds. A segment of the South Fork Tuolumne River is proposed for Scenic classification under the Wild and Scenic Rivers Act and will be managed as if it were, regardless of alternative.

Proposed Action and Alternative 2 - Direct, Indirect, and Cumulative Effects to Hydrology:

The Proposed Action and Alternative 2 are analyzed together, as the direct and indirect effects are similar for both action alternatives. The effects of the Middle Fork project on hydrological function are related to fuel loading, erosion and sedimentation, stream condition (stream flow, temperature), and watershed management in general.

Under either of these alternatives the current high fuel loading will be reduced and the current threat of large and damaging wildfire will be reduced. Fire severity would be minimized to the extent that maintenance of water quality and watershed condition could be achieved.

There will be a potential for sediment discharge to streams for 1-2 yrs after project implementation begins, as a result of ground disturbance by equipment during vegetation treatments. A moderate increase in the amount and duration of late summer streamflow is expected in intermittent streams in the project area as a result of reduced plant transpiration following vegetation removal. Water temperature downstream of the project should not be noticeably altered since tree thinning will retain sufficient canopy to maintain stream shading along the main channel.

Road condition will be improved by activities designed to restore drainage function, including reconstruction of road surfaces and design features and maintenance of roads during the life of the project. Transportation system sedimentation is currently moderate to high along some of the roads, but would be reduced by project road improvements. These activities will reduce the threat of sedimentation to streams in and downstream of the project area.

The vegetation management practices proposed in these watersheds is not expected to result in adverse off-site cumulative effects to sediment-related or water temperature water quality parameters or to watershed condition (i.e., degradation of stream channel morphology, accelerated erosion or loss of soil productivity). The vegetative treatments (i.e., thinning, shredding, broadcast burning, etc.) are relatively low intensity and watershed management requirements (water quality Best Management Practices and Soil Quality Standards) will protect water quality and maintain watershed condition. These treatments will also reduce the likelihood of a severe wildfire, an event which could cause significant degradation of water quality and watershed condition.

Results of modeling show that the threshold of concern is not reached in either of the watersheds analyzed under either action alternative. Although several adjacent fuel reduction projects are scheduled within the next five years (USDA Forest Service, 2005b), the planned vegetation treatments are well distributed over time and space. Results of the field evaluation validate the model prediction that both action alternatives and other reasonably foreseeable future activities in the project watersheds are not expected to result in adverse cumulative watershed effects.

Positive cumulative effects will result from this project – a lower risk of wildfire. The fuel reduction treatments will substantially reduce the risk of a severe wildfire. The positive effects of fuel reduction (lower risk of fire, especially high severity fire) are much greater in the long-term than any of the minor short term negative watershed effects of this project.

In summary, the Proposed Action or Alternative 2 would achieve all project watershed goals and objectives. The goals of maintaining water quality and watershed condition and maintaining integrity of waters and habitat would be met. The Proposed Action or Alternative 2 would protect the beneficial uses of water, utilize BMPs to protect water quality, and reduce the current high fire hazard.

Alternative 3- Direct, Indirect and Cumulative Effects to Hydrology:

One of the effects of not treating the Middle Fork project area is increased fuel loading. If this area is not treated the current fuel loading will continue, posing a substantial threat of wildfire and the watershed consequences of severe fire. A high severity fire would substantially degrade watershed condition and water quality in the short term until the watershed recovers from the effects of the fire and the subsequent management activities related to reforestation.

Beneficial uses of water will continue to be met at present. However, if a severe fire occurs under the current high fire hazard condition, beneficial uses would likely be adversely affected.

Some of the other direct and indirect effects of the no treatment alternative involve roads, base streamflows and stream temperatures: Without treatment, road condition may degrade over time. A lack of water bars and rolling dips causes water to concentrate and flow on the road surfaces. Late summer streamflows will remain suppressed since high vegetative density increases plant transpiration. This effect will be most prevalent in small streams. Stream shading may increase over time, maintaining cool water temperatures.

Under the no action alternative, there will be no risk of cumulative watershed effects caused by this project. However, large scale cumulative effects would occur if a fire occurred during severe fire weather conditions. If a large high burn severity wildfire occurred in either watershed, effects from the fire to the watershed could reach the threshold of concern under the no action alternative. In the event of such a fire under present or worsening future fuel conditions if left untreated, water quality and watershed condition will likely be significantly degraded in at least some portion of the area. Such effects have been observed in other severe fires on the Stanislaus National Forest over the past 30 years, a period of unprecedented fire occurrence on the forest.

Watershed management goals for this project (maintenance of water quality and watershed condition) will be met until a wildfire occurs, but the no action alternative perpetuates the

current high fire hazard. This represents a much higher risk of degradation to water quality and watershed condition than management activities that can be implemented to prevent or minimize large and damaging fires. Minimizing the risk of water quality degradation by reducing the fire hazard will not be met if the no action alternative is selected.

Soils

Affected Environment:

Soils in the project boundary area are generally derived from granitic or medi-sedimentary parent materials from either weathered bedrock or colluvial deposits. The soils are a mix of shallow and moderately deep soils that vary with geomorphic and erosional surface changes. Soil depths range from 10 inches to over 60 inches. Relatively coarse textured (sandy loams and loamy sands) surface horizons and moderate rock fragment contents (15 to 45% by volume) are common in the soils of the project area, the majority of which are well-drained and typically have moderate available water holding capacities. A few units have soils compacted greater than the Soil Quality Standards allowable thresholds but only one unit (28057) is to be mechanically treated, and only in the Preferred Action Alternative (see soil management requirements for more information).

Proposed Action- Direct, Indirect, and Cumulative Effects to Soil:

Soil cover would increase where mastication occurred. Short-term decreases in soil cover would be experienced in other treatment areas, however, areas with reductions in soil cover would recover in the long-term. There would be a positive effect on soil nutrient status and acidity where broadcast burned. Soil health would not be significantly impacted by the other treatments and there would be no significant direct effect. There would be no significant direct effects to organic matter, and a majority of the treatments would increase decomposition thus facilitating an increase of soil organic matter into the soil profile.

Erosion would increase over the short term but stay within Soil Quality Standards and decrease over the long-term, and unnatural erosion patterns would not continue to expand. Soil compaction would increase over the short term but stay within Soil Quality Standards. Overall there would be a reduction of soil compaction and soil hydrologic function would continue to improve.

The cumulative effects of soil disturbance due to treatments in the Proposed Action would meet Stanislaus National Forest Land and Resource Management Plan and Soil Quality Standards at the watershed scale when combined with past, present, and foreseeable future activities. Protection of the soil resource from a damaging high severity wildfire would be realized. Goals of long-term protection of soil resources would be achieved.

Alternative 2- Direct, Indirect and Cumulative Effects to Soil:

The cumulative effects of Alternative 2 would be slightly less than the Proposed Action. Although there would be more acres treated in Alternative 2, the treatments prescribed are less intrusive to surface soils. This reduced level of disturbance would still meet Stanislaus National Forest Land and Resource Management Plan and Soil Quality Standards when combined with past, present, and foreseeable future activities.

Alternative 3- Direct, Indirect and Cumulative Effects to Soil:

There would be no significant direct effects to any of the soil resource parameters listed in Alternatives 1 and 2 above, and natural accumulation and recovery rates would continue if Alternative 3 were chosen, with the following exceptions. Soil erosion patterns, particularly those associated with roads would continue, with associated sediment transport to streams. Soil compaction in some units would remain over threshold of Soil Quality Standards in the short-term. In the long-term, soil compaction would naturally recover at a slow rate (>50 years).

The cumulative effect of the no action alternative is the increasing potential for a high severity wildfire that could cause detrimental impacts to the soil resource.

Sensitive Plants

The treatment activities associated with Alternatives 1 and 2 are essentially the same which results in similar effects. Therefore the sensitive plant species effects discussion will be combined for the two action alternatives. Important differences will be identified where activities promote differences in effects.

Affected Environment:

The Middle Fork Fuel Reduction and Forest Health Project analysis area is within the geographic and elevational range of 11 Sensitive Plant species. These are *Balsamorhiza macrolepis* var. *macrolepis*, *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Cypripedium montanum*, *Erythronium taylori*, *Fissidens aphelotaxifolius*, *Hydrothyria venosa*, *Mielichhoferia elongata*, *Mimulus filicaulis*, *Mimulus gracilipes* and *Mimulus pulchellus*.

During the prefield review, it was determined, based on soil types and geomorphology of the project area, that there is no suitable habitat in the analysis area for *Mimulus gracilipes*. Surveys for *Erythronium taylori*, *Fissidens aphelotaxifolius* and *Mielichhoferia elongata* revealed no suitable habitat for these species. Surveys revealed no occurrences of *Hydrothyria venosa* in project units where suitable habitat exists. Therefore, there will be no analysis of project effects to *Erythronium taylori*, *Fissidens aphelotaxifolius*, *Hydrothyria venosa*, *Mielichhoferia elongata* and *Mimulus gracilipes* in this evaluation.

There are known occurrences of *Balsamorhiza macrolepis* var. *macrolepis*, *Clarkia australis*, *Clarkia biloba* ssp. *australis* and *Mimulus pulchellus* in the analysis area. Additionally, there is suitable habitat for *Cypripedium montanum* and *Mimulus filicaulis*, which have not been surveyed during the appropriate identification period. The following table and paragraphs briefly describe those species (Table 10). Table 10 lists the State and Federal statutes, State rarity rankings, and the California Native Plant Society’s (CNPS) rankings.

Table 11. Middle Fork Fuel Reduction and Forest Health Project Sensitive Plant Status

| Sensitive Plant Species | Federal Status | State Status | CNPS List ¹ with Threat Code Ext. ² |
|--|----------------|--------------|---|
| <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i> | none | none | 1B.2 |
| Small's southern clarkia (<i>Clarkia australis</i>) | none | none | 1B.2 |
| Mariposa clarkia (<i>Clarkia biloba</i> ssp. <i>Australis</i>) | none | none | 1B.2 |
| mountain ladslypper orchid (<i>Cypripedium montanum</i>) | none | none | 4.2 |

| | | | |
|---|------|------|------|
| slender-stemmed or Hetch-Hetchy monkey flower (<i>Mimulus filicaulis</i>) | none | none | 1B.2 |
| pansy monkeyflower (<i>Mimulus pulchellus</i>) | none | none | 1B.2 |

¹ California Native Plant Society. A rating of 1 indicates a high degree of rarity (less than 6 occurrences or less than 1000 individuals or less than 2000 acres). As the number increases, the degree of rarity is reduced

² CNPS Threat Code extensions and their meanings: .1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat), .2 – Fairly endangered in California (20-80% occurrences threatened), .3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

Balsamorhiza macrolepis var. macrolepis

Balsamorhiza macrolepis var. *macrolepis* inhabits a variety of habitats, usually in openings or under open brush cover. It has been reported from ponderosa pine forest, chaparral, vernal moist meadows and grasslands or grassland within oak woodland. Typical substrates are sandstone, serpentine, or basalt outcrop, and sometimes rocky clays of metasedimentary origin. The elevation range is below 4,600 feet. The one known occurrence of *Balsamorhiza macrolepis* var. *macrolepis* in the Middle Fork project area is not in a treatment unit.

Small's southern clarkia

Small's southern clarkia (*Clarkia australis*) occurs between 2,500 and 6,000 feet in elevation and favors open sun or lightly filtered sunny conditions. It is usually found on south, southwest or southeast slopes, in ponderosa pine and mixed-conifer stand openings. It also prefers disturbed sites (historically fire) - with little or no competition from more aggressive weedy species, although it does grow with bear clover and where manzanita is present in small numbers. Soil types and depths do not appear to be limiting to this species. When not associated with bear clover, the species is usually observed growing in bare mineral soil or with a very light layer of leaf litter.

There are 25 known occurrences of this species within the Middle Fork project area. Approximately 23 occurrences are within five proposed Middle Fork Fuel Reduction and Forest Health Project treatment units. Some of these occurrences are small, discrete colonies in close enough proximity to form larger subpopulations. Two of these occurrences are within the Highway 120 clearing corridor.

Mariposa clarkia

Mariposa clarkia (*Clarkia biloba* ssp. *Australis*) is an annual herb most often found on north, northeast or northwest-facing slopes. It is usually under light shade but occasionally in direct sunlight and occasionally on southwest or southeast-facing slopes. It also tends to prefer disturbed sites (historically fire) with little or no competition from more aggressive weedy species. The elevation range is approximately 1,500 to 4,600 feet.

There are about 109 known occurrences of Mariposa clarkia in existence. There are a total of 30 confirmed occurrences of Mariposa clarkia in treatment areas within the Middle Fork Fuel Reduction and Forest Health Project analysis area. Twenty-two of these are within five proposed project units.

Mountain ladyslipper orchid

Mountain ladyslipper orchid (*Cypripedium montanum*) is a perennial herb that ranges in elevation from 3,500 to 6,500 feet and begins growing from shallow rhizomes in early spring

and dies back by late summer. The appropriate identification period for this species is mid-spring, approximately early May to mid- or late June.

In the Stanislaus National Forest, this ladyslipper inhabits relatively undisturbed sites with a moderate to dense overstory, usually containing Douglas-fir or white fir. These sites are typically west or north-facing with fairly damp, deep loamy soils and a well developed duff layer. Often, the sites are very small undisturbed islands surrounded by land disturbed through past logging, road building or other activities. Mechanical disturbance to this ladyslipper's rhizomes is usually fatal. It will sometimes survive a low-intensity fire in which most of the duff layer is left intact; however, it usually does not survive a fire when the duff layer is consumed. Mountain ladyslipper typically ranges between 3500 and 6500 feet elevation.

In the Central Sierra Nevada, there are about 48 occurrences and 18 known occurrences in the Stanislaus National Forest. Most of these Forest occurrences have fewer than ten plants each. There are no confirmed occurrences of Mountain ladyslipper within the analysis area.

Hetch-Hetchy monkey flower

Slender-stemmed or Hetch-Hetchy monkey flower (*Mimulus filicaulis*) is a short-lived annual herb with an elevation range of 2,400 to 5,500 feet. The Hetch-Hetchy monkey flower occurs in moist soils near seeps, springs, meadows and drainages. It also occurs on sites that dry out substantially in the summer but have high soil moisture in the spring. These sites are often within mixed-conifer stands. Any one occurrence might bloom for no more than one week if soils aren't saturated, making it difficult to detect with only one visit to a site. Most of the occurrences have been observed growing under full sun or slightly filtered light conditions. Soil type, depth and condition don't appear to be limiting. In drought years or years with little rain in the spring, Hetch-Hetchy monkey flower occurrences might be reduced in numbers and size. In very dry years, it may not bloom.

There are approximately 125 known occurrences of Hetch-Hetchy monkey flower on the Stanislaus National Forest. All of those occur on the Groveland Ranger District. There are no known occurrences of Hetch-Hetchy monkey flower within the analysis area.

Pansy monkeyflower

The pansy monkeyflower (*Mimulus pulchellus*) is an annual herb with growth habits and habitat requirements similar to the Hetch-Hetchy monkey flower. The pansy monkeyflower grows in vernal wet to moist sites which are usually flat or with a slight slope. The elevational range for this species is 3,000 to 5,000 feet.

There are approximately 30 known occurrences of pansy monkeyflower in the Stanislaus National Forest. Sixteen of these are in the Groveland Ranger District. There is one known occurrence of this species in the Middle Fork project area. It occurs in either one or two units, depending how far along a drainage it extends.

Proposed Action and Alternative 2 - Direct, Indirect, and Cumulative Effects to Sensitive Plants:

Provided that management requirements are fully implemented; there would be no direct, indirect or cumulative effects to sensitive plants from the action alternatives in the Middle Fork project. Any type of ground disturbance to sensitive plants **during the growing season**

would cause plant loss. The number of plants killed would vary according to species, how many plants were on the site and the type, degree and amount of disturbance. The growing season for the Sensitive Plants in this proposed project varies from species to species (Table 6). Disturbance during the non-growing season would be likely to do less harm to the annual species *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* and *Mimulus pulchellus* than disturbance during the growing season. *Clarkia australis*, *Clarkia biloba* ssp. *Australis*, *Mimulus filicaulis* and *Mimulus pulchellus* all appear to accept some disturbance.

Balsamorhiza macrolepis var. *macrolepis*, *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* and *Mimulus pulchellus* all appear to be well adapted to the frequent fire regime of the Sierra Nevada. Many recent wildfire and prescribed fire events that occurred after plants had matured and produced seed resulted in stable or increasing population numbers of these species (see Sensitive Plant Species report). Encroachment of more aggressive annual plants such as the non-native cheatgrass or noxious weeds such as bull thistle, tocalote or yellow star-thistle may preclude an otherwise improved condition of the habitat. Using knowledge gained from these experiences, we can be reasonably assured that the intensity of impacts from underburning to occurrences of *Clarkia australis*, *Clarkia biloba* ssp. *Australis*, *Mimulus filicaulis*, and *Mimulus pulchellus* is expected to be low, if burning occurs during the dry, non-growing period. And, the duration of these effects is expected to be short-term, approximately two to five years after the final impact, for any one site.

Operating heavy equipment near sensitive plant species might change the way moisture is translocated through the substrates thus affecting microsites in and around sensitive plant occurrences. More moisture might result in erosion or swamping plants, or moisture might be diverted by heavy equipment or by drainage improvement in road work. An increase in or loss of moisture would probably have an unfavorable impact on Sensitive Plants.

Reducing tree density and removing dense brush could open up more suitable habitat for *Balsamorhiza macrolepis* var. *macrolepis*, *Clarkia australis*, *Clarkia biloba* ssp. *australis*, *Mimulus filicaulis* and *Mimulus pulchellus* which tend to grow in forest openings or under light shade. The duration of this effect would be as long as the canopy remained open and competition from annual plants and brush remained low. Reducing tree density and removing dense brush adjacent to the *Cypripedium montanum* occurrence site would decrease the risk of a stand-replacing wildfire.

The intensity of these indirect effects would be dependent on the location of the activities in relation to the occurrence. An activity that occurred several hundred yards uphill from an occurrence would be expected to cause little change in the occurrence's soil moisture. That same activity directly adjacent to an occurrence could cause much change in the soil moisture pattern. The intensity of the effects of activities within an occurrence or directly above an occurrence could be great, potentially reducing a high quality habitat to a low quality habitat. This would be especially true for *Mimulus filicaulis* and *Mimulus pulchellus* which are very dependent on an abundant amount of available soil moisture.

There have been a number of projects, activities and incidents in the proposed project area, some of which might have adversely affected some or most occurrences of sensitive plants. However, *Balsamorhiza macrolepis* var. *macrolepis*, *Clarkia australis*, *Clarkia biloba* ssp. *australis* and *Mimulus pulchellus* are still present, leading to speculation that while adverse effects were likely, at least these occurrences were able to be sustained into the present, in

spite of past effects. Therefore, the combination of effects from all of the Middle Fork Fuel Reduction and Forest Health Project activities and past, present and foreseeable future projects, activities and incidents are not expected to cause long-ranging adverse cumulative effects to occurrences of Sensitive Plants in the analysis area.

Alternative 3- Direct, Indirect, and Cumulative Effects to Sensitive Plants:

There would be no direct effects to Sensitive Plants from this alternative, although continued encroachment by dense tree regeneration and brush, and the increasing threat of stand-replacing wildfires would indirectly affect sensitive plant species if no treatments were applied in the project area. If the area experienced a high intensity, stand-replacing wildfire it could eliminate Mountain ladyslipper. Selecting the “no action” alternative in the Middle Fork Fuel Reduction and Forest Health Project area is not expected to have long-ranging cumulative adverse effects.

Continuation of Effects Relative to Significance Factors

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

Both action alternatives would avoid adverse impacts to public safety through project design efforts. Implementation of either action alternative would be governed by standard public health and safety contract clauses. Standard precautionary measures such as dust abatement, signing of roads during log hauling, safely securing truckloads, and maintaining the haul route, would be used.

Short-term adverse effects on public health related to air quality from broadcast burning and pile burning are a small possibility and management requirements have been developed. These potential short-term effects are of limited scope and duration and have been minimized to the extent possible through timing of pile burning and use of mechanized fuels reduction methods (mastication) in some cases. Regional air quality standards would be met in a manner consistent with the Clean Air Act. Treatment of fuels would reduce potential fuels available for consumption and resulting particulate emissions during future wild-fire. See Management Requirements Common to All Alternatives section and fuels report for more information.

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

The Middle Fork project area is part of a historically rich area and has been thoroughly surveyed for Heritage sites. Known and newly located sites have been documented for protection from activities. The far western portion of the project area has been proposed for inclusion in the Wild and Scenic Rivers Act and treatment activities are not planned for that portion of the project area. Ecologically critical areas include spotted owl PACs, and areas inhabited by sensitive plant and animal species. Management Requirements have been developed to protect these critical habitats from disturbance activities.

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

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

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

Alternative 2 was designed to achieve desired conditions identified in the Forest Plan and minimize the potential for adverse resource effects. Using local expertise and management requirements during project implementation minimizes the chances of highly uncertain effects or effects which involve unique or unknown risks. Proposed activities are routine in nature, employ standard practices and protection measures, and their effects are known.

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

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

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

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

Past, present, and reasonably foreseeable future actions were assessed along with Proposed Actions to determine whether cumulative effects would occur. See Significance Factor 1 above and resource reports for more information.

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

Historic Preservation Compliance has been met and documented. The proposed project lies within areas adequately covered under Archaeological Survey Reports for prior projects. Standard contract provisions would protect historic properties discovered during project implementation. Consultation requirements under Section 106 of the National Historic Preservation Act have been fulfilled as outlined in the First Amended Regional Programmatic Agreement among the USDA FS, Pacific Southwest Region, California State Historic Preservation Officer, and Advisory Council on Historic Preservation.

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

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

Neither the Proposed Action nor Alternative 2 would affect the threatened valley elderberry longhorn beetle because potential suitable habitat would not be affected.

The Middle Fork Fuel Reduction and Forest Health Project would have no effect on California red-legged frog because it would have no measurable effect on the habitats needed by this species.

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

Alternatives 1 and 2 were developed in accordance with and do not threaten to violate any Federal, State, or local laws or requirements imposed for the protection of the environment (i.e. Endangered Species Act, National Historic Preservation Act, Federal Clean Water Act, Executive Order 11988 for Floodplain Management, or the Clean Air Act). The Forest Service will obtain required permits from the appropriate state and federal regulatory agencies.

Environmental Justice

Low-income and minority populations comprise more than 10% of the total population in the vicinity (USDA 1991). The activities proposed for the Middle Fork project would not result in discrimination against these groups. On the contrary, the project would likely produce a short-term benefit in the form of employment in the logging industry and through service contracts. Based on the composition of the affected communities, along with cultural and economic factors, the activities that are proposed would have no disproportionately adverse effects to human health and safety, or environmental effects to minorities, those of low income, or any other segments of the population. Scoping was conducted to elicit comments on the Proposed Action from all potentially interested and affected individuals and groups without regard to income or minority status.

Other Required Disclosures

Both Action Alternatives are consistent with the Forest Plan as amended.

A *No Effect Recommendation* has been made for the Proposed Action and Action Alternative 2, in accordance with the provisions set forth in the "Programmatic Agreement among the USDA Forest Service, Pacific Southwest Region, California State Historic Preservation Officer and Advisory Council on Historic Preservation Regarding Identification, Evaluation and Treatment of Historic Properties Managed by the National Forests of the Sierra Nevada, California (October 1996)." Protection of heritage sites during and after project activities will comply with this agreement.

The proposed Wild and Scenic segment of the South Fork of the Tuolumne River would not be affected by either action alternative. No other unique characteristics or ecologically

critical areas such as park lands, prime farmlands, wetlands, or wild and scenic rivers exist within the project area. The Forest and District have implemented numerous projects of a similar nature over the past 10 years. These projects have met the desired results.

The Proposed Action and Alternative 2 would result in beneficial impacts. Adverse impacts are unlikely. Negligible adverse impacts are not significant, even when each impact is considered separately. Beneficial effects have not been used to offset or compensate for the limited potential adverse effects in making this determination of no significant effect.

CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, Tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS AND CONSULTANTS:

| | |
|---------------------------|-----------------------------|
| Steve Holdeman | Aquatics |
| Jennie Haas | Botany |
| Tom Durston | Engineering/Roads |
| Kathleen Castro | Fuels |
| Sid Beckman | Fuels |
| Priscilla Riefkohl Guzmán | Heritage Resources |
| Tracy Weddle | Hydrology |
| Susan Forbs | Range |
| Brian Kermeen | Recreation/Public Service |
| Jason Jimenez | Soils |
| Roy Bridgman | Wildlife |
| Scott Brush | Proofreading/Editor |
| Bonnie Shanafelt | Silviculture/ID Team Leader |
| Ken Romberger | Program Leader |
| Maggie Dowd | District Ranger |

AGENCIES AND INDIVIDUALS:

Tuolumne Band of Me-Wuk Indians
Yosemite Foothills Fire Safe Council

APPENDIX: Comments, Maps

MIDDLE FORK FUEL REDUCTION AND FOREST HEALTH PROJECT
Public Scoping Comment Summary
Complied By: Bonnie Shanafelt, Project Interdisciplinary Team Leader

| Comment ID | Issue Comment Question | Commenter | Topic | Comment / FS Response |
|------------|------------------------|------------------------|---------------|--|
| 01 | Request | Melinda Fleming TuCare | Timber | Biomass volume is too large compared to sawlog volume. Revise project to include more sawlog volume. |
| | Response | FS | Timber | The proposed action and alternative 2 were developed to meet the guidelines of the Stanislaus Land and Resource Management Plan (LRMP). Within the project boundary there are no other areas with substantial sawlog volume capable of simultaneously meeting fire hazard reduction, forest health, economic feasibility, wildlife, and other objectives of the project. |
| 02 | Request | Melinda Fleming TuCare | LOPs | Reduce number of Limited Operating Periods (LOPs), especially in timber harvest units. |
| | Response | FS | LOPs | LOPs are techniques for mitigating the negative effects of mechanical operations in National Forests. The LOPs in this proposal are standards from and part of decisions already documented in the LRMP. Economic benefit is not a justification for eliminating LOPs designed for resource protection. |
| 03 | Opposition | Melinda Fleming TuCare | Soil tilling | Opposes inclusion of tilling, because compaction will not occur due to harvest timing, and inclusion further burdens sale requirements. |
| | Response | FS | Soil tilling | Soil tilling mitigation measures are included at timber harvest landings and at main skid road merge points, where science has shown compaction occurs, regardless of harvest timing. The opposition point is not supported by scientific evidence. |
| 04 | Request | Melinda Fleming TuCare | Restrictions | Restrictions on operations need to be minimized. Please review all sections that have been included which add financial or time constraint burdens to this project. |
| | Response | FS | Restrictions | Project restrictions have been carefully assessed and a second alternative has been proposed. Units have been deleted from the project when restrictions were deemed too high to surmount. |
| 05 | Comment | Melinda Fleming TuCare | Complement | We encourage and applaud attempts to deal with fuel loading. |
| | Response | FS | Complement | Thank you for your support for and involvement in this project. |
| 06 | Issue | Matthew Chapman | 1S03 Easement | Disputes USFA easement boundary running through private property. |
| | Response | FS | 1S03 Easement | This issue is outside the scope of this project. Concerns were forwarded to District Ranger who wrote a letter to address concerns and invited concerned party to contact Forest Supervisor if needed. |
| 07 | Concerns | Matthew Chapman | 1S03 Easement | Has concerns about the proposed treatments and is unsure how it will affect private property. |

| Comment ID | Issue Comment Question | Commenter | Topic | Comment / FS Response |
|------------|------------------------|--------------------|----------------------------------|--|
| | Concerns | FS | 1S03 Easement | District Fuels Officer met with property owner about concerns. This project has no actions on private land. Road 1S03 through the private land will be used for access. |
| 08 | Request | John Buckley CSERC | Dense forest habitat | Request silviculturalist and wildlife biologist work together to make sure patches of “dense forest habitat” are retained. |
| | Response | FS | Dense forest habitat | There are approximately 2950 acres in the middle fork project. Approximately ½ of that amount will be treated in one form or another. Spotted owl PAC consists of 569 acres and could be considered dense forest habitat. In alternative 1; 220 acres in PAC would be treated with a combination of thinning treatments. In alternative 2; 139 acres of PAC would be masticated only. All potential mechanical treatments in PAC are in WUI areas, to lessen fire danger to private citizens. Treating acres in this way simultaneously provides for dense forest habitat and fire protection of WUI land. |
| 09 | Concern | John Buckley CSERC | PACs and HRCA treatment area | Scoping letter showed sawlog removal in PAC and HRCA, and it is unclear how large the trees are that are being removed in PAC. |
| | Response | FS | PACs and HRCA treatment area | Diameters of trees to be removed in PACs and HRCAs were unreported in the scoping letter. In the Environmental Analysis (EA); alternative 1 includes mechanical thinning of trees less than 12” in PAC areas. Alternative 2 does not provide for harvesting in units associated with PACs. Tree harvesting in HRCA is confined to areas with no less than 50% canopy cover, and no removal of trees 30” in diameter or greater, for either alternative. |
| 10 | Comment | John Buckley CSERC | Temporary and unclassified roads | Transportation section of scoping letter fails to show location and purpose of unclassified roads, or justification for retention. Concerned about building more temporary roads that will add to erosion and other resource problems. |
| | Response | FS | Temporary and unclassified roads | Unauthorized roads are roads which are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as a trail. Other unauthorized roads may exist in the planning area. The miles of unauthorized roads reported in the scoping letter was in error. There are 0.8known miles of unauthorized roads in the project area, 0.1 of which will be used. |
| 11 | Comment | John Buckley CSERC | OHV use | Concerned about OHV use in project area, especially on temporary and unclassified roads. |
| | Response | FS | OHV use | Every logical attempt and manner to block temporary and unclassified roads will be utilized as contractors leave, when possible and within in the scope of contracts. Otherwise, addressing the use of temporary and unclassified roads by recreational OHV users is outside the scope of this project. A separate travel management analysis is currently looking at this concern forest-wide. |
| 12 | Comment | John Buckley CSERC | Vegetative screening | Does not support the use of screening along Highway 120 because it would conceal fuels treatments which need to be seen |

| Comment ID | Issue Comment Question | Commenter | Topic | Comment / FS Response |
|------------|------------------------|----------------------------|--|---|
| | | | along Highway 120 | by the public, and would increase the likelihood that wildlife could move on to the road and be unseen by motorists until too late. |
| | Response | FS | Vegetative screening along Highway 120 | Highway 120 is designated as a Scenic Corridor according to the Stanislaus Forest Plan, thus Visual Quality is considered an important resource. Fuels, and Visual Quality resource people will work closely together to ensure the various resources are protected and to provide for public safety along the highway. Wildlife screening requirements have been removed from Highway 120 mitigation measures. |
| 13 | Comment | John Buckley CSERC | Large tree removal | Takes exception to the statement: "Exceptions are allowed to meet needs for equipment operability" where it regards trees larger than 30" dbh. Wants to make sure FS is not using the clause to make it easier for feller-bunchers or cut-to-length equipment to move through stand. |
| | Response | FS | Large tree removal | Typical and standard logging clauses allow for removing trees larger than 30" dbh only when needed for road construction and safety. This project will not deviate from those clauses. |
| 14 | Comment | John Buckley CSERC | Owl habitat designation | 157 acres of Spotted owl PAC and HRCA appear to be in brushfields and substandard owl habitat. |
| | Response | FS | Owl habitat designation | HRCAs are 1000 acres of the best late seral habitat. Brush areas do not count as part of the minimum acres for PACs and HRCAs although they do occur within the PACs and HRCA areas. |
| 15 | Complement | Patrick Pleiffer landowner | Thanks | Supports project and thinks it is long overdue. Offers access to his property if needed to complete the project. |
| | Response | FS | Thanks | Thank you for your support and offer of assistance. Someone will contact you if needed. |
| 16 | Complement | Bill Pleiffer landowner | Thanks | Supports project and appreciates proactive attempts to improve forest health and safety |
| | Response | FS | Thanks | Thank you for your support. |
| 17 | Request | Chris Conrad SPI | Timber | There is a large amount of biomass and larger trees need to be marked to make the project more saleable. |
| | Response | FS | Timber | See response 01-01 above. |
| 18 | Request | Chris Conrad SPI | LOPs | Is concerned that LOPs affect the viability of the project. Wants the FS to consider cumulative effects of several LOPs on local logging infrastructure. Further wants FS to consider that owls can successfully fledge in close proximity to logging activity. |
| | Response | FS | LOPs | See response 02-01, and 02-02 above. Efforts are made to minimize LOPs. LOPs can be lifted when species are not actively nesting. |
| 19 | Compliment | Chris Conrad SPI | Common sense approach | Appreciates a common sense approach to dealing with fuels build-ups. |
| | Response | FS | Common sense approach | We appreciate acknowledgement of our attempts to take a common sense approach to problem areas on the district. |
| 20 | Concern | Chris Conrad | Soil tilling | Concerned that deep soil tilling adds costs that are not needed to |

| Comment ID | Issue Comment Question | Commenter | Topic | Comment / FS Response |
|------------|------------------------|------------------|---|---|
| | | SPI | | project sales, particularly when equipment is not allowed on wet soil and dry soils are not easily compacted. |
| | Response | FS | Soil tilling | Subsoiling (deep soil tilling) is directed only at landings, temporary roads, and main skid trails where the occurrence of detrimental soil compaction is well documented, minimizing the treatment area cost. Subsoiling achieves management goals by reducing soil compaction, which benefits tree growth, water availability, and insures future soil and forest productivity. |
| 21 | Comment | Chris Conrad SPI | Road construction | Asks that road reconstruction, particularly when associated with biomass treatments, be kept to a minimum. |
| | Response | FS | Road construction | Road reconstruction will be kept to a minimum although road reconstruction for removing biomass is more expensive because chip vans need better roads to traverse. See the Transportation section of this EA for more information. |
| 22 | Request | Chris Conrad SPI | Hand piling and pruning in timber sale contract | Asks that hand piling and pruning be separated from Timber sale offerings |
| | Response | FS | Hand piling and pruning in timber sale contract | Hand thinning and pruning for the purposes of fuels reduction will be handled separately from timber sales. Hand thinning and pruning treatments listed in the scoping letter and this EA are for the purposes of fuels reduction. Slash treatment called for in timber sale contracts are associated with post sale cleanup. |
| 23 | Comment | Chris Conrad SPI | Economics | Concern that sensitive plant restrictions have the potential to cause serious logistical and contractual problems that may impact the ability to sell the timber. |
| | Response | FS | Economics | Sensitive plant occurrences are not abundant throughout the project area. The Forest Service does not anticipate a significant impact to timber harvest operations based on avoidance of these sites. |
| 24 | Comment | Chris Conrad SPI | Visual and Recreation Resources | Comments that current vegetation is not natural and should not be kept the way it is using current visual guidelines as addressed in the scoping letter. Further, those historical natural conditions were much more open than what is encountered today. We should not be using current conditions to define what is meant by natural. |
| | Response | FS | Visual and Recreation Resources | The project will move stands toward more open conditions. Canopy cover is set by the Forest Plan. |
| 25 | Concern | Chris Conrad SPI | Recreational LOPs | Concerned that there may be too many LOPs in this project and asks FS to consider closing campground while logging operations are active. |
| | Response | FS | Recreational LOPs | There is one 8 acre unit which will have trees removed by way of the Sweetwater Campground. Perhaps this unit could be harvested after October 1 when the campground closes for the season. |
| 26 | Complement | Chris Conrad SPI | Fuel loadings | Appreciates Groveland Ranger District's aggressive stance on treating current fuel loadings considering the burn history of the area. |

| Comment ID | Issue Comment Question | Commenter | Topic | Comment / FS Response |
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| | Response | FS | Fuel loadings | We thank you for your comments and support. |
| 27 | Request | SRM | Cedar species | Would like to see more cedar trees marked for removal. |
| | Response | FS | Cedar species | Cedar is both a preferred species for removal and an understory component, which we are focusing on removing. In order to meet plan objectives we are leaving the largest and healthiest trees. Cedar trees are an integral part of the stands in this project and as such are part of overall biodiversity. |
| 28 | Request | Jerry Cathy | Fuel removal | Would like the fuels between 20014a and 20014b from the last fuel reduction project near his home removed. |
| | Response | FS | Fuel removal | We will be addressing that situation during treatment of that area. |