Cedar Ridge Fuels Reduction Project (57025)

Decision Memo

USDA Forest Service
Stanislaus National Forest
Mi-Wok Ranger District
Tuolumne County, California

PROJECT LOCATION

This project is located adjacent to and within the community of Cedar Ridge, Big Hill and Twain Harte, with proposed treatments in the vicinity of Middle Camp Road, Sherwood Forest, Cedar Ridge, the Sierra Outdoor School, and Mount Elizabeth (Map 1). In the South Fork Stanislaus River, Woods Creek, and Big Creek-Tuolumne River watersheds, the project is located within: T2N, R15E, Section 1-9, 11, 13-15, 18; T2N, R16E, Sec. 5-10, 15, 16, 18; T3N, R15E, Sec. 24-26, 31-36; T3N, R16E, Sec. 28-33.

BACKGROUND

Since 2000, the Stanislaus National Forest has experienced an increased frequency of large, severe wildfires that are uncharacteristic of the natural disturbance regime. Recent prolonged drought (2010-2017) and associated bark beetle population growth resulted in significant tree mortality in the project area. Watersheds, wildlife habitat, sensitive plants, communities, old forest, and forest visitors have been greatly impacted by these extreme events.

PURPOSE AND NEED

The overall purpose of the Cedar Ridge Fuels Reduction Project is to improve community and landscape safety and resilience to wildfires. The primary purpose of the Cedar Ridge Fuels Reduction project is to modify vegetation structure and age class diversity to make ecosystems more resilient to wildfire by reducing horizontal and vertical fuel continuity. Vegetation treatments will improve watershed resilience to wildfires by reducing fuel loading and associated heat residence time that contribute to severe soil effects including elevated erosion rates and large patches of vegetative mortality. Extreme fire behavior will also be lessened by reducing ladder fuels that contribute to crown fire initiation and spread, which has been shown to have significant impacts on wildlife habitat and populations (e.g., Rim Fire 2013, King Fire 2014, Rough Fire 2015). Fuelbreaks will be established and maintained along roads, strategic ridgelines and topographic features, connecting existing fuelbreaks on private land. Helicopter landing areas (helispots) will be established at strategic locations along fuelbreaks to improve fire management access. Treatments are designed to protect life and property when wildfire occurs in the vicinity of Cedar Ridge, Big Hill, and Twain Harte.

Treatments proposed in this project are needed to:

- reduce potential for extreme fire behavior and resistance to control;
- improve opportunities for managing wildfires;
- keep wildfire sizes and wildfire severity within the natural range of variability;
- keep fires originating on private land from moving into the lower South Fork Stanislaus watershed and vice versa;
- protect wildlife habitat;
- enhance landscape and community fire resilience;
- improve the health and vigor of vegetation;
- maximize large tree survival by reducing the threat of insects and disease and increasing resilience to wildfire;
- reduce potential for human cause wildfire starts along unauthorized routes.

Unauthorized OHV routes are proposed for restoration treatments to minimize soil and watershed impacts associated with non-system unmaintained user created motorized routes (e.g., erosion, surface runoff concentration, high stream sediment loading). By removing unsigned and often confusing user created routes, navigating the area during wildfires will be improved and watersheds will be protected/enhanced.

The project area also has a high density of abandoned mines. Abandoned mines will be closed to protect public health and safety.

PROPOSED ACTION

The Forest Service proposes to treat vegetation to create defensible fuel profiles in fuel reduction units, within disconnected National Forest System (NFS) parcels, and along fuelbreaks to improve landscape and community resilience to wildfire (Table 1, Map 2). Additional proposed treatments include noxious weed control, abandoned mine closure, unauthorized OHV route rehabilitation, up to 1 mile of temporary road construction, and up to 3 miles of road reconditioning. This section describes the conditions and treatment methods proposed through this project.

Table 1. Unit types and potential vegetation treatment methods. All methods may be used to meet desired conditions. *X* demarcation in the table below indicates treatment method is included in corresponding unit type. + demarcation indicates herbicides will be used to treat noxious weeds.

Unit Type	Treatment							
	Mechanical	**Biomass Removal**	**Mastication**	**Hand Thinning**	**Pile and Burn**	**Broadcast Burning**	**Herbicides**	**Total Acres**
Fuels Units	X	X	X	X	X	X	+	1,630
Fuelbreaks & Strategic Roadsides	X	X	X	X	X	X	X+	583
Disconnected USFS Parcels	X	X	X	X	X	NA	+	483
Total Acres	2,671	2,671	2,671	2,671	2,671	2,187	603*	

* *Herbicides use is proposed to manage noxious weeds and to meet desired vegetation conditions as described in this document.Includes 25 acres of strategic roadside, 20 acres of noxious weed, and 558 acres of fuelbreak herbicide treatment.*

Fuelbreaks

Fuelbreaks are strategically located along major roads and topographic features (ridges). Forest canopy and shrub cover is relatively open and effectiveness of suppression actions, including aerial application of retardant, are enhanced. Several miles of fuelbreaks in this project are located along travel routes, which will provide safer conditions during evacuations and for fireline resources when a wildfire occurs. Approximately 588 acres of 300-foot-wide fuelbreaks will be treated through this project to connect and improve the existing fuelbreak network.

CONIFER DOMINATED FUELBREAKS

Thin trees to a spacing of ½ to 1 crown width to attain a spacing of 15 to approximately 25 feet between residual crowns. Remove all suppressed and intermediate crown class trees. Individual trees exhibiting good vigor will be given retention preference. No removal of live trees 30 inches diameter at breast height (DBH) or larger. Priority for removal are trees that have a high or moderate to high mistletoe infection (Hawksworth rating of 4, 5, or 6), or other defects that would prevent the tree from attaining good health and vigor, then white fir, incense cedar, and ponderosa pine. Remove sugar pines less than 16-inch DBH with evidence of heavy blister rust infection or swollen bole or branches with dead and dying needles that are within 2 feet of the bole. Do not remove hardwoods 12-inch DBH or larger unless removal facilitates treatment efficacy and/or for safety. Shrub species over 1 foot in height would be removed in order to develop vertical separation between the ground and the canopy of retained trees. Bear clover or grass and forbs are not required to be treated. To promote habitat diversity and soil cover, up to 25 percent of understory vegetation may be retained outside of tree driplines. Remove all snags.

To minimize surface fuels and increase effectiveness of the treatment, dead and down material is to be removed, piled and burned, or broadcast burned.

OAK AND SHRUB DOMINATED FUELBREAKS

This vegetation type is defined as having 50 percent or greater shrub or oak overstory. No removal of any live tree with 20-inch DBH or larger. Healthy individuals should be well distributed and given retention preference. Remove all snags.

To create horizontal separation between residual tree crowns, desired canopy cover within hardwood stands would be no more than 40 percent. Criteria for trees that are retained include single stems and healthy crowns with at least 1/3 live crown ratio. In order to reduce ladder fuels, residual trees shall be pruned of all branches up to 10 feet off the forest floor, retain a minimum of 30 percent live crown.

Where oak and conifers are lacking in the overstory and manzanita greater than 6-inches at the base are present, retain dominant manzanita stem and remove all other stems under the dripline of remaining manzanita.

Understory vegetation over 1 foot in height will be removed to develop vertical separation. Where trees are sparse and/or shrubs dominate, individual or small groups of plants may be retained to provide soil cover and habitat diversity. Residual plants must be retained beyond the driplines of overstory trees.

Fuel Reduction Units and Disconnected Parcels

Fuel Reduction units are relatively large continuous areas of NFS lands that range in size from 4 to 886 acres, approximately 1,630 acres of this project. Disconnected parcels are small areas of NFS lands surrounded by large areas of private land and range in size from 38 to 138 acres, approximately 483 total acres. These areas are located in the Wildland-Urban Interface and are bisected by strategic roads. Treatments in these areas are intended to modify fire behavior adjacent to private property and improve community and landscape resilience to wildfire. Vegetation modification in these units would emphasize retaining 40 percent canopy cover with modest spacing of crowns and increasing the distance between ground fuels and tree crowns.

Thin trees to a spacing of 1/3 to ½ crown width to attain a spacing of 10 to 15 feet between residual crowns. Remove all suppressed and intermediate crown class trees. No removal of hardwood trees 12-inch DBH or larger. No removal of any live tree 30-inch DBH or larger. Priority for removal are trees that have a high or moderate to high mistletoe infection (Hawksworth rating of 4, 5, or 6), or other defects that would prevent the tree from attaining good health and vigor, then white fir, incense cedar, and ponderosa pine. Remove sugar pines less than 16-inch DBH with evidence of heavy blister rust infection or swollen bole or branches with dead and dying needles that are within 2 feet of the bole. Residual trees will be pruned of all branches up to 8 feet, retaining a minimum of 30 percent live crown. Shrub species over 1 foot in height would be removed in order to develop vertical separation between the ground and the canopy of retained. Retain 4 of the largest snags per acre unless the snags are imminently hazardous to life or property. Limit woody debris to 10 to 20 tons per acre on average, in fuels less than 3 inches diameter (1-, 10- and 100-hour fuel size classes). Fuels greater than 3 inches

diameter (1,000-hour fuels or greater) shall be limited to 4 to 6 logs per acre, with a desired size greater than or equal to 20 inches diameter and 10 feet in length. Excess dead and down material may be removed, piled and burned, or broadcast burned.

Where a dominant conifer overstory is lacking (50% or greater oak or shrub overstory), vegetation conditions described in the *Oak and Shrub Dominated Fuelbreaks* section above will be applied to fuels units.

Treatments Common to all Unit Types

SPOTTED OWL PROTECTED ACTIVITY CENTERS (CASPO PACS)

To protect California Spotted Owls within the project area, understory and ladder fuels will be reduced within protected activity centers (PACs). The desired condition is a structurally complex and high canopy cover (60 to 70%) forest with reduced surface and ladder fuels. Reducing fuels will provide sustainable habitat for California Spotted Owl and increase landscape fire resiliency.

WUI DEFENSE ZONE CASPO PACS

In areas with a canopy of mature trees, retain approximately 25 percent intermediate and smaller trees with a patchy distribution on average over the entire unit. Residual understory woody vegetation should be patchy and discontinuous. No removal of any live tree 20-inch DBH or larger. No removal of hardwood trees 12-inch DBH or larger. Priority for removal is shrubs, trees that have a moderate to high mistletoe infection (Hawksworth rating of 4, 5, or 6), then white fir, incense cedar, and ponderosa pine. Sugar pines less than 16-inch DBH with evidence of heavy blister rust infection (swollen bole or branches with dead or dying needles) can be removed. In openings where a canopy of mature trees is lacking and thick shrubs are present, shrubs may be thinned to release trees or break up fuel continuity but retain a minimum of 25 to 50 percent vegetation cover. Trees under 10-inch DBH in openings are to be thinned to 20 foot spacing. Residual trees shall be pruned of all branches up to 8 feet off the forest floor, retaining 30 percent of the live tree canopy. Retain 4 of the largest snags per acre unless the snags are imminently hazardous to life or property. Limit woody debris to 10 to 20 tons per acre on average for fuels less than 3 inches diameter (1-, 10- and 100-hour fuel size classes). Fuels greater than 3 inches in diameter (1,000-hour fuels or greater) shall be limited to 5 to 7 logs per acre (approximately 13 to 18 tons per acre) with a desired size greater than or equal to 20 inches diameter and 10 feet in length. Excess dead and down material beyond these thresholds may be removed, piled and burned, or broadcast burned.

WUI DEFENSE & THREAT ZONE CASPO PACS

Prescribed burning is allowed within the 500-foot radius buffer of the PAC activity center. Hand treatments, including handline construction, tree pruning, and cutting of small trees (less than 6-inch DBH), may occur prior to burning as needed to protect important elements of owl habitat.

PLANTATIONS

Thin the 25 to 30-year-old plantations to achieve 25-foot crown spacing of residual trees. A diversity of size classes will be retained across plantations. Priority for removal are trees that have a high or moderate to high mistletoe infection (Hawksworth rating of 4, 5, or 6), or other defects that would prevent the tree from attaining good health and vigor. Residual trees shall be

pruned of all branches up to 8 feet off the forest floor, retaining 30 percent of the live tree canopy.

FIRELINES

Lines to control fire spread will be constructed wherever necessary to keep pile and broadcast prescribed burns from spreading and where necessary for wildfire management. All lines will be rehabilitated prior to any predicted rain. All lines will be hidden from view from roadways or trail systems to limit OHV use. Duff and litter layer will be pulled back to cover mineral soil. Vegetation cut during line construction may be piled, lined, and covered. Trenching of lines should meet the waterbar standards captured in Table 2. Once no longer being utilized, all firelines created for prescribed burning (both Pile and Underburn) will be rehabbed / repaired in accordance with guidelines outlined in deciding official-approved Turn Back Standards.

Table 2. Slope gradient and waterbar spacing for firelines occurring across soils with all Erosion Hazard Ratings (see Soils Report).

Fireline Gradient (%)	Waterbar Spacing (ft) by Erosion Hazard Rating			
	Low	Moderate	High	Very High
1-6	400	350	300	250
7-9	300	250	200	150
10-14	200	175	150	125
15-20	150	120	90	60
21-40	90	70	50	30
41-60	50	40	25	15

HERBICIDES TO MANAGE FUELS

Herbicides will be used as a secondary treatment, targeting sprouting shrub species to maintain open vegetation structure in fuelbreaks and within 25 feet of strategic roads. Strategic roads are those that provide critical wildfire access for fireline resources (e.g., fire engines) and bisect fuels and disconnected parcel treatment areas. Approximately 558 acres of fuelbreaks, 25 acres of strategic roadsides and up to 20 acres of noxious weed populations will be treated with herbicides.

Sprouting shrub species would be targeted for treatment with a retention not to exceed 25 percent understory vegetative cover (Table 3). Grasses, forbs, and bear clover will not be targeted. To manage fuels, 4 percent glyphosate mixture at up to 40 gallons per acre would be applied to sprouting shrub species mechanical, biomass, hand thinning, piling and burning and/or broadcast burn treatment completion and will be need-based and dependent upon vegetation response where understory vegetation height meets herbicide label guidelines and California State regulations. Fuel management using herbicides may occur as early as 1 year after initial treatment(s), with up to 2 herbicide applications in the first 5 years and a third application

between years 5 and 10 based on vegetative response to treatment(s). Timing and method of all herbicide application would maximize treatment effectiveness and follow label instructions.

Table 3. Post-fire establishment adaptations of common shrubs in the project area (USDA 2019). Only species capable of sprouting post-fire will be targeted for herbicide treatment along fuelbreaks and strategic roads.

Common Name	Botanical Name	Fire Adaptation
Buckbrush	*Ceanothus cuncatus*	seed germination
California yerba santa	*Eriodictyon californicum*	sprouts from rhizomes & seed germination
Chamise	*Adenostoma fasciculatum*	sprouts from lignotuber & seed germination
Deer Brush	*Ceanothus integerrimus*	sprouting from root crown & seed germination
Gooseberry	*Ribes uva-crispa*	may sprout & seed germination
Greenleaf manzanita	*Arctostaphylos patula*	sprouts from lignotuber & seed germination
Pacific poison oak	*Toxicodendron diversilobum*	sprouting from root crown&/or rhizomes & seed germination
Toyon	*Heteromeles arbutifolia*	sprouting from root crown & seed germination
Whiteleaf manzanita	*Arctostaphylos viscida*	seed germination

HERBICIDES TO MANAGE NOXIOUS WEEDS

A 4 percent glyphosate mixture at up to 40 gallons per acre will be used to manage noxious weeds throughout the project area. Since noxious weed populations in the project area are small and discrete, the amount of herbicides application used to manage these species is anticipated to be much lower than 40 gallons per acre. Noxious weed populations will be treated until populations are controlled (less than 10 years in most cases) at a frequency necessary to decrease population extent, spread and seed production (Appendix D). Timing and method of all herbicide application would maximize treatment effectiveness and follow label instructions.

UNAUTHORIZED ROUTE RESTORATION

To compliment completed OHV restoration projects (Cedar Ridge and Sampson OHV Restoration Projects), unauthorized non-system routes within the project area will be restored to protect watersheds, improve use of the authorized NFTS route system, and reduce potential for human fire starts along unauthorized routes. These efforts will improve desired conditions within the project area as described in the 2009 Travel Management Record of Decision (USDA 2009).

Restoration of up to 15 miles of unauthorized non-system routes will include installation of vehicle control barriers, signing, covering with slash, blocking, sub-soiling, and water barring.

ABANDONED MINE CLOSURE

Abandoned mines within the project area will be closed to protect human health and safety. No active mining claims will be treated through this project. Methods used to close abandoned mines will be friendly to wildlife and other known sensitive resources and include fencing, back fill using onsite materials, steel plate, gate, and foam. Due to flammability concerns associated with foam, this closure method may be capped with soil or concrete to insure treatment effectiveness.

Vegetation Treatment Methods

A combination of treatment methods will be applied to all unit types depending on environmental conditions at the time of implementation. This section depicts where those methods may be applied and defines what equipment and activities these treatment methods entail (Table 1).

MECHANICAL

Mechanized equipment will be used in areas of dense vegetation where slopes are less than 45 percent. Excavator, mini excavators, skid steer, and dozer piling will be used to thin vegetation by pushing/moving shrubs, small trees and downed fuels into piles for burning or removal if feasible.

BIOMASS REMOVAL

Small live trees between 3 and 10 inches DBH and dead trees up to 15-inch DBH may be removed except in open areas where large trees are sparse. Dominant and codominant trees under 10 inches DBH in openings are to be thinned. Feller buncher, rubber-tired skidder, chipper, chip truck, and/or loader may be used to accomplish biomass treatments.

MASTICATION

Mastication includes the use of tracked equipment with a mastication device. Mastication treatments consist of shredding shrubs, small trees and woody debris. This treatment would be used in areas that are predominantly shrub dominated or in plantations with trees under 10-inch DBH, as well as a follow-up to thinning biomass treatments in some areas. Hardwoods should be retained.

HAND THINNING

Hand thinning would remove trees and shrubs using chainsaws and hand tools where mechanical treatment is infeasible. Pruning would entail the removal of lower tree branches to raise height to live crown and reduce ladder fuels. The resulting slash would be piled and burned or chipped onsite.

PILING AND BURNING

Cut trees and slash may be piled by hand or machine and burned. Piles will be constructed in natural openings, landings, and on top of noxious weed populations where the pile will completely cover the entire population and burning is a documented effective eradication treatment method. Piles will be constructed 15 feet from the dripline of residual trees. These piles will be burned according to a prescribed burn plan written by a qualified burn boss. In situations where air curtain burners are viable, they may be used as a replacement for pile burning. Use of air curtain burners reduces the amount of emissions released from traditional open air burning.

BROADCAST BURNING

Timing of underburning as a primary or secondary fuels treatment shall be based on vegetation structure. Perimeter fireline would be constructed where roads, trails, or natural barriers are absent. Fireline construction will remove vegetation including trees up to 6 inches DBH, pruning trees, and clearing the ground to bare mineral soil. Hand tools, dozers, skid steers, and explosives may be used to build control lines. All firelines would follow the established guidelines for water bar construction as outlined in the Best Management Practices (BMPs, Appendix E). Firelines visible from roads would be camouflaged by raking duff back to discourage unauthorized use after burning. Broadcast burns will be implemented according to a prescribed burn plan written by a qualified burn boss.

HERBICIDES

Fuelbreaks are rapidly recolonized by shrub species that limit the duration of hand and mechanical fuels treatment effectiveness. The prescription proposed would be a hand application of the herbicide glyphosate using a backpack sprayer with an appropriate surfactant. Undesirable shrub growth would be treated for up to 10 years, as needed to maintain the vegetation at acceptable fuels conditions (see previous sections). Only re-sprouting shrub species or noxious weeds would be targeted in the herbicide applications (Table 3, Appendix D). Bear clover will not be targeted for herbicide treatment. Fuelbreaks and within 25 feet of strategic roadsides will be treated twice within the first 5 years following mechanical, biomass, hand thinning, piling and burning and/or broadcast burn treatment completion and will be based on vegetation response. A third glyphosate application may occur to manage fuels between years 5 and 10 if conditions warrant. Noxious weed populations will be treated until controlled (less than 10 years for most species) at a frequency necessary to decrease population extent, spread, and seed production. Herbicides will be applied at the appropriate time of year and follow label instructions to insure treatments are most effective.

Public notification will include posting of herbicide treatment areas 7 days prior to application along roads and trails (motorized and non-motorized). Additional information will include information explaining herbicide treatments at select entrances into project areas.

MANAGEMENT REQUIREMENTS

The following Management Requirements are included in my decision and they provide for consistency with the Forest Plan and other guidance, and/or they minimize potential impacts to the applicable resource.

AQUATICS

- In unit 202, consult an aquatic biologist or hydrologist prior to prescribed fire ignition between Five Mile Creek and Yankee Hill Road (see Aquatics Letter to Project File).
- Monitor fireline rehabilitation effectiveness annually and following exceptionally heavy rainfall events [high intensity (>0.5 inch/hour) or quantity (storm total >5 inches over 3 days)] in unit 202. (see Aquatics Letter to Project File).

FORESTRY

- Avoid broadcast burning in plantations prior to bud dormancy (fall) to reduce impacts to tree growth.
- Broadcast burns should not result in greater than 20% overstory tree mortality.

FUELS

- Complete all burning under approved burn and smoke management plans.
- Acquire burn permits from the appropriate county Air Pollution Control District(s) which will determine when burning is allowed.
- The California Air Resources Board provides daily information on "burn" or "no burn" conditions.
- Design and implement burn plans to minimize particulate emissions.
- All piles shall be covered with Forest Service approved durable waterproof covering.
- The waterproof covering shall be at least 6 feet in width and cover approximately ½ the diameter of all piles.
- Pieces of burnable material shall be placed on top of the durable waterproof covering ensure piles coverings remain intact during wind events, during winter storms and other weather.
- All piles shall be reasonably compact and free of soil (<10% soil) to facilitate burning and shall be constructed of such size and at such distance from trees so that burning shall not result in unnecessary damage to residual timber.
- An 8- foot wide fuelbreak shall be cleared of all but fine material around each Machine Pile and a 36-inch wide fireline shall be cleared to mineral soil around the outer ring of the fuelbreak.
- Piles shall be no less than four feet in height. Material extending three feet or more outside the edge of a pile shall be trimmed.
- In areas where there is a potential for burning material to roll, firelines shall be trenched on the downhill side of each pile to adequately prevent material from crossing firelines. In addition to trenching, material shall be piled perpendicular to the slope to prevent it from rolling.

- All handwork done along fuelbreak(s) will meet the minimum widths outlined within the Forest Plan.
- Turnback Standards will be developed prior to implementation.
- Once no longer being utilized, all firelines created for prescribed burning (both Pile and Underburn) will be rehabbed/repaired in accordance with the guidelines outlined in the Turn Back Standards.
- Firelines constructed along Fuelbreaks will be rehabbed/repaired in accordance with the guidelines outlined in the Turn Back Standardswithin 48hrs of completion.
- Masticated material will not exceed a depth of 6 inches.

HERBICIDES

- To protect streams and special aquatic features, do not apply herbicides within the following designated buffers: 10 feet from the edge of municipal open water conveyance systems (ditches) or rivers or perennial, intermittent or ephemeral streams; special aquatic features, such as springs, fens and seeps; and obligate riparian vegetation. The 10-foot buffer does not apply if any intermittent or ephemeral stream is dry at the time of application.
- Storage of herbicides: No storage of herbicides is allowed within RCAs other than what will be carried in the contractor(s) vehicle to complete each day's work. Mixing and loading will be done in areas where accidental spills will not contaminate streams or other water. Mixing sites will be predetermined by the COR and should be as far from water and on ground as level as possible. Include spill cleanup procedures in all project implementation plans.
- When applying herbicides to vegetation near surface waters (10 to 25 feet from water), limit containers three gallons or less.
- Temporarily stop all herbicide application activities if a member of the public enters the vicinity of the application site. Application activities may be resumed after the public have vacated the vicinity of application.
- Post signs detailing the name of chemicals applied, date of application for at least 30 days following application.
- At least 5 business days prior to initiating herbicide application within 20 feet of designated or high use unauthorized (e.g., TUD ditch trail) hiking/walking trails, post signs detailing the date of application, area of application, and District point of contact for additional information
- Comply with all label and other applicable legal requirements for herbicide use and cleaning and disposal of pesticide equipment and containers. Incorporate a spill contingency plan into the project safety plan and have on site during herbicide implementation.

HERITAGE

- Heritage resources shall be protected from all project activities during all phases of the project.

- Implementation staff will work with District or Forest Heritage Program Manager to insure site Approved Standard Resources Protection Measures [Appendix E, 1.3(1)] are used in all phases of project implementation as described in the Pacific Southwest Region Heritage Programmatic Agreement (USDA 2013, hereafter R5 PA).
- District or Forest Heritage Program Manager will be consulted for treatment design and layout prior to implementation to avoid impacts to historic properties based on Approved Standard Protection Measures (R5 PA Appendix E, USDA 2013) or to modify treatments to avoid historic properties all together.
    - Heritage sites are present in all units. Units 102, 201, 208 and 305 each overlap 10 or more acres of heritage sites. Heritage sites are also present in all other units, but account for fewer acres. Further consultation with Forest or District Heritage Program Managers is necessary prior to implementation to accomplish treatment/project goals while protecting heritage sites in units.
        - Unless the treatment activity has been approved by Heritage Staff under the provisions of the R5 PA (USDA 2013), sites will be excluded from undertaking activity. Sites shall be delineated with coded flagging and/or other effective marking prior to implementation.
    - Any tree inadvertently felled into a cultural site boundary is to be left in place until the incident is evaluated by the Heritage Resource specialist recommendations made to the deciding official [USDA 2013, Appendix E, E.2.2(a)].
    - If a transportation corridor is found to contain an archaeological deposit, all efforts shall be made to avoid using that portion of the travel-way. Alternatively, padding may be placed on the travel-way to protect the resource if the placement of the padding is determined sufficient for resource protection by the Forest Engineer. In addition, the pads should be easily distinguished from the underlying deposit [USDA 2013, Appendix E, E.2.1(c)].
    - Linear sites (roads, trails, ditches) may be crossed or breached by equipment in areas where their features or characteristics clearly lack integrity. Archaeologist approval required prior to implementation [USDA 2013, Appendix E, E.2.1(a)].
    - Mechanically treated (crushed/cut) brush or downed woody material may be removed from historic properties by hand, through the use of off-site equipment, or by rubber-tired equipment approved by HPMs or qualified Heritage Program staff. Use of tracked equipment may be approved in some cases. Ground disturbance shall be minimized to the extent practicable during such removals [USDA 2013, Appendix E, E.2.2(b)(1)].
- Firelines or breaks and/or protective materials may be used with approval by HPM or qualified Heritage Staff to protect historic properties during prescribed fire Vegetation to be burned shall not be piled within the boundaries of historic properties unless locations (e.g., a previously disturbed area) have been specifically approved by Forest or District Heritage Program Managers.
- For motorized recreation projects, Forest or District Heritage Program Managers, in conjunction with motorized recreation specialists and engineers as necessary, shall

develop treatment measures for *at risk* historic properties designed to eliminate or reduce potential adverse effects to the extent practicable by utilizing methods that minimize surface disturbance, and/or by planning project activities in previously disturbed areas or areas lacking cultural features. Consult with Forest or District Heritage Program Managers on treatments approved by the Regional PA.

- Abandoned mine closure will not alter the character of historic sites. Hazards abatement, including elimination of toxic and other hazardous material (excluding remediation of CERCLA sites); and filling, barricading, or screening of abandoned mineshafts, adits, and stopes where such features are not historic or contributing properties, or closure methods that only include reversible means such as bat gate, rebar shaft grate, gates, D-3 lugs, fencing, or polyurethane foam (PUF) shaft plug methods where installation (e.g., cement) avoids portal structural features as much as practicable. Cupolas are not an acceptable means of mine closure per the R5 PA (USDA 2013).

HYDROLOGY

- Follow Best Management Practices checklists during project implementation (Appendix E).

NOXIOUS WEEDS

- Complete weed surveys prior to implementation.
- Treat known noxious weeds prior to mechanical activity implementation. When feasible, treat in years prior to mechanical activity and prior to flowering and seed set to insure effectiveness.
- Flag and avoid known noxious weed populations if pre-treatment cannot be accomplished. Where noxious weeds cover large areas (>3 acres), mechanical treatment may be implemented within sites as long as equipment is cleaned prior to leaving the unit.
- Landings that support weed populations may be used until seed set. Continued use of these areas is prohibited after seed set until the following season.
- Begin treatment of weeds in fuelbreaks before or in the same year as the fuelbreaks are created or maintained.
- After using equipment in areas occupied by noxious weeds, clean equipment so that it is free of soil, seeds, vegetative matter or other debris prior to moving offsite. Within infested units, activities will be completed in uninfested portions first. In order to move equipment from one infested area to another, both areas must support the same species and the new area must have widespread infestations. If both situations are not present, the equipment must be cleaned prior to moving to the next area.
- The Forest Service will designate the order, or progression, of unit completion to insure uninfested units are treated before treating units that support noxious weeds.
- All vehicles and equipment must 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. Care should be taken to remove weed seed from personal equipment (e.g., boots) when leaving an infested area. Dust or very light dirt

which would not contain weed seed is not a concern. Equipment includes but is not limited to: earth moving equipment, skidders, feller bunchers, excavators, tracked chippers, mowing and shredding equipment.

- Do not stage equipment, material, supplies or personnel in areas with noxious weed infestations.
- Where road work occurs near broom populations, monitor and treat for broom seedling establishment the following year to prevent population expansion.
- Clear herbicide application and hand pulling efforts to eradicate noxious weeds with specialists each year prior to treatment.
- No piles will be built on or adjacent to weed populations without coordination with a qualified botanist or ecologist. Piles may be built on small weed infestations if they are burned prior to spring emergence and summer/fall seed.
- Monitor and treat machine/hand piles for weeds after burning.

RECREATION

- The following may be installed along NFTS roads or motorized trails to deter motorized cross-country travel and unauthorized route creation where deemed necessary following vegetation treatments: compressed fiberglass signs; bollards; fencing; boulders; or natural materials.
- Leave 4 to 6-inch-high stobs (cut base of trees, shrubs) within 50 ft of motorized routes to deter unauthorized off route use in shredding/mastication units, all fuel breaks will be un-drivable unless an existing NFTS route is present or access is needed for administrative purposes or wildfire suppression access.
- Educational signing may be installed advising public of OHV management objectives and desired conditions.
- OHV deterrence treatments will be monitored for effectiveness during and after project implementation.
- Existing improvements from previously implemented OHV restoration efforts in the project area will be protected during implementation or restored to pre-treatment state including but not limited to vehicle control barriers (debris, log, fence, posts, rock boulders), signing (education, enforcement, information), and waterbars.

ROADS

- All skid trails constructed for fuel reduction access would be rehabilitated/obliterated and blocked by barriers to prevent further access following implementation activities.
- Existing non-system roads in the project area may be used for access only. These non-system roads are considered temporary, and if used for hauling would need to be rehabilitated/obliterated and blocked by barriers to prevent further access following project activities.
- Existing roads and landings would be utilized wherever possible.
- No new permanent system roads would be constructed for this project.

SENSITIVE PLANTS

- Botanical surveys will be completed in suitable habitat prior to project implementation. Surveys should be completed at the time of year when plants are identifiable (e.g., in flower).
- Provide protection measures for sensitive plant occurrences discovered in the project area.
- Flag and avoid occurrences of sensitive plant species with a 10-foot buffer.
- If suitable habitat is not surveyed prior to implementation by a botanist, ecologist or qualified individual, this habitat will be treated as occupied and flagged for avoidance according to specifications described above.
- Do not pile or spread plant materials (e.g., slash, masticated vegetation, chips) within sensitive plant avoidance areas.
- Where noxious weeds and sensitive plant species co-occur, herbicide application is prohibited. Noxious weeds may be treated by hand following consultation with a qualified botanist or ecologist and as approved by the Decision Maker.
- The following activities are permitted within sensitive plant populations when conditions described exist:
    - Late season broadcast burn where fuel loading within sensitive plant occurrence(s) will not result in long heat residence time.
    - Hand thinning prior to emergence, after seed set, or when dormant.
    - Transplant sensitive plant individuals and/or reproductive parts (e.g., bulbs) if sensitive plants are discovered within roadways prior to road maintenance and/or OHV route restoration.

SOILS

- Maintain 50% of well-distributed soil cover (unburned duff; needle cast; basal live plant cover; fine woody debris; and downed logs) on slopes *less than or equal to* 25%.
- Maintain 60% of well-distributed soil cover (unburned duff; needle cast; basal live plant cover; fine woody debris; and downed logs) on slopes *greater than* 25%.
- All *landings and temporary roads* will be subsoiled to a depth of 24 inches once no longer in use.
    - Exceptions can be made in areas with high rock content; steep slope; moisture content; depth to restricting layer and/or erosion hazards would limit subsoiling feasibility.
- All *skid trails* will be subsoiled to a depth of 18 inches once no longer in use.
    - Exceptions can be made in areas with high rock content; steep slope; moisture content; depth to restricting layer and/or erosion hazards would limit subsoiling feasibility
- Dozer piling is limited to slopes of:
    - 25% or less on soils with an Erosion Hazard Rating of High to Very High
    - 30% or less on soils with an Erosion Hazard Rating of Moderate or Low.
- Skidding with rubber-tired or fixed track equipment is limited to slopes of 35% or less.

- A brush rake will be utilized for all dozer piling. The blade shall be kept at least 6-inch above ground level to minimize disruption of soil cover.
- Force Account dozer work will be monitored by the Forest Soil Scientist.
- To protect thin soils, dozer piling is prohibited in units 106, 107 and 307.
- Equipment operations occurring between October 15th and June 1st shall be monitored.
    - Test for soil moisture
    - Test soil for trafficability.
    - Ensure equipment operates only on soils that are relatively dry and high of strength or bearing capacity.

WILDLIFE

- Survey the spotted owl and great gray owl Protected Activity Centers (PACs) within the project area. The biologist may waive the survey requirement when vegetation treatments are not likely to reduce habitat quality.
- Mechanical treatments are prohibited within a 500-foot radius buffer around spotted owl and great gray owl activity centers
- Maintain a Limited Operating Period prohibiting vegetation treatments and road construction within 0.25 miles of the activity center during the breeding season (March 1 to August 15) for spotted owl and great gray owl unless surveys confirm the owls are not nesting. The LOP may be waived on a case by case basis by the Decision Maker if the District wildlife biologist determines that breeding disturbance is unlikely to occur given the intensity, duration, timing, or specific location of the activity.
- Avoid new landings and dozer line in PACs to the extent practicable. If either are deemed critical, discuss with the District wildlife biologist who may advise the Decision Maker to approve the action if substantial disturbance is unlikely to occur given the intensity, duration, timing, or specific location of the activity.
- Notify the District wildlife biologist if any federally Threatened, Endangered, Candidate, Proposed, or Region 5 Forest Service Sensitive species are discovered during project implementation so that protective measures can be applied, if needed, as approved by the Decision Maker.
- If abandoned mines are closed using methods that are lack wildlife friendly features (e.g., filling with onsite materials), surveys for sensitive bat species will occur prior to treatment implementation.

DECISION

My decision is to implement the proposed actions and management requirements as described above. These actions fall within categories of actions that are excluded from documentation in an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) and no extraordinary circumstances [36 CFR 220.6(b)] would preclude use of categories listed Section 605 of HFRA (16 U.S.C.6591d), 36 CFR 220.6(e)(20), and 36 CFR 220.6(d)(1). Appendix A

contains a *Review of Extraordinary Circumstances* supporting my determination that no extraordinary circumstances exist.

Resource specialists input covering aquatics, botany, engineering/roads, fuels, heritage, hydrology, silviculture, soils, and wildlife are included in the project file located at the Mi-Wok Ranger Station in Mi-Wuk Village California. I considered their recommendations in making this decision. Specific management requirements included in this decision are described above.

Reason for the Decision

I made this decision selecting the proposed action because it meets the Forest Plan Direction by: treating fuels to significantly reducing future fire intensity and rate of spread; using a strategic approach for treatment placement; sequential fuel treatments in coniferous vegetation to achieve 4-foot flame length on average; utilize strategic topographic features and roadsides for fuelbreaks; coordinate fuelbreak establishment to minimize conflicts with OHV use and management. These Forest Plan Objectives while considering environmental factors and other resource values (USDA 2017, p. 13, 34, 37).

COLLABORATION AND PUBLIC INVOLVEMENT

The Highway 108 Firesafe Council approached the Stanislaus National Forest in spring 2018, requesting the Forest develop a project that would complement and connect their work establishing and maintaining fuelbreaks along Big Hill Road and in the vicinity of Cedar Ridge. The Sierra Nevada Conservancy (SNC) hosted a meeting on July 10, 2019; which was attended by staff from the Stanislaus National Forest, Tuolumne County, Tuolumne County Resource Conservation District (Tuolumne RCD), Highway 108 Firesafe Council, Tuolumne Utilities District (TUD), and Sierra Pacific Industries (SPI[1]). The intent of the meeting was to expand ongoing vegetation management work along critical infrastructure. The Cedar Ridge area was identified as a high priority for vegetation treatment during this meeting. Stanislaus National Forest staff presented the initial project to Yosemite Stanislaus Solutions (YSS[2]) collaborative group

The project was further developed during field visits to the project area with SNC, Highway 108 Firesafe Council, and Tuolumne RCD staff on September 11, 2019. The Stanislaus National Forest received letters of support for the project from Clovis Unified School District, Tuolumne County Board of Supervisors, CalFire, Highway 108 Firesafe Council, and TUD as the USFS interdisciplinary team began drafting the proposed action in early October of 2019.

Project activities were listed as a proposal on the Stanislaus National Forest Schedule of Proposed Actions (SOPA) on October 21, 2019. In addition, the proposed action and project maps were posted to the project website (https://www.fs.usda.gov/project/?project=57025) on October 21, 2019 and a scoping letter was electronically mailed to 25 individuals, permittees, organizations, agencies and Tribes potentially interest in this project. The scoping letter included information on how to view and comment on the proposed action and requested comments be received by November 1, 2019.

[1] SPI is a forest products company that actively manages timberlands throughout California with 8 sawmill locations.
[2] YSS is a collaborative group of diverse interests working together to assist the US Forest Service, BLM, and Yosemite NP and private land managers in achieving healthy forests and watersheds and in developing recovery restoration in areas in need of rehabilitation.

A comment letter was received from Central Sierra Environmental Resource Center (CSERC[3]) during scoping and was reviewed by the interdisciplinary team. The letter was generally in supported the proposed action, though concerns regarding maximum diameter at breast height (DBH) within California Spotted Owl PACs and post-treatment fuel loading were raised. The interdisciplinary team developed fuel reduction proposed actions for California Spotted Owl PACs based on past projects and selected the lower, more conservative DBH limit based on observed conditions in treated stands. Monitoring previous projects after treatment implementation has been completed also informed the interdisciplinary team during discussions of lowering fuel load proposed actions. These observations have demonstrated fuel loading below 10 tons per acre is rarely achieved. We adjusted the proposed action from 20 tons per acre to 10 to 20 tons per acre where this condition is attainable and did not alter the DBH limit within California Spotted Owl PACs.

Letters of support were received from CT Bioengineering LLC during the comment period and from SPI after the scoping period ended.

Prior to implementation, the Forest Service will inform the public when any project work or temporary closures associated with the project will occur through the Forest's website, signs, and/or information at the District and Forest Headquarters front desks.

REASONS FOR CATEGORICALLY EXCLUDING THE PROPOSED ACTION

It is my determination that this action may be categorically excluded from documentation in an environmental impact statement (EIS) or environmental analysis (EA) because it fits within category listed Section 605 of HFRA (16 U.S.C.6591d), 36 CFR 220.6(e)(20), and 36 CFR 220.6(d)(1) and no extraordinary circumstances preclude the use of these categories (Appendix A). These categories allow for:

- Wildfire Resilience [Section 605 of HFRA (16 U.S.C.6591d)], where hazardous fuels are reduced across up to 3,000 acres of National Forest System lands in insect and disease treatment areas designated by the Secretary of Agriculture in the Wildland Urban Interface (WUI) to maximize large tree retention and promote stands that are resilient to insects and disease, and reduce the risk or extent of, or increase the resilience to, wildfires with no permanent road establishment.
- Activities that restore, rehabilitate, or stabilize lands occupied by roads and trails, excluding National Forest System roads and National Forest System trails to a more natural condition that may include removing, replacing, or modifying drainage structures and ditches, reestablishing vegetation, reshaping natural contours and slopes, reestablishing drainage-ways, or other activities that would restore site productivity and reduce environmental impact***s*** [36 CFR 220.6(e)(20)].
- Protection of public health and safety [36 CFR 220.6(d)(1)].

[3] CSERC is a non-profit organization working to defend water, wildlife, and wild places.

COMPLIANCE WITH FOREST PLAN AND FINDINGS REQUIRED BY OTHER LAWS

This action is consistent with the Forest Plan (USDA 2017); the National Historic Preservation Act; the Sierra Nevada Framework; and all other applicable laws and regulations (see Appendix A).

ADMINISTRATIVE REVIEW AND IMPLEMENTATION

This decision is not subject to administrative review and may be implemented immediately[4].

CONTACT

Questions regarding this project and additional information can be obtained by contacting Carly Gibson at carly.gibson@usda.gov.

Signature and Date

Sarah LaPlante

SARAH LAPLANTE
District Ranger Stanislaus National Forest

12.18.19
Date

[4]The Consolidated Appropriations Act of 2014 (P.L. 113-76; January 17, 2014) directs that the 1992 and 2012 legislation establishing the 36 CFR 215 (post-decisional appeals) and 36 CFR 218 (pre-decisional objections) processes shall not apply to any project or activity implementing a land and resource management plan that is categorically excluded under NEPA. The Agricultural Act of 2014 (P.L. 113-79; February 7, 2014) repealed the Appeals Reform Act (P.L. 102-381) and directs that the pre-decisional objection process established in the Consolidated Appropriation Act of 2012 shall not apply to categorically excluded projects or activities.

APPENDIX A: REVIEW OF EXTRAORDINARY CIRCUMSTANCES

In accordance with 36 CFR 220, the Responsible Official considered the following resource conditions in determining whether extraordinary circumstances related to the proposed action would warrant further analysis and documentation in an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).

Finding of No Extraordinary Circumstances

1. Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species;

Status	Group	Species	Potential Effect
Federally Threatened	Aquatic Wildlife	California red-legged frog (*Rana draytonii*)	No Effect, Critical habitat - none present
		California tiger salamander (*Ambystoma californiense*)	
		delta smelt (*Hypomesus transpacificus*)	
Federally Proposed & Candidate	Terrestrial Wildlife	Sierra Nevada red fox (*Vulpes vulpes necator*)	No Effect, Critical habitat - none present
		Pacific fisher (*Pekania pennanti*)	
		North American wolverine (*Gulo gulo luscus*)	
Forest Service Sensitive Species	Terrestrial Wildlife	Willow flycatcher (*Empidonax trailii*)	No Effect
		Townsend's big-eared bat (*Corynorhinus townsendii*)	
	Aquatic Wildlife	Hardhead (*Mylopharodon conocephalus*)	
		Limestone salamander (*Hydromantes brunus*)	
	Plants	Brook pocket moss (*Fissidens aphelotaxifolius*)	
	Terrestrial Wildlife	Western bumblebee (*Bombus occidentalis*)	May affect individuals or habitat, but is not likely to result in a trend toward Federal listing or loss of viability in the planning area
		Bald eagle (*Haliaeetus leucocephalus*)	
		Northern goshawk (*Accipiter gentilis*)	
		Great gray owl (*Strix nebulosa*)	
		California spotted owl (*Strix occidentalis occidentalis*)	

Status	Group	Species	Potential Effect
		Pacific marten (*Martes caurina*)	
		Fringed Myotis (*Myotis thysanodes*)	
		Pallid bat (*Antrozous pallidus*)	
	Aquatic Wildlife	Foothill yellow-legged frog (*Rana boylii*)	
		Western pond turtle (*Actinemys marmorata*)	
	Plants	Tuolumne Iris (*Iris hartwegii ssp. columbiana*)	
		Tuolumne fawn-lily (*Erythronium tuolumnense*)	
		Stebbins lomatium (*Lomatium stubbinsii*)	
		Big-scale balsamroot (*Balsamorhiza macrolepis var. macrolepis*)	
		Parry's Horkelia (Hokelia parryi)	
		Pansy monkey flower (Mimulus pulchellus)	
		Mariposa clarkia (Clarkia biloba)	
		Elongate copper moss (Mielichhoferia elongate)	
		Shevock's copper moss (Mielichhoferia shevockii)	
		Branched collybia (Dendrocollybia racemose)	

2. Flood plains, wetlands, or municipal watersheds;
Floodplains:

Executive Order 11988 of 1977 defines floodplains as, ". . . the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent [100-year recurrence] or greater chance of flooding in any one year.

- Floodplains, as defined in Executive Order 11988 of 1977, do not apply to this project area. But, for these mountain streams, the floodplain includes the immediate channel and its flood prone areas and/or adjacent terrace. Streams and their flood prone areas would be protected by the implementation of operating requirements for mechanized equipment operations in RCAs and BMPs provided for the project (Appendix E). It is anticipated that obligate vegetation removal

will not occur and that there won't be any in-stream work (Perez; Hydrologist, Mi Wok Ranger District; hydrology input, November 18, 2019).

Wetlands:

Executive Order 11990 defines wetlands as, ". . . areas inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds."

- No wetlands exist within or adjacent to the project area on NFS lands. The nearest meadow area is located on private land (French Camp Site), approximately 1.0 mile to the north of the most western fuelbreak within the project area. This project is not expected to affect the wetlands. (Perez; Hydrologist, Mi Wok Ranger District; hydrology input, November 18, 2019).

Municipal Watersheds:

FSM 2542.05 defines municipal watersheds as: "A watershed that serves a public water system as defined in the Safe Drinking Water Act of 1974, as amended (42 U.S.C. §§ 300f, et seq.); or as defined in state safe drinking water statutes or regulations."

- The project area is considered to be within or adjacent to a municipal watershed; the Central Valley Regional Water Quality Control Board lists municipal supply as a beneficial use for the Stanislaus and Tuolumne River including all tributaries. Due to the limited nature and scale of this project, the potential effects of the project on municipal water supplies are negligible. In addition, implementation of BMPs provided for the project would minimize any actual effect to a minor or negligible amount (Perez; Hydrologist, Mi Wok Ranger District; hydrology input, November 18, 2019).

3. Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas;

- No congressionally designated areas exist in the project area.

4. Inventoried roadless areas or potential wilderness areas;

Inventoried Roadless Area:

- No existing or proposed Inventoried Roadless Area exists within the project area.

Potential Wilderness Area:

- This project is not located within a proposed or potential wilderness area.

5. Research natural areas;

- This project is not located within an existing or proposed Research Natural Area.

6. American Indians and Alaska Native religious or cultural sites, and;

- This project has been designed so that no adverse effects will occur to cultural sites, archaeological sites or historic properties through implementation of the Standard Protection Measures of the Programmatic Agreement regarding cultural resource management on national forests of California (see Cedar Ridge Cultural Resource Management Report 05-16-1418).

7. Archaeological sites, or historic properties or areas.

- Refer to item 6 above (*American Indians and Alaska native religious or cultural sites*).

APPENDIX B: REFERENCES

USDA. 2019. Fire Effects Information System. USDA, Forest Service, Rocky Mountain Research Station, Fire Modeling Institute. Missoula MT. Available online: https://www.feis-crs.org/feis/ Accessed November 15, 2019.

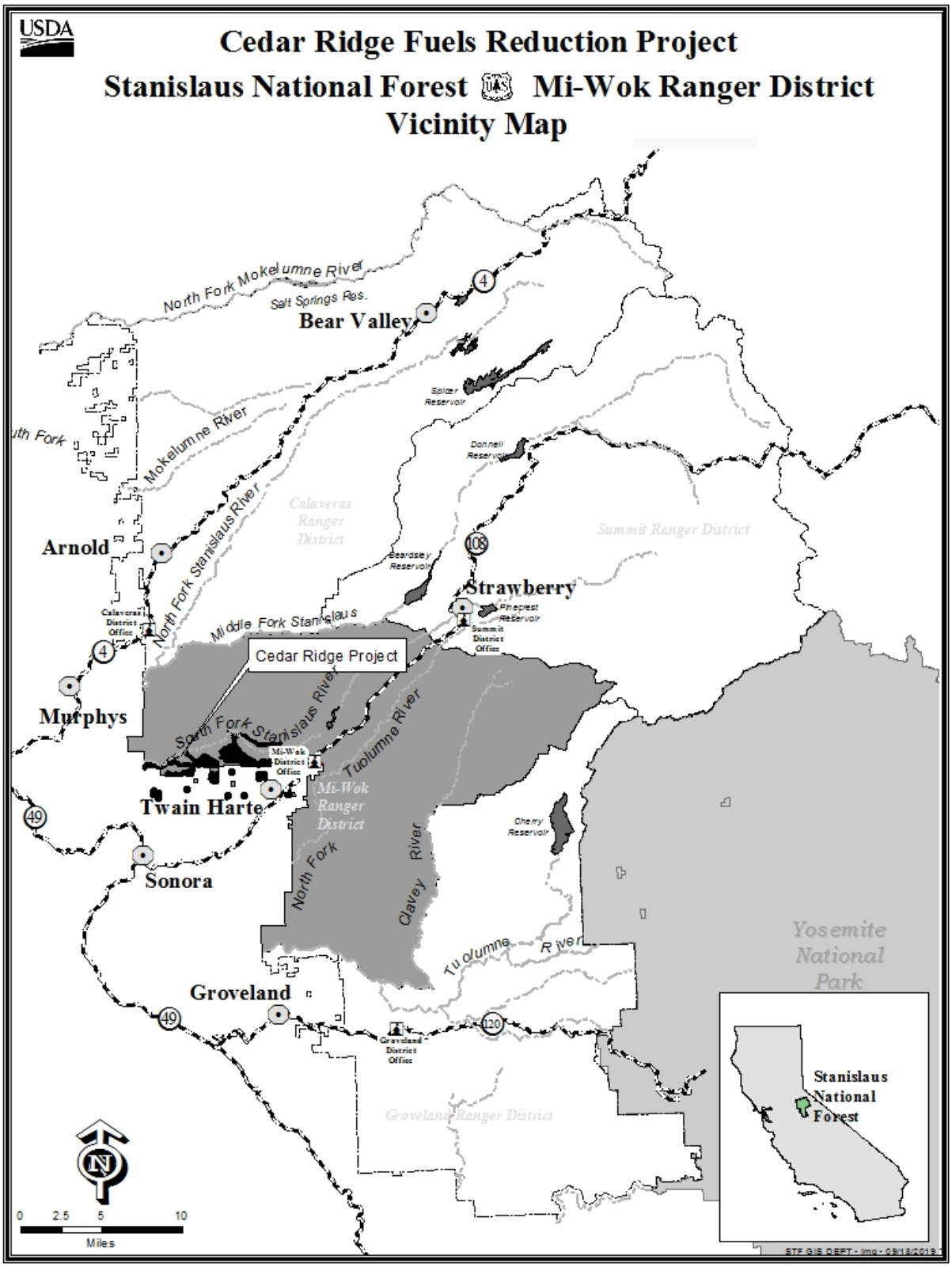
USDA. 2017. Stanislaus National Forest, Forest Plan Direction. March 2017. USDA Forest Service, Pacific Southwest Region, Stanislaus National Forest, Sonora, CA.

USDA. 2009. Motorized Travel Management: Record of Decision. November 2009. USDA, Forest Service, Pacific Southwest Region, Sonora, CA. R5-MB-200. 74 pp.

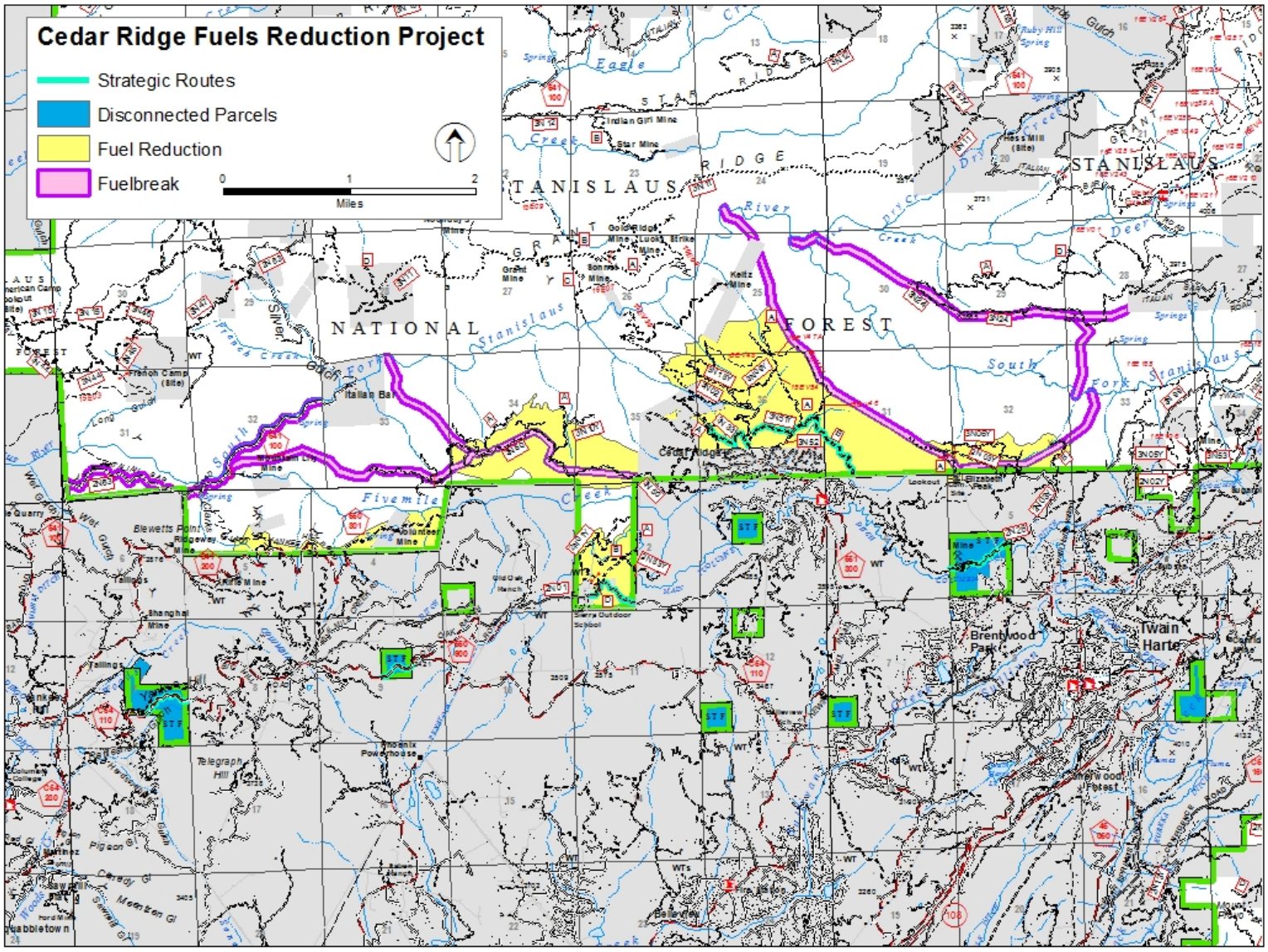
USDA. 2001. Sierra Nevada Forest Plan Amendment: Record of Decision. January 2001. USDA, Forest Service, Pacific Southwest Region, Vallejo, CA. 72 pp.

APPENDIX C: MAP PACKAGE

Map 1. Cedar Ridge Fuels Reduction Project general vicinity.



Map 2. Cedar Ridge Fuels Reduction Project treatment units.



APPENDIX D: NOXIOUS WEED HERBICIDE TREATMENT

Common Name (*Botanical name*)	Known Occurrences (# locations)	Cal-IPC Invasiveness Rating	Treatment (glyphosate)	Timing/Season	Applications per Year	Treatment Duration (Years)	Acres
Blackberry, armenian (*Rubus armeniacus)*	28	High	1.5% (2%*) solution foliar app late summer or early fall (limited control). Remove canes then spray resprouts (better control).	Late Summer/Early Fall	1	10	7.02
Blackberry, cut-leaved *(Rubus laciniatus)*	9	Not rated	1.5% (2%*) solution foliar app late summer or early fall (limited control). Remove canes then spray resprouts (better control).	Late Summer/Early Fall	1	10	0.55
Bull thistle *(Cirsium vulgare)*	42	Moderate	Foliar app to rosettes or bolting plants (1.5 to 2% solution)	May	1	10	1.4

Common Name (*Botanical name*)	Known Occurrences (# locations)	Cal-IPC Invasiveness Rating	Treatment (glyphosate)	Timing/Season	Applications per Year	Treatment Duration (Years)	Acres
Oblong spurge *(Euphorbia oblongata)*	3	Limited	Foliar appl. of bolting, budding plants 1,1 lb ae/acre June & July or Spring (flowering) and Fall	Last Spring & Late Summer	3	10	0.26
Field bindweed *(Convolvulus arvensis)*	1	Moderate	Foliar app to full blooming plants (1.5% Solution), late summer or fall when sugars are being pulled into the roots. Don't apply when in drought stress.	Late Summer/Early Fall	1	10	0.012
French broom *(Genista monspessulana)*	9	High	Foliar app to seedlings (mini-mally effective on mature shrubs): 1.25 to 2% solution. Cut stump appl.: 20-50% solution.	Late Spring	1	20	1.1
Goatgrass, barbed *(Aegilops triuncialis)*	6	High	Apply after plants have tillered but before pollination (CDFA). (1.5% solution)	Spring	1	10	1.04

Common Name (*Botanical name*)	**Known Occurrences (# locations)**	**Cal-IPC Invasiveness Rating**	**Treatment (glyphosate)**	**Timing/Season**	**Applications per Year**	**Treatment Duration (Years)**	**Acres**
Italian thistle *(Carduus pycnocephalus)*	3	Moderate	Foliar app to rosettes or bolting plants: (1.5 to 2% solution)	Early spring	1	10	0.04
Klamathweed *(Hypericum perforatum)*	13	Moderate	Foliar app to plants: (1.5 to 2% solution)	Spring	1	10	0.33
Medusahead grass *(Elymus caput-medusae)*	3	High	Foliar appl. prior to seed head formation (1.5 to 2% solution)	Spring	1	10	0.04
Perennial sweet pea *(Lathyrus latifolius)*	12	Not rated	Foliar app (1.5% solution) before seed set.	Summer	1	10	1
Spanish broom *(Spartium junceum)*	4	High	Foliar app to seedlings (mini-mally effective on mature shrubs): 1.25 to 2% solution. Cut stump appl.: 20-50% solution.	Last Spring	1	20	2.1
Spotted knapweed *(Centaurea stoebe* ssp. *micranthos)*	1	High	Foliar app to rosettes or bolting plants: (1.5% solution)	Early Spring	1	10	0.02
Tocalote *(Centaurea melitensis)*	1	Moderate	Foliar app to rosettes or bolting plants: (1.5% solution)	Early Spring	1	10	0.21

Common Name (*Botanical name*)	**Known Occurrences (# locations)**	**Cal-IPC Invasiveness Rating**	**Treatment (glyphosate)**	**Timing/Season**	**Applications per Year**	**Treatment Duration (Years)**	**Acres**
Tree of heaven *(Ailanthus altissima)*	1	Moderate	Foliar 2% solution; Frilling with 2-5% solution within 5 min	Late Spring/Early Summer	1	15	0.26
Woolly mullein *(Verbascum Thapsus)*	1	Moderate	Foliar app to rosettes, 2% solution.	Spring	1	20	0.11
Yellow star-thistle *(Centaurea solstitialis)*	7	Moderate	Foliar app to rosettes or bolting plants: (1.5% solution)	Spring	2	15	1.5

APPENDIX E: BEST MANAGEMENT PRACTICES CHECKLIST

CEDAR RIDGE FUELS REDCUTION PROJECT

BMP IMPLEMENTATION CHECKLIST

USDA Forest Service

Stanislaus National Forest

Sale/Project Name: _____

Unit/Road/Site: _____

Project Leader: _____ Title: _____

Project Leader Signature: _____

Date Activity began: __/__/____ Date activity ended (unit closed): __/__/____

Date checklist submitted to Watershed Specialist: __/__/____

Background: The Forest Service Region 5 Water Quality Management Handbook (WQMH) includes requirements for best management practices (BMP) implementation monitoring of all projects with the potential to adversely affect water quality using a "checklist" approach. The checklists are the primary means for early detection of potential water-quality problems, and should be completed early enough to allow corrective actions to be taken, if needed, prior to any significant rainfall or snowmelt throughout the duration of the project.

Instructions: BMPs specified in the NEPA analysis for this project are listed below. If the BMP was implemented, write the date implemented in the "yes" box. If any BMPs were not implemented, list the reason why and any corrective actions by BMP number/category at the end of this form and contact the appropriate Watershed Specialist (hydrologist or soil scientist) ASAP. When work in the unit/road/site is completed, submit this form to the Watershed Specialist assigned to the project. All forms (completed and partially completed) should be submitted to the Watershed Specialist by January 1st of each year.

Watershed Specialists:

Fernando Perez, Mi-Wok RD Hydrologist – 209-432-3081

Curtis Kvamme, Acting Forest Soil Scientist – 209-288-6320

Tracy Weddle, Summit RD Hydrologist – 209-288-6286

Definitions and Abbreviations:

Perennial streams – flow year long

Intermittent streams – flow during the wet season, but dry by summer or fall

Ephemeral streams – flow only during or shortly after rainfall or snowmelt

Special aquatic feature (SAFs) – lakes, meadows, bogs, fens, wetlands, vernal pools and springs

Riparian conservation areas (RCAs) – Near-stream areas with specific management objectives and some limitations on activities. Perennial streams and SAFs: 300 feet on each side of stream. Intermittent and ephemeral streams: 150 feet on each side of stream.

FSR - forest service representative; BMP - best management practices; TSA - timber sale administrator

RIPARIAN CONSERVATION AREAS

Veg-3: Aquatic Management Zones

Management Requirements	yes	no	n/a
All mechanical equipment, including low-pressure tracked equipment (feller-bunchers and masticators), was excluded within 15 feet of perennial, intermittent, or ephemeral streams, or SAFs.			
Skidding equipment and dozer operations (rubber-tired skidders and track laying tractors) were excluded within 50 feet of perennial or intermittent streams or SAFs and within 25 feet of ephemeral streams. The use of existing skid trails within 15-50 feet of Per/Int/SAF is prohibited unless consultation with a watershed specialist determines that its use would prevent unacceptable impacts.			
All obligate riparian shrubs and trees (e.g. willows, alder, dogwoods and big leaf maples) were retained.			
Streambanks were not damaged by equipment and were protected.			
Trees harvested within RCAs were felled directionally away from stream channels and SAFs unless otherwise recommended by a hydrologist or biologist.			
Loose slash and logging activity-created debris were removed from culverts and drainage ways prior to the run-off season in a manner that caused the least disturbance.			
A minimum of 75% well distributed ground cover was maintained within 100 feet of perennials, intermittent, and SAF and 50 feet of ephemeral streams, and minimum of 60% in the rest of the RCA.			
Operational turnings were minimized within RCAs by operating mechanical equipment on a straight-in and straight-out pattern to the extent feasible.			

WATER SOURCES

WatUses-3: Administrative Water Developments, Fac-6: Hazardous Materials

Management Requirements	yes	no	n/a
Drafting was from approved existing sites.			
Drafting sites and methods followed Water Quality Management Handbook direction (WQMH, USDA 2011) including screen size specifications and the amount of flow withdrawal guidelines: - For water drafting on fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 4.0 cubic feet per second (cfs); do not exceed 20% of surface flows below 4.0 cfs; and, cease drafting when bypass surface flow drops below 1.5 cfs. - For water drafting on non-fish-bearing streams: do not exceed 350 gallons per minute for streamflow greater than or equal to 2.0 cfs; do not exceed 50% of surface flow; and, cease drafting when bypass surface flow drops below 10 gallons per minute. Water sources designed for permanent installation, such as piped diversions to off-site storage, are preferred over temporary, short-term-use developments. Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat.			
Water drafting from streams was performed one truck at a time.			

Management Requirements	yes	no	n/a
Basins at culvert inlets were not constructed when creating waterholes. (These can exacerbate plugging of the culvert).			
Temporary dams were removed gradually when operations were completed so that released impoundments did not discharge sediment into the streamflow.			
When diverting water from streams, bypass flows were maintained to ensure continuous surface flow in downstream reaches, and keep habitat in downstream reaches in good condition.			
Water drafting approaches were located as close to perpendicular as possible to prevent stream bank excavation.			
Road approaches (i.e. drafting paths) and areas subject to high floods were treated to prevent sediment production and delivery to a watercourse or waterhole. Road approaches were armored as necessary from the end of the approach nearest a stream for a minimum of 50 feet, or to the nearest drainage structure (e.g., waterbar or rolling dip) or point where road drainage does not drain toward the stream.			
Effective erosion control devices (e.g., gravel berms or waterbars) were installed where overflow runoff from water trucks or storage tanks may enter the stream.			
Water pumps with low entry velocity were used to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats.			
All water-drafting vehicles were checked daily and repaired as necessary to prevent leaks of petroleum products from entering RCAs.			
Water-drafting vehicles were equipped with petroleum spill kits.			
Water-drafting vehicles were equipped with petroleum-absorbent pads, which were placed under vehicles before drafting. Absorbent pads were disposed of according to the Hazardous Response Plan.			

LANDINGS

Veg-6: Landings

Management Requirements	yes	no	n/a
Existing log landings were re-used to the extent feasible. (Existing landings within RCAs may be used when sedimentation effects can be mitigated by erosion prevention measures).			
No new landings were constructed within 100 feet of perennial or intermittent streams and SAFs and 50 feet of ephemeral streams.			

SKIDDING

Veg-2: Erosion Prevention and Control, Veg-4: Ground-Based Skidding and Yarding Operations

Management Requirements	yes	no	n/a
Existing skid trails were utilized wherever possible except where unacceptable resource damage could result. If used, existing skid trails 50-100 feet from perennial or intermittent streams or SAFs and 25-100 feet from ephemeral streams were rehabilitated following use to improve infiltration.			
Skid trail paths were waterbarred and/or other erosion control measures were in place at the end of the season of use, before significant rainfall was forecast, and before the sale was completed.			
Skid trail berms that concentrate flows were removed to improve surface drainage.			
Waterbars spacing followed recommended spacing specifications found on the FSH. 2409.15 and were based on the Erosion Hazard Rating for the area.			

STREAM CROSSINGS

Road-7: Stream Crossings

Management Requirements	yes	no	n/a
Stream crossings along perennial or intermittent streams did not exceed 2 per mile.			
Stream crossings along ephemeral streams did not exceed 3 per mile.			
Watercourse crossings were constructed and located with minimal disturbance to the streambed and to surface and shallow groundwater resources.			
Streambank and riparian areas excavation was minimized and disturbed banks were stabilized.			
Excavated materials were kept out of channels, floodplains, wetlands, and lakes and unsuitable material was disposed in approved waste areas outside of the RCA.			
Where skid trails or dragging path crossed streams, waterbars or turnouts to divert all runoff away from stream channel were installed as needed.			

SLOPE/SOIL MOISTURE RESTRICTIONS

Veg-2: Erosion Prevention and Control, Veg-4: Ground-Based Skidding and Yarding Operations

Management Requirements	yes	no	n/a
Ground-based equipment operated on relatively dry soils of high soil strength or bearing capacity. Soil disturbing actions were avoided (including travel) during periods of heavy rain or wet soils.			
Ground-based operations which occurred between October 15 and June 1 were monitored (tested for soil moisture and trafficability) to prevent soil compaction. After significant wetting rain, consult with soil scientist to determine trafficability before re-starting operations.			
Skidding with rubber-tired or fixed track equipment was limited to slopes less than 35%; low ground pressure equipment (e.g. masticator or feller buncher) was limited to slopes less than 45%; unless otherwise approved by a soil scientist.			

ROAD MAINTENANCE AND OPERATIONS

Road-4: Road Maintenance and Operations

Management Requirements	yes	no	n/a
Ditches and drainage structure inlets were cleaned only as often as needed to keep them functioning.			
Unnecessary or excessive vegetation disturbance and removal on features such as swales, ditches, shoulders, and cut and fill slopes was prevented.			
Road surface drainage was maintained by removing berms, unless specifically designated otherwise.			
Grading of hydrologically connected road surfaces and inside ditches were accompanied with erosion and sediment control installation as needed.			
Springs across roads were diverted to prevent them from pooling and diverting on or along the road. (A layer of coarse rock with geotextile fabric or other treatments may be necessary).			
After road maintenance activities (i.e., grading/earthwork activities), the final road surface drainage system removed water from the road surface with the purpose to minimize concentrated runoff to an area.			
Existing metal/drain gutters were in working condition and /or were installed as needed.			
Where applicable, surface drainage structures were adjusted with the purpose to minimize hydrologic connectivity by: discharging road runoff to areas of high infiltration and high surface roughness; armoring drainage outlets as energy dissipaters to prevent gully initiation; and, increasing the number drainage facilities within RCAs.			
Road surfaces were treated as needed to abate dust and maintain road fines on site.			
Disturbed areas were stabilized with mulch, erosion fabric, vegetation, rock, large organic material, engineered structures, or other measures.			

ROAD REPAIR AND CONSTRUCTION OF TEMPORARY ROADS

Road-5: Temporary Roads, Road-3: Road Construction and Reconstruction

Management Requirements	yes	no	n/a
Erosion-control measures were maintained to function effectively throughout the project area during temporary road construction and road repair.			
Sidecasting was not permitted in RCAs. Excavated materials were prevented from entering water or RCAs.			
Operations were scheduled during dry periods when rain, runoff, wet soils, snowmelt or frost melt were less likely. Operation of equipment was restricted when ground conditions could result in excessive rutting, soil compaction (except on the road prism or other surface to be compacted), or runoff of sediments directly to streams.			
Project area was stabilized during normal operating season when the National Weather Service predicted a 50% or greater chance of precipitation.			
Erosion-control measures were kept sufficiently effective during ground disturbance to allow rapid closure when weather conditions deteriorated.			

Management Requirements	yes	no	n/a
All necessary stabilization was completed prior to precipitation that could result in surface runoff.			
Construction-generated slash was scattered on disturbed areas and good ground contact between slash and disturbed slopes was ensured. Slash was windrowed at the base of fills to reduce sedimentation. Windrows were placed along contours with ground contact between slash and disturbed slope.			
Contractor's plans and operations were monitored to assure contractor did not open up more ground than could be substantially completed before expected winter shutdowns, unless erosion-control measures were implemented.			
Erosion-control measures on incomplete roads were installed prior to precipitation or the start of winter (November 16 through March 31). Protective cover for exposed soil surfaces was provided.			

DECOMMISSIONING OF TEMPORARY ROADS/OHV RESTORATION

Road-6: Road Storage and Decommissioning

Management Requirements	yes	no	n/a
Closed roads were blocked to prevent vehicle access.			
Road stream crossings were removed prior to road closure.			
Decommissioned temporary road was effectively drained (e.g. waterbars, dips, outsloping) and treated to return the road prism to near natural hydrologic function.			
Road surfaces were treated and stabilized through subsoiling, scattering slash, and/or revegetation. Side slopes were reshaped and stabilized as needed.			
Temporary or unauthorized routes were decompacted or subsoiled to a depth of 24 inches (or as determined by a Soil Scientist), except there high rock content, slope, soil moisture, depth to restricting layer, and erosion hazard would limit subsoiling feasibility.			
Waterbars spacing followed recommended spacing specifications found on the FSH. 2409.15 and were based on the Erosion Hazard Rating for the area.			

PARKING/STAGING/REFUELING/SERVICING

Road-9: Parking and Staging Areas, Road-10: Equipment Refueling and Servicing, Fac-6: Hazardous Materials

Management Requirements	yes	no	n/a
Temporary refueling and servicing was conducted only at approved sites located outside of RCAs.			
All refueling locations comply with the Project Spill Plan. A Spill Prevention and Containment and Counter Measures (SPCC) plan is required where total oil products on site in above-ground storage tanks exceed 1320 gallons or where a single container exceeds 660 gallons. Review and ensure spill plans are up-to-date.			
Forest hazardous materials coordinator's name and phone number was available to TSA.			
Proper action was taken to report spills and to initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules and regulations.			
In case of any spill, contaminated soil and other material was removed from NFS lands and disposed in a manner according to controlling regulations.			

Management Requirements	yes	no	n/a
Temporary wash sites were installed only in areas where the water and residue could be adequately collected and either filtered on site or conveyed to an appropriate wastewater treatment facility.			
Temporary staging, parking, and refueling/servicing areas were rehabilitated immediately following use.			
All equipment was inspected and cleaned for external oil, grease, dirt and mud and leaks were repaired prior to unloading at site.			
Equipment was re-inspected and identified problems corrected before entering streams or areas that drain directly to water bodies.			

PILE BURNING/RX FIRE/BROADCAST BURN

Fire-2: Use of Prescribed Fire

Management Requirements	yes	no	n/a
Burn piles were placed a minimum of 50 feet away from perennial and intermittent streams and SAFs and 25 feet from ephemeral streams, unless otherwise approved by a watershed specialist, and were located outside areas that may receive runoff from roads.			
Disturbance to obligate riparian vegetation was avoided.			
Effects on soil, water quality, and riparian resources were minimized by appropriately planning pile size, fuel piece size limits, spacing, and burn prescriptions in compliance with state or local laws and regulations when no practical alternatives for slash disposal in the RCA were available.			
A minimum of 75% ground cover was retained within 100 feet of perennial and intermittent streams and 50 feet of ephemeral streams, 60% in the rest of the RCA.			
Direct ignition within RCAs, including ephemeral channels, was avoided. Fire may back into riparian areas as long as ground cover is maintained.			
New dozer lines were not constructed within 100 feet of perennial and intermittent streams and 50 feet of ephemeral streams.			
Hand tools were favor on sensitive areas such as steep slopes (>30 percent), fragile soils, and RCAs.			
Fire lines were restored upon completion of prescribed burning and/or prior to each winter when fire lines are exposed to the potential for erosion.			
Waterbars spacing followed recommended spacing specifications found on the FSH. 2409.15 and were based on the Erosion Hazard Rating for the area.			
No debris or soil that might impede water flow or cause stream bank degradation was placed in any stream.			

PESTICIDES

Chem-1: Chemical Use Planning, Chem-2: Follow Label Directions, Chem-3: Chemical Use Near Waterbodies, Chem-5: Chemical Handling and Disposal

Management Requirements	yes	no	n/a
All State and Federal rules and regulations were followed as they apply to pesticides.			
Application of pesticides was done in compliance with all label directions; all applications were made by trained applicators.			
To reduce off site movement, drift, or volatilization, glyphosate was not applied when the following weather parameters were observed: sustained winds in excess of 5 mph; precipitation, or a 70% or greater chance (predicted within 24 hours, National Weather Service forecasts); foggy weather; excess dew on target plants; less than 30% relative humidity; temperature that exceeds 85 degrees Fahrenheit; temperatures inversions that could lead to off-site movement of the herbicide mixture.			
Glyphosate was not applied within the following designated buffer zones: 10 feet from the edge of any perennial stream, intermittent streams, ephemeral streams, 10 feet from any special aquatic features such as spring, seep, fens, and 10 feet away from obligate riparian vegetation. (10-foot buffer does not apply if any intermittent stream or ephemeral stream is dry at the time of application).			
Cleaning and disposal of containers is done in accordance with Federal, State, and local laws, regulations and directives, including the FSH.			
A spill contingency plan containing spill clean-up procedures was incorporated to the project safety plan and was on site during pesticide applications.			
No storage of chemicals occurred on RCAs except if it was carried in the contractor's vehicle to complete each day's work.			
Mixing and loading was done on areas where accidental spill wouldn't contaminate streams or other water. Mixing and loading sites were predetermined by the COR and were as far from water and on ground level as possible.			
Inspector was on site between applicator and TUD ditch paths to enforce the buffer zone during chemical applications.			

REASON BMP NOT IMPLEMENTED AND CORRECTIVE ACTIONS (list by BMP number/category):