

Strategic Community Fuelbreak Improvement Project Implementation Plan September 2018

This plan provides an objective procedure for implementing the Strategic Community Fuelbreak Improvement Project on the Monterey District, Los Padres National Forest.

The recommended priority maintenance schedule (Table 1) is based on rankings in the Monterey District Strategic Fuelbreak Assessment¹. Criteria used for prioritizing fuelbreak maintenance can be found in the Los Padres National Forest Strategic Fuelbreak Assessment². The objective of the Assessment is to rank fuelbreaks with the greatest potential to aid in fire suppression operations while also meeting public safety concerns and protecting values at risk.

Personnel, equipment, and costs are based on implementing Alternative 4 in the final Record of Decision and the Socioeconomic analysis found in the final Environmental Impact Statement - Strategic Community Fuelbreak Improvement Project.

See Appendix A for treatment details, Appendix B for cost estimates, Appendix C for Project Design Standards and Mitigation Measures, and Appendix D for Vicinity Map.

Table 1. Priority Maintenance Schedule

Fuelbreak Name	Maintenance Priority
Post Summit to Mt. Manuel/Big Sur Wild River	1
North Coast Ridge	2
Partington Ridge	3
Tan Bark Trail	4
Hennicksons/Chews Ridge	5
Botchers Gap to Devils Peak	6
Skidders Ridge	7
Mescal Ridge	8
Post Summit to Little Sur River	9

Fuelbreak Account

1. Post Summit to Mt. Manuel/Big Sur Wild River

Post Summit to Mt. Manuel

Wilderness: No

Length/Width: 2.7 miles (54 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

Mt. Manuel to Big Sur Wild River

Wilderness: Yes

Length/Width: 0.9 miles (16.3 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

¹ Strategic Fuelbreak Assessment Monterey District. 2015. Adaptive Management Services Enterprise Team. Unpublished report prepared for the Los Padres National Forest.

² Los Padres National Forest Strategic Fuelbreak Assessment. 2015. Establishing priorities for maintaining fuelbreaks on the LPNF. Adaptive Management Services Enterprise Team. Unpublished report prepared for the Los Padres National Forest.

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2. North Coast Ridge

Terrace Creek Trailhead to Cold Springs

Wilderness: No

Length/Width: 3.5 miles (62 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

Cold Springs to Tan Bark Trail

Wilderness: No

Length/Width: 1.5 miles (52.5 acres), \leq 300 feet in width

Last time re-established: 2016 Soberanes Fire

3. Partington Ridge

Wilderness: No

Length/Width: 0.8 miles (14.3 acres), \leq 150 feet in width

Last time re-established: 2008 Basin Complex Fire

4. Tan Bark Trail

Wilderness: No

Length/Width: 0.8 miles (16 acres). Commencing at the North Coast Ridge Road (FDR 20S05) traveling west towards the national forest boundary, the first ~ 600 feet in length will be a maximum of 300 feet wide. The remaining length of fuelbreak, extending to the Forest boundary, will be a maximum of 150 wide.

Last time re-established: 1985 Gorda-Rat Complex Fire

5. Hennicksons/Chews Ridge

Hennicksons Ridge to Tassajara Road

Wilderness: Yes

Length/Width: 4.5 miles (82.4 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

Chews Ridge Lookout to wilderness boundary

Wilderness: No

Length/Width: 0.7 miles (13 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

Chews Ridge Lookout

Wilderness: No

Prescribed fire and/or hand thinning with chainsaws, hand and machine piling, pile burning, and mastication around and in-between the Chews Ridge Lookout Tower and the Monterey Institute for Research and Astronomy Observing Station (MIRA).

Acreage: 64.7 acres

Last time re-established: 2016 Soberanes Fire

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6. Botchers Gap to Devils Peak

Botchers Gap to Skinner Ridge

Wilderness: No

Length/Width: 1.3 miles (23.4 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

Skinner Ridge to Devils Peak

Wilderness: Yes

Length/Width: 1 mile (19 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

7. Skinner Ridge

Skinner Ridge

Wilderness: Yes

Length/Width: 2.2 miles (39 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

Lower Skinner Ridge to Boy Scout Camp

Wilderness: No

Length/Width: 0.6 miles (11.4 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

8. Mescal Ridge

Wilderness: No

Length/Width: 0.6 miles (22 acres), \leq 150 feet in width

Last time re-established: 2016 Soberanes Fire

9. Post Summit to Little Sur River

Wilderness: Yes

Length/Width: 1.8 miles (32 acres), \leq 150 feet in width

Last time re-established: Partially during the 2016 Soberanes Fire

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Appendix A - Treatment Details

In advance of work (re-establishment and maintenance), an interdisciplinary monitoring team composed of a fuels specialist, traditional tool specialist (for wilderness only), handheld motorized tool specialist, landscape architect (or similar), trail specialist for trail protection and/or maintenance (only for fuelbreak segments that contain a Forest Developed Trail), and resource advisor (wilderness resource advisor in wilderness) will prepare a Situational Report recommending the appropriate equipment, tools, and workforce for each specific fuelbreak segment. This will provide an accurate assessment of current vegetation conditions. The report will also identify expected timelines and personnel involved and convey specific instructions to crew leaders. Interdisciplinary specialists will be used as needed to ensure proper implementation of project design criteria and mitigation measures.

Non-Wilderness Treatments

Fuelbreaks would be re-established and maintained every 3-6 years through a combination of hand thinning with handheld motorized tools, hand and machine piling of cut-vegetation, pile burning, prescribed fire (at Chews Ridge Lookout and MIRA), mastication, and use of herbicide. Between the Chews Ridge lookout tower and the space-telescope operated by the Monterey Institute for Research and Astronomy (MIRA), prescribed fire may be used to reduce fuels.

Piles of cut material for burning are created either by manual labor or machines. Handheld motorized tools include chainsaws, brush cutters, and weed whackers. Machine piles are created by low-pressure, typically track based rather than tires, equipment such as excavators. Excavators equipped with masticators chip material into small pieces which are scattered across the treated area. When mastication is used, there are no piles created for burning.

Apply the herbicide Triclopyr butoxyethyl ester (BEE) [Garlon® 4 Ultra or an equivalent formulation] mixed with modified seed oil at a 50:50 ratio on the basal cut stump and stubble (collar to cut) of brush removed during re-establishment and maintenance of fuelbreaks to retard re-sprouting. Herbicide solution will be applied to freshly cut stumps and stubs as soon as possible, preferably within 1 hour after cutting, to retard re-growth. Application will be restricted to low-volume methods such as: hand-held spray equipment with direct spray, wick (wipe-on) or brush application.

Wilderness Treatments

Fuelbreaks would be re-established and maintained manually approximately every 3-5 years with a combination of traditional tools and handheld motorized tools for cutting vegetation, piling and pile burning. Workforce will be skilled in traditional tool use and/or handheld motorized tools. Travel methods would be restricted to hiking and use of livestock. When it is not practical for crews to return to quarters at end of each day, base camps will be established. Base camps could be serviced by the Monterey District stock program.

Traditional tools consist of: axes for felling or trimming limbs; crosscut saws for felling and bucking trees and brush; bow saws for clearing small downfall and limbing; pruning saws and

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shears for limbing and some brushing; pole saws for pruning high protruding limbs; hatchets for trimming; brush hooks for cutting through thickets of heavy brush; sickles and weed hooks for cutting other non-woody vegetation; the Pulaski combines an ax and grub hoe into one multipurpose tool, and the McLeod combines a heavy-duty rake and large hoe.

Wilderness Tool Selection

The Interdisciplinary Monitoring Team's Situation Report will identify specific sites within the project area where traditional tool strike teams (if available) could be used safely within reasonable timelines. The option to use handheld motorized tools will be recommended for reasons of safety, available crews, ability to implement the project within reasonable timelines considering time constraints, and the need to implement fire-risk reduction strategies as soon as possible.

Criteria for recommending use of handheld motorized tools in wilderness:

- There are hazardous situations that pose a risk to the health and safety of workers using only traditional/non-motorized tools. The Occupational Safety and Health Act of 1970 requires the Forest Service to ensure safe and healthful workplaces by instituting procedures and practices that help prevent accidents, injuries, and illness. For compliance with the Act, the following hazardous situations compromise the safety of those working in the field and require special procedures to reduce the risk of injury to workers:
 1. Topography/Steepness of Ground – Slopes $\geq 35\%$ constitute additional hazards such as footing, stability, and ease of movement.
 2. Hazard Trees – Trees that have one or more of the following hazardous characteristics: split, broken or dead/decayed top, dead/decayed branches, deterioration or physical damage to the root system or trunk, lean degree/direction, fire damaged, on steep slope or difficult terrain. Higher exposure time and number of workers exposed increases the chance of an accident.
 3. Brushfields - Brush coverage is $\geq 40\%$ and ≥ 6 feet in height, increasing the difficulty and duration for workers to access the main trunk, cut, and remove for pile burning.
 4. Exposure Time – Estimated days needed to cut vegetation as per fuelbreak design criteria and pile for burning. Exposure time as a risk is a compilation of fatigue, exposure to tools and the natural elements; higher exposure time increases the chance of an accident.
- Progress at specific locations within the project area is too slow, preventing completion of scheduled fuelbreak maintenance within reasonable timelines considering time constraints and the efficient expenditures of funds and personnel time.

Time constraints include weather events, wildlife mitigation, and funding restrictions. Weather time constraints include: inclement weather (typically during winter storm months December through March), during Declared Fire Season when fire risk is high (typically July through October) and support from fire personnel is likely unavailable. For wildlife mitigation (see Appendix C), it is recommended to avoid pile burning from March 15 through July 31 to mitigate effects to migratory and resident birds during their sensitive reproductive season. And,

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on selected fuelbreak segments, to avoid potential impacts on nesting California spotted owls, there is a limited operating period between February 1 and August 15. Mandated funding implementation schedules also need to be considered.

When handheld motorized equipment is recommended for specific locations or situations in wilderness, this will be documented in the Situational Report and sent to a line officer with the authority to approve the administrative use of handheld motorized equipment in wilderness for review and approval of the workplan before work begins.

Monitoring and Adaptive Management – for both Wilderness and Non-wilderness

Members of the interdisciplinary monitoring team will be involved in implementation monitoring and post-implementation review as needed to ensure the following:

Implementation Monitoring

- Check compliance with Situational Report. This will include spot-checking to verify timelines and meeting project design standards or other mitigation measures.
- Spot-checking to verify appropriate use of tools.

Effectiveness Monitoring

- Determine if prepared fuelbreaks are sufficient for suppression activity.
- For hazardous situations, ensure all safety procedures and practices are implemented to help prevent accidents and injuries to workers. See page 5 for specific hazardous situations.

Validation Monitoring

- Document how well the overall program is working to meet project objectives and protecting resources of concern.
- Ensure compliance with the NEPA decision and identify any changed conditions or unintended consequences. This information will be used to check consistency with the NEPA documentation and identify when a NEPA review is necessary.

Adaptive Management

If monitoring indicates: 1) Work is not meeting expected timelines established in the Situational Report, 2) Hazardous situations cannot be mitigated effectively to reduce the risk of accidents or injury to workers, or 3) Fuelbreaks were not used as predicted during wildfire suppression, an interdisciplinary team of relevant specialists will determine what adjustments in management are needed. Adjustments include, but are not limited to:

- Cessation of maintenance
- Additional mitigation measures
- Re-evaluation of tool or equipment selection

Changes will be reflected in the next scheduled Situational Report. If a needed change has not been evaluated in the Environmental Impact Statement, additional analysis and decisions may be necessary in compliance with the National Environmental Policy Act.

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Appendix B – Cost Estimates



Note: Cost estimates are based on 2015 data.

Non-Wilderness Treatments

Table 2. Estimated cost of maintenance on a per acre basis in non-wilderness

Workability (Slope Category)	Existing Vegetation Condition*		
	Young/Low	Moderate	Old/High
Low (up to 24%)	\$500 - \$800	\$700 - \$1,500	\$700 - \$1,500
Moderate (25-35%)	\$700 - \$1,500	\$700 - \$1,500	\$1,500 - \$3,000
High (35% or more)	\$700 - \$1,500	\$1,500 - \$3,000	\$1,500 - \$3,000

* The old/high vegetation condition is areas where it has been more than 10 years since they were last maintained; moderate is considered to be 5-10 years since they were last maintained; and young/low is considered to be 3-5 years since they were last maintained.

Wilderness Treatments

In wilderness areas, the estimated cost of re-establishing³ one mile of fuelbreak is \$34,000. Workforce is a 21-person Type-2 crew with handheld motorized tools for ten days (one pay period). This includes travel and supply costs.

Maintenance costs using handheld motorized tools in subsequent treatments are assumed to be half the cost of the first treatment. Therefore, it is estimated that it will cost \$34,000 per mile for the first treatment and \$17,000 per mile for subsequent treatments.

Estimated maintenance time/cost using traditional (non-motorized) handtools only will take up to 4 or more times longer than the gas-powered hand tools. Therefore, the cost of maintenance using traditional handtools only for the first treatment is estimated to take approximately 40 days per mile or \$136,000 per mile and \$68,000 for subsequent treatments.

No cost estimates for combining handheld motorized tools/traditional tools is currently available.

Table 3. Estimated treatment and associated unit costs.

Activity	Price per Unit	Units
Non-Wilderness		
Re-establishment	\$2,250	acres
Maintenance (motorized equipment)	\$1,100	acres
Herbicide application	\$1,000	miles

³ Re-establishment refers to sites that have not be maintained in 5 or more years. Maintenance refers to fuelbreaks that have been maintained within the previous 5 years.

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Wilderness		
Re-establishment (motorized hand tools)	\$34,000	miles
Re-establishment (traditional tools)	\$136,000	miles
Maintenance (motorized handtools)	\$17,000	miles
Maintenance (traditional tools)	\$68,000	miles

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Appendix C - Project Design Standards and Mitigation Measures

Air Quality

1. Prescribed burning will comply with permissive burn days in the Air Sub-Basin as declared by the local Air Quality Management District.
2. All prescribed burning will apply Best Available Control Measures (U.S.EPA, 1992).

Botany

1. No burn piles will be constructed and no mechanical activities (including mastication) will occur within 50 feet of Forest Service sensitive plant species populations unless otherwise noted.
2. No herbicide application will occur within 10 feet of any documented Forest Service sensitive plant species populations or host plants for the endangered Smith's blue butterfly.
3. Hand treatments (not including herbicide application) will be allowed through Arroyo Seco bushmallow (*Malacothamnus palmeri* var. *lucianus*) occurrences with the presence of a botanical monitor. Otherwise, occurrences will be flagged and avoided with a 50-foot buffer.
4. If new Forest Service Sensitive plant occurrences are discovered prior to or during implementation, botanical staff will be notified, and the aforementioned features will apply.

Weeds⁴ /Invasive Plant Species



1. Mechanical activity (mastication, machine piling) and pile burning will not occur within 50 feet of high priority invasive plant populations. Where possible, mechanical activity and pile burning will also avoid moderate priority species when fuel treatment objectives can still be met. See SCFIP Project Invasive Weed Risk Assessment for definitions of 'high' and 'moderate' priority species.
2. French broom *Genista monspessulana* occurrences within will be cut with handheld tools (motorized or not). Other alternative-specifics for French broom:
 - a. Non-wilderness areas: Herbicide will be applied to the cut stems to prevent regrowth.
 - b. In both wilderness and non-wilderness areas: Cut plants as late as possible in the summer season when soil moisture is at its lowest to reduce possible resprouting.
 - c. Cut materials may be left on site if the plants are not seeding. If plants are seeding, material will be moved to appropriate offsite locations for decadence or burning. While moving, cover with tarps as needed to avoid spreading mature seed to uninfested areas.
 - d. Sites where French broom was treated will be monitored for re-treatment for a minimum of 2 years. Sites where cut French broom material was burned (i.e. burn piles) will be monitored for a minimum of 2 years for new occurrences and

⁴ State listed noxious or other nonnative invasive plants that threaten the desired plant community

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treated via hand pulling or other appropriate methods provided by a qualified weed specialist if new seedlings are discovered.

3. Staging areas for equipment, materials, or crews should be limited to previously disturbed areas as much as possible. Areas with infestations of priority weeds should be avoided to minimize the spread of weed seed to the extent feasible.
4. New invasive plant infestations discovered in the project area before or during project implementation will be evaluated by appropriate staff for prevention and control measures.
5. All vehicles and equipment will be washed to remove accumulations of soil and plant parts before they enter or leave the National Forest and/or prior to moving from one fuelbreak segment to another.
6. To prevent spread of the pathogen that inflicts Sudden Oak Death, personal gear, particularly boots, will be cleaned to remove accumulations of soil and plant parts before workers enter the project area and prior to leaving the project area.
7. To prevent spread of pathogen that inflicts Sudden Oak Death, chain saw bars will be cleaned and sprayed with Lysol® to disinfect the cutting surface. Wood chips and organic matter should be removed from the saw. Hand tools will be cleaned and disinfected in a similar manner; all of the above before they enter the project area and prior to leaving the project area.

Heritage Resources

Required Monitoring

Known cultural resource sites will be flagged for avoidance and monitored by a qualified archaeologist.

Herbicide



1. Signs will be posted at public access points to treatment areas prior to initiating herbicide treatment. Signs will list herbicides to be used, activity dates, and name and phone number of Forest contact. Signs will be posted a minimum of 24 hours post treatment.
2. Herbicide will not be applied within 10 feet of surface water, seeps, springs, or wet meadows. BMP
3. Do not apply herbicide during rain events or within 24 hours before or after a rain event. BMP
4. Do not apply herbicide with spray applicator if wind speed is greater than 10 mph.
5. Non-target plants will be avoided during all aspects of herbicide application.
6. Use the least amount of herbicide to achieve efficacy.
7. Apply herbicides according to label directions and applicable legal requirements. BMP
8. Herbicides will only be applied by trained and/or certified applicators in accordance with label instructions and applicable federal and state pesticide laws.
9. Follow the Pesticide Safety and Spill Plan, and the Procedures for Mixing, Loading and Disposal of Herbicides (EIS Appendix P). BMP
10. Manage and store chemicals in accordance with all applicable Federal, State, or local regulations, including label directions. BMP
11. Store chemicals in their original containers with labels intact.

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Hydrology and Soils

1. Table 4 lists the protocol for determining operability of soils with equipment based on soil moisture at 4 to 6-inch depth. The table will be used to determine when masticators or other heavy machinery might be used based on soil moisture conditions. If masticators have high ground pressure tires (greater than 6 pounds per square inch), they should not be used on soil conditions described in the heavily bordered table cells. If masticators have low ground pressure tires (less than 6 pounds per square inch), they may be used on soil conditions described in the shaded table cells. BMP
2. A minimum of 40-60 percent soil cover should be retained on soils that have a severe to very severe erosion hazard rating. A minimum 30 percent cover should be retained on all other soils. BMP

Table 4. Protocol for determining operability of soils based on soil moisture at 4 to 6-inch depth⁵

Soil Moisture Percent Increases Downward	Coarse Soils Loamy sands, fine sandy loam, very fine sands, coarse sands	Light Soils Fine sandy loams, sandy loams, very fine sandy loam	Medium Soils (<35% clay), Sandy clay loam, loam, silt loam, sandy clay loam, clay loam	Heavy Soils (>35% clay), Clay loam, sandy clay, silty clay loam, clay
Dry soils	Dry, loose, single grained, flows through fingers.	Dry, loose, flows through fingers.	Powdery, dry, sometimes slightly crusted but breaks down into powdery conditions.	Hard, baked, cracked sometimes has loose crumbs on surface.
Slightly moist soil	Still appears dry, will not form a ball with pressure.	Still appears to be dry; will not form a ball.	Somewhat crumbly but will hold together from pressure.	Somewhat pliable; will form ball under pressure. At plastic limit.
Moist soil	Still appears dry, will not form a ball with pressure.	Tends to ball under pressure but seldom will hold together.	Forms a ball and is very pliable, sticks readily if high in clay.	Easily ribbons out between fingers, has a slick feeling. At plastic limit.
Very moist soil	Tends to stick together slightly, sometimes forms a very weak ball.	Forms a weak ball breaks easily, will not stick. Plastic limit or non-plastic.	Forms a ball and is very pliable, sticks readily if high in clay. Exceeds plastic limit.	Easily ribbons out between fingers, has a slick feeling. Exceeds plastic limit.
Wet soils	Upon squeezing, free water may appear. Wet outline is left on hand. Non-plastic.	Upon squeezing free water may appear. Wet outline left on hand.	Can squeeze out free water. Wet outline left on hand.	Puddles and free water forms on surface. Wet outline left on hand.

⁵ Use this protocol by digging a small pit and sample 4 to 6 inches below the mineral soil surface (below the surface litter). Determine soil texture (coarse soils, light soils, medium soils or heavy soils) to know what soil textural group to use on the table. Collect enough soil to form a 1 to 2 inch ball by molding with hand pressure. Pick out excessive rock fragments & squeeze with six directional squeezes. If a ball is formed that holds together under repeated tosses (1 to 2 feet into the air) then the soil is too wet for equipment operation.

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3. Plan prescribed fire to ensure that fire intensity and duration do not result in detrimentally burned soils. Whenever feasible, plan prescribed fire (under-burning, and pile burning) when soils contain moisture and fuels are dry to decrease damage to soils. BMP
4. Treatments within known geologically sensitive areas will be field-reviewed and the treatment prescription refined as needed by an earth scientist and fuels officer. A minimum 50-foot equipment exclusion buffer will be flagged above the crown or head of active or potentially active landslides or modified based on geoscientist site-specific evaluation. BMP
5. Allow temporary refueling and servicing only at approved locations, located well away from waterbodies. BMP

Pile Burning

1. Locate burn-piles in open-canopy areas within the fuelbreak to avoid damage to the overstory when piles are burned.
2. Burn piles will be located on roads (new or old) or previously disturbed sites, when available.
3. Burn piles should not exceed approximately fifteen feet in width to minimize disturbance to the soil structure and encourage quick recovery of vegetation.
4. Burn piles will not be built on small mammal burrows to avoid impacts to federally listed amphibian species that utilize small mammal burrows.
5. After burning, mulch the burn-site to reduce the risk of weed colonization.

Prescribed Fire

1. Develop burn objectives that avoid or minimize creating water-repellent soil conditions to the extent practicable considering fuel load, fuel and soil moisture levels, and burn intensity. BMP
2. Set target levels for desired ground cover remaining after burning based on slope, soil type, and risk of soil movement.
3. Plan burn areas to use natural or in-place barriers that reduce or limit fire spread, such as roads, barren or low fuel hazard areas, where practicable, to minimize the need for fireline construction.
4. Scatter burned slash on control lines to reduce the color contrast of the exposed soil.

Recreation

1. To mitigate effects on opportunities for solitude, minimize work activities near Forest Developed Trails on weekends and holidays. During project implementation, visitors will be notified of activities occurring in the area and provided information on options for traveling in other unaffected areas.
2. Large snags will be retained in fuelbreaks as legacy trees when not posing a safety risk to future firefighting operations.
3. Where possible, to reduce visual disturbance, if staging areas, base camps, or other areas of concentrated use are necessary, establish these areas outside of wilderness and out of sight of visitor use areas.

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Scenery

To minimize changes to the natural scenic character and improve or maintain the landscape's scenic integrity, the following scenery design features are required:

Project Wide

1. Design fuelbreaks in forests to be open, averaging no more than 40% crown closure along the center corridor (LMP Vegetation Management Standard S4).
2. Minimize changes to the natural scenic character by mimicking the natural pattern of the scenic character to be more open on ridgelines with denser vegetation along drainages while meeting fuel reduction objectives.
3. Reduce or eliminate deviations in form and line by maintaining irregular, free-form edges that relate to the topographic forms of the land and flow with the contours, following the natural lines of the ridges, drainages and rock outcrops.
4. Blend treated areas into the natural landscape by incorporating existing landscape features such as natural openings and rock outcrops into fuelbreak layout.
5. The fuelbreak is to be of varying widths along the ridgeline where possible, rather than of equal width on either side of the ridgeline to avoid unnatural-looking lines in the landscape.
6. Blend all treated areas into the existing downslope vegetation through the creation of a transition zone along the edges of the fuelbreak. The transition zone shall consist of a gradient of less dense vegetation within the fuelbreak and gradually increasing density beyond the fuelbreak edges to blend into existing vegetation. Width of the transition zone would be determined by the slope and existing density of vegetation and would be sufficient to eliminate any unnatural-appearing straight lines along the fuelbreak edge.
7. Undulate the fuelbreak edge horizontally and keep a diverse height of leave-trees (both green and snags) vertically within the transition zone to reduce visual contrasts between treated and non-treated vegetation.
8. Retain randomly sized and randomly distributed islands and peninsulas of vegetation within the fuelbreak to provide a natural appearance while meeting fuel reduction objectives. Precaution would be taken to prevent scarring of leave-trees by equipment.
9. Unit boundary marking on trees would be temporary and visible only on the opposite side of the tree from where it could be seen from roads, trails and recreation sites.
10. Conifer stands would be thinned to a random spacing pattern of approximately 20 feet between trees, removing only trees less than 8" DBH.
11. Hardwood stands would be thinned to a random pattern spacing of approximately 20 feet between trees, removing only trees less than 4" DBH.
12. Limb leave-trees up to 6-10 feet high; limbs greater than 10 inches will be retained for their visual character.
13. All pruning cuts will be made as close as possible to the trunk without cutting into the branch collar or leaving a protruding stub.
14. To reduce visual disturbances, flush cut stumps within 4 inches of the uphill side of the stump where practicable. In wilderness, flush cut stumps within the first 75 feet of the visible foreground from trails.
15. Where needed, spread slash as a mulch over existing dozer scars and other areas of exposed mineral soil to cover the contrasting color of the soil.

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16. To avoid unnatural-looking patterns in the landscape, burn piles would be piled in irregularly shaped piles so as to not leave a circular burn footprint. Locate burn piles in irregularly spaced intervals and do not build piles in straight lines.

Wilderness

1. To maintain the undeveloped wilderness quality, work crews will utilize Leave No Trace practices.
2. To maintain the undeveloped wilderness quality, temporary base camps and use trails created during the project will be restored to previous conditions.
3. To maintain opportunities for solitude, notify visitors of activities occurring in the area and provide information on options for traveling in other unaffected areas of wilderness.
4. When possible, to maintain opportunities for solitude, avoid scheduling trail maintenance and fuelbreak activities concurrently.
5. Once a Situational Report is completed, the Forest will announce in a press release the location and projected time-period implementation will occur.

Wildlife

Project Design Standards that apply across all treatment units (Project-Wide) are described below; followed by specific (italicized) fuelbreak segments that require additional, site-specific protective measures.

Project-Wide

1. Within one week of activities, the Ventana Wildlife Society will be contacted to determine if condors are utilizing habitat in the vicinity. If so, measures will be taken to ensure that noise, pile burning activities, and smoke do not affect condors or nesting activities. If condors approach the work site and remain on the scene, the Ventana Wildlife Society will be notified in order to avoid harassment of condors.
2. If a condor nest or roosting area should be reported by the Ventana Wildlife Society prior to project implementation, no activities will take place within a 1.5-mile buffer of the nesting areas, as per Land Management Plan direction (S28, S24, S11)⁶.
3. No activities will take place within 0.5 mile of active roosts or other areas where condors are congregating during implementation, as per Land Management Plan direction (S28, S24, S11).
4. Prior to implementation, there will be coordination between implementers and condor biologists from the Ventana Wildlife Society for the identification of large snags that may be currently or potentially used by condors, to avoid the inadvertent removal of important roosting structures.
5. Prior to implementation, work crews will be advised on the appropriate ways to park and care for equipment and tools when working in occupied condor habitat, in order to avoid impacts to condors from the ingestion of harmful substances or objects that may be associated with implementation tools/equipment.

⁶ There are currently no known condor nests within or adjacent to the treatment units.

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6. To mitigate effects to migratory and resident birds within their nesting habitat during their sensitive reproductive season, in areas of brush treatment and prescribed fire, it is recommended to avoid implementation from March 15 through July 15.
7. No ground disturbing activities will occur within 100 feet of creeks, springs, or ponds to avoid direct impacts to species associated with riparian/aquatic habitat, such as California red-legged frogs. BMP
8. Where possible and not affecting the integrity of the fuelbreak, large snags that have been felled for safety reasons will be left on the landscape as large down logs (i.e. not removed or bucked up), as per Land Management Plan direction (S14).

Fuelbreak Segments: Mt. Manuel to Big Sur Wild River', 'Post Summit to Little Sur River', 'Bottchers Gap to Skinner Ridge', 'Mescal Ridge', and 'Partington Ridge'

To prevent potential impacts to Smith's blue butterfly, in all or portions of the above fuelbreak segments that are at or below 2,300 feet in elevation and less than approximately 5 miles from the coastline, botanist or other trained personnel will survey for Smith's blue butterfly host plants seacliff buckwheat (*Eriogonum parvifolium*) and coast buckwheat (*Eriogonum latifolium*). If either species is found, it will be flagged, and no herbicide treatments or ground disturbing activities will occur within 10 feet of individual plants.

Fuelbreak Segments: 'Bottchers Gap to Skinner Ridge' Skinner Ridge', 'Skinner Ridge to Devils Peak', and 'Mescal Ridge'

1. To avoid direct impacts to federally listed and/or FS Sensitive amphibians, where the treatment unit/project activities come within 300 feet or less of Mill Creek, a biologist will be present during implementation to survey for amphibians that could potentially occur within treatment areas. If amphibians are found, avoidance measures will be prescribed.
2. For areas of suitable nesting habitat that occur within 0.25 miles of treatment units and have not been surveyed for California Spotted Owl (CSO) nesting activity, a limited operating period (LOP) will be in place during the breeding season (February 1 through August 15) for all activities that generate noise above ambient⁷ levels. This LOP is subject to change based on field validation of habitat suitability. If CSO surveys are conducted in the suitable nesting habitat and no nesting CSO are detected, the LOP would not apply.
3. For known CSO nests or territories, a limited operating period will be in place during the breeding season (February 1 – August 15) for all activities that generate noise above ambient levels that occur within 0.25 miles, unless surveys confirm that the CSO associated with these territories are not nesting. Land Management Plan (S19, S20).

⁷ Ambient noise is defined as the normal background noise level that wildlife in the area are accustomed to and can vary depending on site. For noise to be above ambient levels it is substantially louder than background noise.

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Fuelbreak Segments: 'Mescal Ridge' and 'North Coast Ridge Road - Terrace Creek Trailhead to Cold Springs'

To avoid potential impacts to California tiger salamanders and their potential habitat, heavy equipment and vehicles when traveling through grasslands will stay on existing roads.

Fuelbreak Segments: 'Post Summit to Little Sur River' and 'Lower Skinner Ridge to Boy Scout Camp'

1. To avoid disturbance to potential marbled murrelet nesting activities, no project activities will occur within 0.5-miles of the Little Sur River from April 1 through September 30. This restriction can be waived during seasons when surveys are conducted which establish that there is no marbled murrelet presence within the 0.5-mile treatment unit buffer.
2. For areas of suitable nesting habitat that occur within 0.25 miles of treatment units and have not been surveyed for California Spotted Owl (CSO) nesting activity, a limited operating period (LOP) will be in place during the breeding season (February 1 through August 15) for all activities that generate noise above ambient levels. This LOP is subject to change based on field validation of habitat suitability. If CSO surveys are conducted in the suitable nesting habitat and no nesting CSO are detected, the LOP would not apply.
3. For known CSO nests or territories, a limited operating period will be in place during the breeding season (February 1 – August 15) for all activities that generate noise above ambient levels that occur within 0.25 miles, unless surveys confirm that the CSO associated with these territories are not nesting. Land Management Plan (S19, S20).
4. To avoid potential impacts to federally listed and/or FS Sensitive amphibians within 300 feet of the Little Sur River, a biologist will be present during implementation to survey for amphibians. If amphibians are found, avoidance measures will be prescribed.

Fuelbreak Segments: 'North Coast Ridge Road – Cold Springs to Tan Bark Trail' and 'Tan Bark Trail'

Within the fuelbreaks that are extended to 300 feet wide, snags >24 inches DBH, that do not affect the integrity of the fuelbreak or create a safety hazard, will be retained as legacy trees and habitat for migratory birds; particularly large pre-existing snags (i.e. those that were present prior to the last wildfire). Marking of snags for retention will be coordinated with the Ventana Wildlife Society.

Fuelbreak Segments: 'Hennicksons Ridge to Tassajara Road' and 'Chews Ridge Lookout to Wilderness Boundary'

If not posing a safety hazard or affecting the integrity of the fuelbreak, retain 10-15 hard snags per five acres, minimum 16 inches diameter at breast height and 40 feet tall. Land Management Plan (S14).

Chews Ridge Lookout and MIRA

All large snags (≥ 24 inches DBH) that do not pose an immediate threat to safety or integrity of the fuelbreak will be retained.

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Riparian Conservation Areas (RCAs)

Manage RCAs to maintain or improve conditions for riparian dependent resources. Land Management Plan (WAT 1). BMP

1. No heavy equipment such as tractors and masticators will be permitted in RCAs; hand thinning only. BMP
2. No piling or ignition of fuel will be permitted in RCAs.
3. Fire associated with fuel treatments may 'back' into RCAs.
4. To avoid direct impacts to species associated with riparian/aquatic habitat, herbicide application will not be applied on riparian obligate species. BMP
5. To avoid potential contamination, herbicide applicators will avoid walking or stepping in water. BMP
6. Effective shade over water will not be reduced below 80%; or lower than existing conditions if conditions are already below 80%.
7. Any trees felled with RCA must be retained. Consult with fisheries biologist and/or hydrologist on placement to prevent overloading stream channels.
8. To avoid direct impacts to species associated with riparian/aquatic habitat, no brush cutting will occur within riparian vegetation communities.
9. Retain snags and downed logs unless they are identified as a threat to life, property, or sustainability of the RCA, as Land Management Plan direction (S15).

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Appendix D – Vicinity Map

