United States
Department of
Agriculture

U. S. Forest
Service

Preliminary Tanbark Fuelbreak Maintenance Environmental Assessment

San Gabriel River Ranger District • Angeles National Forest
Los Angeles County • California

November 2010

Sections 31-35, Township 2 North, Range 8 West

Sections 1,11,12,14, 22-25, Township 1 North, Range 9 West

Section 36, Township 2 North, Range 9 West

Existing fuelbreak along Glendora Ridge Road.

For Information Contact

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I Summary

The Angeles National Forest proposes to treat a total of 787 acres of vegetation within the Tanbark Fuelbreak 936-acre project area. This fuelbreak represents a strategic series of ridgelines that separate the backcountry and wilderness areas on the San Gabriel River Ranger District from the wildland urban-interface areas of Glendora, San Dimas, La Verne, and Claremont.

There is a need to manage the vegetation along this fuelbreak area to assure the viability of this wildland fire control feature to:

- Provide for firefighter safety through use of the fuelbreak as a strategic and tactical barrier to fire spread,
- Reduce the potential of catastrophic fire spreading from the wildland urban-interface into the Angeles National Forest, and
- Limit fires spreading out of the Forest into the developed interface areas of the San Gabriel Valley.

The fuelbreak system extends from Sunset Peak west and south along the main ridge to Johnstone Peak, where it splits, with one fork following the ridge system and Forest Road 1N17, and a second fork following the ridge and Forest Road 1N15.

The proposed action includes mechanical treatment using tracked equipment (masticators and bull dozers with crushing apparatus), prescribed burning, and hand clearing.

Project Area Location

The project area (see Figure 1 on next page) is located within the San Gabriel River Ranger District, Angeles National Forest, and the San Dimas Experimental Forest in:

- Sections 31, 32, 33, 34 and 35, Township 2 North, Range 8 West;
- Sections 1, 11, 12, 14, 22, 23, 24 and 25; Township 1 North, Range 9 West; and
- Section 36, Township 2 North, Range 9 West; (San Bernardino Base Meridian, Los Angeles County, California).

Communities are Currently At Risk From Wildfire

This action is needed because these local communities—including Glendora, San Dimas, La Verne, and Claremont—are currently at risk from wildfire.

The Tanbark Fuelbreak Maintenance Project represents a strategic wildland fire control feature. By maintaining this fuelbreak in a state of low fuel loading, firefighting resources will be provided an enhanced opportunity to successfully control the spread of wildfire along this fuelbreak.

The project area lies within the footprint of the 2002 Williams Fire and the 2003 Padua Fire. Communities within or adjacent to these fire perimeters have been identified as high-priority areas for hazardous fuel treatment by the Angeles National Forest's fire

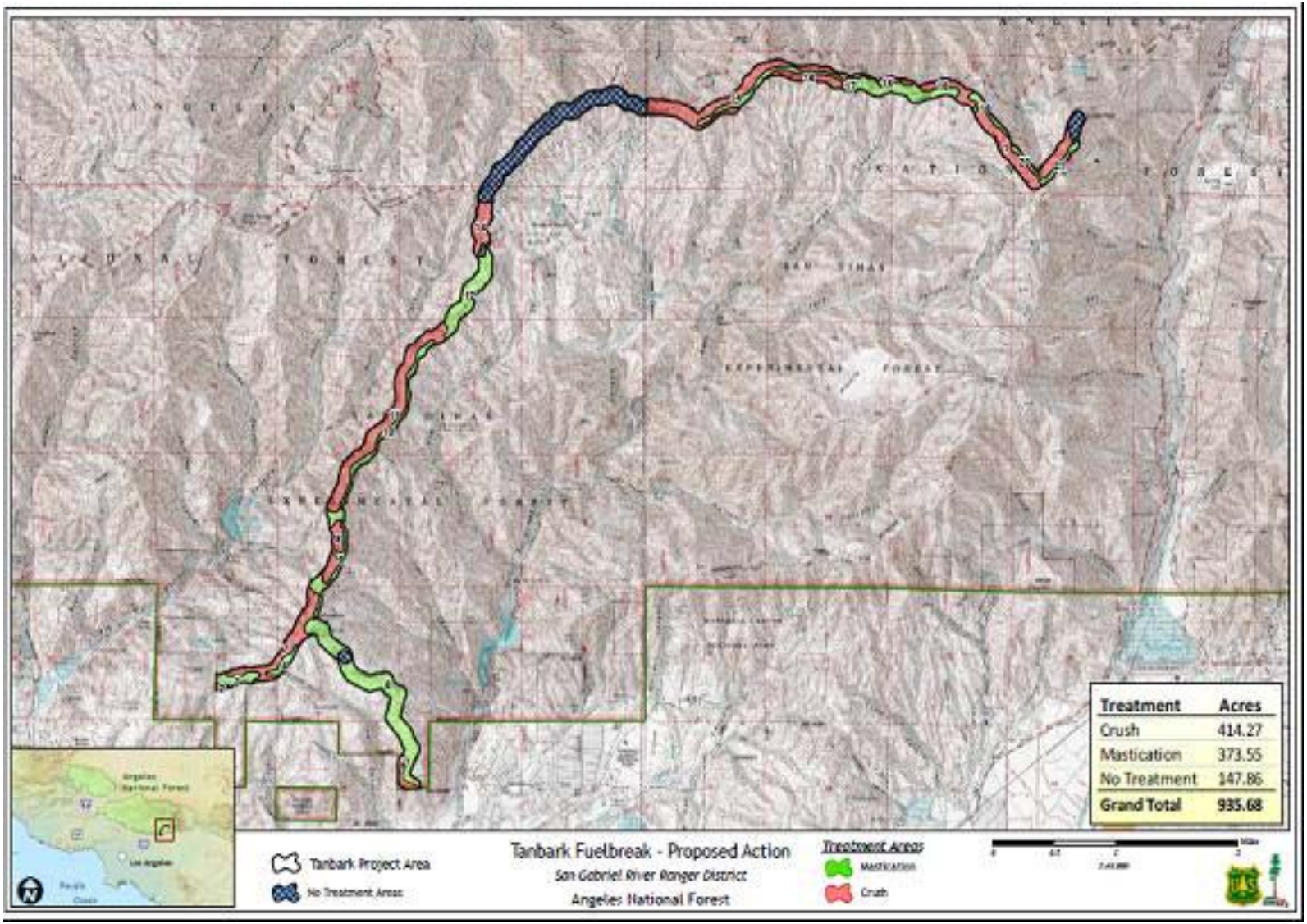


Figure 1 – Proposed treatment units for the Tanbark Fuelbreak Proposed Action Alternative.

management staff. In addition, these areas are listed as “communities at risk” in the Federal Register, Vol. 66, No. 160.

Currently, a high risk exists that an unplanned fire ignition will originate from 1) one of these identified communities, 2) recreational users of the national forest, or 3) the adjacent road systems. Limited community defense space around structures—particularly the facilities at Tanbark Flat and the East Fork of the San Gabriel River—increases the potential of property loss during wildland fires.

Vegetation treatments, both mechanical and prescribed fire, are therefore necessary to provide for community defense through the maintenance of this strategic wildfire control feature.

The project would be completed over approximately five years, with maintenance treatments occurring every three to five years after the initial work.

Two Alternatives Analyzed

This proposed action is consistent with the existing Angeles National Forest Land and Resource Management Plan (ANF Forest Plan, Part 2) (USDA Forest Service, 2005, pages 127 - 129).

Two alternatives were analyzed in this Environmental Assessment:

- The No Action Alternative (Alternative 1), and
- The Proposed Action Alternative (Alternative 2).

The No Action Alternative – Alternative 1

Under the No Action Alternative, current management would continue to guide activities within the project area. No vegetation reduction treatments would be implemented. No strategic wildfire suppression opportunity would be maintained. Communities would continue to be at risk from wildfire.

The Proposed Action Alternative – Alternative 2

The Proposed Action Alternative includes units that would receive both mechanical and prescribed fire treatments. Some units would receive either mechanical or prescribed fire treatments during the project’s lifespan.

As shown in Figure 1, the areas depicted in green represent 35 percent slope or less. These units would typically be treated with a masticator for one or more years prior to being burned with prescribed fire.

The units in red in Figure 1 are in excess of 35 percent slope. These units would typically be treated through the use of a brush crusher and hand cutting and piling. Prescribed fire may also be used on these units to remove mechanically treated vegetation.

Invasive Non-native Species

In addition, treatment of the non-native plant species eucalyptus, Spanish broom, tobacco tree, gorse and rockrose is also proposed. Eucalyptus trees will be felled using chainsaws with the material removed from the site or chipped and piled for burning in the future.

The stumps of the eucalyptus will be treated with the herbicide Garlon 4 to prevent re-sprouting. Other invasive non-native species will be treated in a similar manner. To avoid inadvertently spreading its seed, Spanish broom will not be cut during the flowering/fruiting period.

Deciding Official

The San Gabriel River District's District Ranger is the deciding official and will review the analysis of the alternatives and public comments to determine whether to authorize activities to treat vegetation using mechanical means (brush crushing, mastication, and/or chipping), hand clearing, and/or prescribed fire, and the treatment of non-native invasive species. If vegetation treatment (Alternative 2) is selected, the deciding official will also determine:

- Where and how many acres of each treatment would occur.
- Mitigation measures that would be included with the treatment.
- Over what time period treatment would occur.

Potential Impacts

Potential impacts from the Proposed Action Alternative include impacts to plants, wildlife, and soils. With the implementation of the mitigation measures listed in this document, the impacts were determined to be non-significant. The impacts of large-scale wildfire, which is a greater risk with Alternative 1, are higher than the impacts of implementing Alternative 2 with mitigations.

II Introduction

A. Document Structure

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

The document is organized into four sections:

Introduction

The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Comparison of Alternatives, including the Proposed Action

This section provides a more detailed description of the agency's proposed action for achieving the stated purpose. This alternative was developed based on significant issues raised by the public, other agencies, and internal agency comment. This discussion also includes mitigation measures.

Environmental Consequences

This section describes the environmental effects of implementing the No Action and Proposed Action alternatives. This analysis is organized by resource area. Within each resource area, the affected environment is described, followed by the effects of the No Action alternative—which provides a baseline for evaluation and comparison of the Proposed Action Alternative.

Consultation, Coordination, and References

This section provides a list of preparers, agencies, and individuals consulted during the development of this Environmental Assessment as well as the various references used in this assessment.

The information contained in this Environmental Assessment is based on analysis completed by the resource specialists on the project's Interdisciplinary Team. Additional documentation, including complete analyses of project-area resources, is available in the project planning record located at the San Gabriel River Ranger District Office in Glendora, California.

B. Purpose and Need for Action

The Tanbark Fuelbreak represents a strategic series of ridgelines separating the backcountry and wilderness areas on the San Gabriel River Ranger District from the wildland-urban interface of Glendora, San Dimas, La Verne and Claremont, California. The entirety of the planning area was burned in the 2002 Williams and 2003 Padua fires. Over time, brush has begun to establish back on the fuelbreak—reducing its potential effectiveness.

A need therefore exists for fuel reduction on the fuelbreak to assure this wildfire control feature continues to provide for firefighter safety through its use as a strategic and tactical wildfire control feature.

This fire suppression control feature also provides protection to the research facilities and ongoing experiments of the San Dimas Experimental Forest. Maintenance of the fuelbreak has been authorized by the management of the San Dimas Experimental Forest.

During the past ten years, there has been extensive wildfire activity on the San Gabriel River Ranger District. The 2009 Station Fire burned just west of the project area. Also in 2009, the 2,200-acre Morris Fire burned south of the proposed action area. The main and east forks of the San Gabriel River are highly utilized recreation areas, with increased risk of unplanned ignitions due to the number of Forest users concentrated in these areas.

The proposal is to maintain a strategic fuelbreak through the use of mechanical and prescribed fire treatments. These treatments are designed to maintain a light fuel loading on the fuelbreak to enhance the effectiveness of both ground-based and aerial firefighting personnel.

This action is consistent with the existing Angeles National Forest Land and Resource Management Plan (ANF Forest Plan) (USDA Forest Service, 2005, pages 127 -129).

C. The Proposed Action

The San Gabriel River Ranger District on the Angeles National Forest proposes to reduce the fire risk on and adjacent to the Tanbark Fuelbreak Project Area. (See Figure 1 – featuring a map that displays the proposed treatment area.) Proposed actions include mastication, crushing, hand cutting and piling, prescribed fire, as well as the selective use of herbicide on approximately two acres of non-native invasive species to limit the spread of these species. No new roads will be constructed under this proposed action. The total assessment area is 936 acres.

The objective of the proposed action is to attain a desired condition which provides for community protection and enhances wildfire suppression operations into the future. The proposed treatments are tools that will be used to achieve these desired conditions.

Specific Actions

Mastication

Mastication, or mulching, is a mechanical fuel treatment that changes the structure and size of fuels. An Angeles National Forest-owned ASV skidsteer with masticating head will be used in these units. The brush will be

masticated to a depth not to exceed six inches. The masticated material will remain on site—unless prescribed fire is applied—to provide a barrier to invasive species spreading into the treated areas. A maximum of 80 percent of the standing brush will be treated in the units. Within any single unit, the presence of slopes in excess of 35 percent and rocks may decrease the overall mastication treatment percentage below 80 percent. Any tree-form oaks within the units will be retained. Pockets of untreated brush no smaller than ¼ acre in size will be retained in the masticated units. Where feasible; sage, Manzanita, and ceanothus species will be favored in the retained pockets.

Brush Crushing

Crushing will be achieved with a bulldozer operated cylinder that is lowered down-slope by a cable system. The bulldozer will operate off of ridgetops only. Crushing will be utilized on slopes greater than 35 percent. The San Gabriel River Ranger District may choose to burn the crushed units to reduce the dead fuel loading generated by the proposed crushing. A maximum of 80 percent of the standing brush will be treated in the crush units. All tree-form oaks within the units will be retained.

Prescribed Fire

Ground-based ignition techniques may be used to remove 70 to 90 percent of the vegetation (treated or untreated) from the entirety of the treatment units. A combination of live and dead fuel moistures, temperature, wind and humidity will be used to prescribe a moderate intensity fire. Firelines may be constructed as part of this treatment to provide control points and to allow access for firefighters. Firelines will be no wider than four feet and may be constructed down to mineral soil. All seasons will be considered appropriate for burning, unless mitigation actions are required to limit the seasonality of the burn. Burning will only occur with authorization from the South Coast Air Quality Management District.

Hand Clearing

Three identified oak stands and remnant pockets of planted conifers exist in the project area. Native species will be retained and pruned to ten feet or ½ of their live crown height, whichever is less. No live native species trees greater than 16 inches diameter-breast-height will be removed from the project area. All non-native species—regardless of diameter—will be cut, with material either piled and burned at a later date, chipped, or removed from the project area.

Small areas within the overall project not immediately identifiable in the analysis may be hand cleared to meet project standards. These hand treatments will occur after all mechanical treatments. The project area will be evaluated by the District Fuels Officer to assure that additional treatment is required prior to any work being undertaken.

Invasive Species Treatment

Spot treatment with herbicide will occur on approximately two acres of the project area on the following non-native species: Spanish Broom (*Spartium junceum* L.), rockrose (*Cistus sp.*), grose (*Ulex europaea*), tobacco tree (*Nicotiana glauca*), and Eucalyptus. These species will be directly treated with Garlon 4 after hand cutting. To minimize the potential of spreading seed from individual plants, cutting and herbicide treatment will occur only during months when the species are not flowering. Treatment of the Eucalyptus stumps will occur after removing the trees from the fuelbreak. A backpack pump sprayer will be utilized to apply the herbicide. Only direct treatment of the non-native invasive plant is planned. No landscape level application is proposed.

D. Decision Framework

Given the purpose and need, the deciding official, the San Gabriel River District Ranger, reviews the analysis of the No Action and Proposed Action alternatives and public comment to determine whether to authorize activities to treat vegetation using mechanical treatment (brush crushing, mastication, and/or chipping), hand clearing, and/or prescribed fire. If vegetation treatments are selected, the deciding official would need to determine a finding of "no significant impact" to proceed with implementation based on this Environmental Assessment. If the vegetation treatments are authorized, the deciding official would also determine:

- Where and how many acres of each treatment would occur,
- The mitigation measures that would be included with the treatment, and
- Over what time period treatment would occur.

E. Public Involvement

This proposal was originally listed in the Schedule of Proposed Actions (SOPA) for the Angeles National Forest during July 2009. One comment was received in response to this listing. No public meetings were held regarding this proposed action.

The analysis in this Environmental Assessment is available for comment and review for 30 days starting with a legal notice in the Inland Valley Bulletin. Once the comment period has ended, the San Gabriel River District Ranger will determine whether to cancel the project, complete a Decision Notice and Finding of No Significant Impact, or choose to complete further documentation in an amended Environmental Assessment or Environmental Impact Statement (EIS).

The decision regarding this analysis may be subject to administrative review (appeal) pursuant to 36 CFR Part 215. If the decision is subject to appeal, individuals or non-Federal organizations who submit written comments during the 30-day comment period—or otherwise express interest in this particular action prior to the close of the comment period—would have standing to appeal the decision.

F. Issues

The Interdisciplinary Team developed a list of issues to address based on the Angeles National Forest Land and Resource Management Plan, public comments, and knowledge of the resources present in the project area.

These issues were separated into two groups: "Significant" and "Non-Significant" issues. "Significant" issues were defined as those directly or indirectly caused by implementing the proposed action.

"Non-Significant" issues are identified as those issues:

- Outside the scope of the proposed action;
- Already decided by law, regulation, Forest Plan, or other higher-level decision;
- Irrelevant to the decision to be made;
- Conjectural and not supported by scientific or factual evidence; or
- Substantially addressed or mooted by project design, standard agency protocols, or mitigation measures.

The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7: *"…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…"*

Non-Significant Issues

Five Non-Significant issues were identified in this Environmental Assessment's Interdisciplinary Team process. These issues were determined to be not significant because the Angeles National Forest Land and Resource Management Plan details ways to manage the issues or mitigation measures that were developed for the project that minimize or eliminate the impacts of concern.

The Five Non-Significant Issues

Issue 1. Impacts on management indicator species (MIS), wildlife habitat, and sensitive plants,

Issue 2. May open lands to creation of unauthorized motorized roads and trails,

Issue 3. Could affect heritage resources,

Issue 4. Could affect visual quality, and

Issue 5. Has the potential to increase soil erosion and sedimentation

Significant Issues

The Interdisciplinary Team identified one significant issue:

Issue 1 - Risk of Catastrophic Wildfire

If the project area is not treated to reduce fuel loadings, the communities of Glendora, La Verne, San Dimas, and Claremont—as well as the improvements in the East Fork of the San Gabriel River and the Tanbark Flats area—are at risk of catastrophic wildfire. These communities are at risk due to the high probability of a wildfire based

on fire history, extended periods of drought, condition of the vegetation, and risk of unplanned ignition.

G. Background

The communities of Glendora, La Verne, San Dimas, and Claremont are at risk of catastrophic wildfire. These communities were identified as "Wildland-Urban Interface Communities within the Vicinity of Federal Lands That Are at High Risk from Wildfire" (Federal Register, Volume 66, Number 160). These areas are considered part of the Wildland-Urban Interface (WUI) as described in the Healthy Forests Restoration Act of 2003:

> *"WUI (as defined by the Act) is a variable width up to 1½ miles from communities at risk or as defined in individual community fire protection plans. This forest plan further identifies a direct protection zone (WUI Defense Zone) and an indirect protection zone (WUI Threat Zone) that fall within the broader definition of WUI. A WUI Defense Zone is the area directly adjoining structures and evacuation routes that is converted to a less-flammable state to increase defensible space and firefighter safety. The WUI Threat Zone is an additional strip of vegetation modified to reduce flame heights and radiant heat. The Threat Zone generally extends approximately 1¼ miles out from the Defense Zone boundary. Yet, actual extents of Threat Zones are based on fire history, local fuel conditions, weather, topography, existing and proposed fuel treatments, and natural barriers to fire and community protection plans, and therefore could extend well beyond the 1¼ miles. The two zones together are designed to make most structures more defendable.*

According to the Angeles National Forest 2009 Fire Management Plan, this Forest should:

> *Maintain the existing system of roadside fuelbreaks and fuelbreaks along watershed boundaries to minimize fire size and the number of communities threatened by both fires and floods. Consider constructing new fuelbreaks on land outside of wilderness or other special designations (Angeles Fire Management Plan, page 12):*
>
> *<u>Objectives/Strategies</u>*
>
> - *Consider an opportunistic approach to fuels management. Take advantage of previously burned or treated areas to link future fuels and vegetation or wildlife habitat improvement projects when doing fuels planning.*
> - *Utilize fire landscape analysis to aid in the design of future fuelbreak systems, maintain multiple lines of community defense to minimize future wildland fire size.*
> - *Develop a plan to minimize the propagation of invasive non-native species during fire suppression and fuels or vegetation management activities.*

Based on the Angeles National Forest Land and Resource Management Plan and Fire Management Plan, the risk of catastrophic wildfire on the Angeles National Forest is a significant issue, which has driven the development of the action alternative to meet direction.

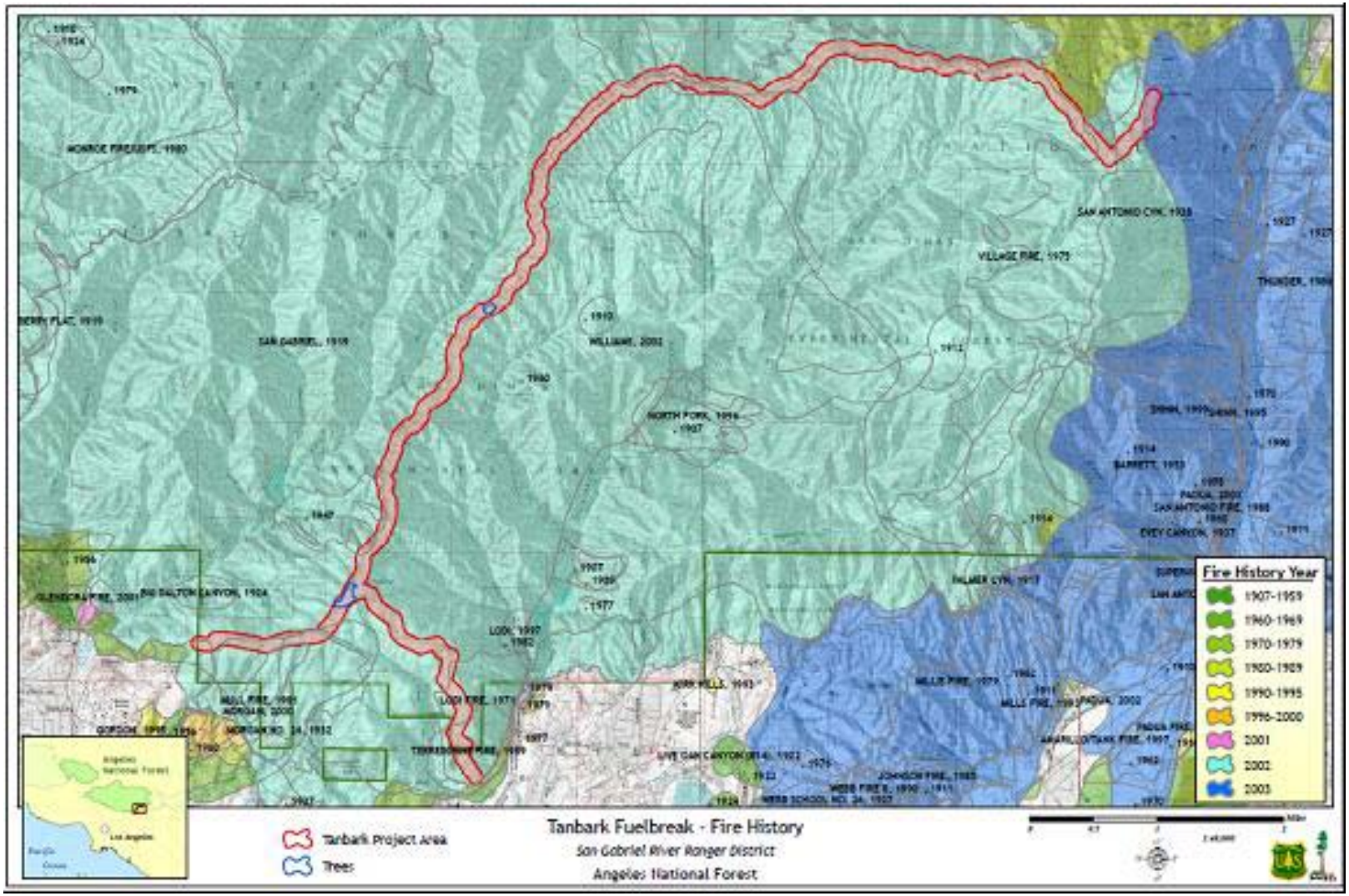


Figure 2 – Fire history in the vicinity of the Tanbark Fuelbreak.

III Alternatives

This section of this Environmental Assessment describes and compares the alternatives considered for the Tanbark Fuelbreak Maintenance Project. It includes a description of each alternative that was considered. It also presents the alternatives in comparative form, defining the differences between the alternatives and providing a clear basis for choice by the decision maker and the public.

A. Alternative 1 – No Action

Under the No Action Alternative, current management would continue in the project area. No vegetation reduction treatments, mastication, crushing, chipping or prescribed burning would be implemented. Vegetation would be allowed to grow on the footprint of the existing fuelbreak. The tactical and strategic wildfire suppression advantages associated with reduced fuel loadings along the ridge system would be lost as the vegetation grows back over time.

There is a high probability that wildfire would return to this area with significant threat to life and property. The communities along the East Fork of the San Gabriel River and at Tanbark Flats would not benefit from the enhanced wildfire suppression opportunities offered by the Tanbark Fuelbreak.

The fuelbreak would not exist as a partial barrier to fire spread. This would increase the probability that a fire would spread off of the Angeles National Forest into the communities of Glendora, La Verne, San Dimas, and Claremont. Probabilities of a fire spreading out of these foothill communities and impacting the Angeles National Forest and its various users would also increase.

B. Alternative 2 – The Proposed Action

The action proposed by the Forest Service to meet the purpose and need is mechanical treatment and prescribed burning to maintain the strategic and tactical advantages of the Tanbark Fuelbreak during wildfire control operations.

The maintained fuelbreak would offer enhanced wildfire protection to the communities of Glendora, La Verne, San Dimas, and Claremont—as well as those improvements along the East Fork of the San Gabriel River and at Tanbark Flats.

The Proposed Action Alternative would include both mechanical and prescribed fire treatments. One maintenance treatment following the initial entry is proposed to maintain low fuel loadings during the ten-year life of the proposed project.

Cumulative Effects Actions/Activities

Eight projects were identified by the San Gabriel River Ranger District for inclusion in the cumulative effects analysis. The projects/activities include four proposed fuelbreaks, two ongoing fuel treatment projects, and two past wildfires. A list of actions considered is outlined in Table 1.

Table 1. – Actions considered in the cumulative effects analysis.

Project	Size (ac.)	Location and Distance From Tanbark Fuelbreak	Project Description and Treatment Type	Occurred or Planned When?
Glendora Fuelbreak	569	Runs Ridge to West from Tanbark Junction	Consistent with Tanbark Fuelbreak	FY 2011
Sunset Fuelbreak	108	Directly adjacent on the east end of the project	Consistent with Tanbark Fuelbreak	FY 2011
Monroe Fuelbreak	205	5 miles to West	Consistent with Tanbark Fuelbreak	FY 2011
Mt. Baldy Village	75	2 miles to the east	Pruning, release, chipping, piling, pile and broadcast burning, all completed by hand	Current Project
Tanbark Admin	141	1 mile from Tanbark gate	Pruning, release, chipping, piling, pile and broadcast burning, completed by hand and machine	FY 2012
La Verne Fuelbreak	12	1 mile from SE corner	Consistent with Tanbark Fuelbreak	FY 2011
Williams Fire	30,000 +	burned or encompassed entire project area	Wildfire	2002
Padua Fire	10,000+	burned the far east side of the project area	Wildfire	2003

C. Mitigation Measures

All Forest Service projects conducted on the four southern California national forests are conducted pursuant to the revised Land Management Plans (LMP) for those forests which were finalized in 2005. A part of those plans include Management Direction (Parts 1 and 2) and Design Criteria (Part 3) (USDA Forest Service 2005) which apply to all projects and are incorporated by reference into this Environmental Assessment.

In addition to the LMP direction, the Interdisciplinary Team developed the following mitigation measures to reduce and avoid some of the potential impacts of project implementation. The mitigation measures would be applied to the Proposed Action Alternative. These mitigation measures and design features include:

Heritage Resources

- Ground disturbing activity such as mastication and crushing, along with prescribed burning and handlines and equipment staging, may not occur within the delineated cultural resource boundaries.
- Prescribed burning and hand treatments will only be permitted in localized areas (Ref # 2009SGR14ISP in project file).
- As a result of poor ground visibility and dense vegetation,

mastication or other ground disturbing activities are not allowed in localized areas (Ref# 2009SGR14ISP in project file). Prescribed burning and hand treatments are allowed in these areas.

- If previously unknown cultural resources are encountered during implementation of the project, activities will be halted and the Angeles Heritage Program Manager will be notified.

Soils and Hydrology

- Provide ground cover such as slash, wood chips, or masticated material adequate to prevent erosion in disturbed areas.
- A combination of natural barriers (rocks, logs, etc.), screening, and fencing will be used as required to prevent/discourage illegal vehicle activity during and after the project treatment. Fire Prevention Technicians and other staff will monitor the area, and if/when problem areas arise, remedial and preventative actions would be taken as appropriate. Coordination with adjacent landowners, public education, and signing would be used as appropriate.
- Any heavy equipment staging areas and access points will be rehabilitated and blocked after project completion. Rehabilitation would include returning the ground to natural contours; implementing de-compaction and erosion control measures as needed, and covering bare soil with slash, chips, needles, or cut brush as necessary.
- Plan prescribed fire to ensure that fire intensity and duration do not result in detrimentally burned soils. Whenever feasible, plan prescribed fire for when soils are wetter and fuels are dry to decrease damage to soils.
- Prescribed burning or crushing should not occur on slopes where only grass is growing.
- Transport, store, and dispose of pesticides and pesticide containers in accordance with applicable State and local laws and regulations, as well as Federal laws and regulations.
- Garlon 4 herbicide should be applied during August or September when Spanish Broom is not flowering and dry weather is forecasted.
- Permit only certified personnel or those under the supervision of a certified applicator to use restricted-use pesticides (Forest Service Manual 2154.2).

Threatened, Endangered, and Forest Service Sensitive Plant Species

- Extend protection to any newly discovered populations of Threatened, Endangered or Forest Service Sensitive (TES) plants found before or during project implementation. In the event of the change in a plant's or wildlife protection status becoming Threatened, Endangered, or Forest Service Sensitive, additional analysis will be completed to determine potential impacts. If applicable, initiate U.S. Fish and Wildlife consultation.
- To prevent injury to individuals of Forest Service Sensitive urn-flowered alumroot (Heuchera elegans), treatment will be excluded from Sunset Peak as identified in the project file. This includes exclusion of all machinery—including vehicles—from the spur road at Sunset Peak off Forest Service Road 2N012.
- Flag and avoid populations of Forest Service Sensitive fragrant pitcher sage (Lepechinia fragrans) and Plummer's mariposa lily (Calochortus plummerae) populations with a 100-foot buffer.
- Surveys will be conducted in the areas identified as suitable habitat for the Federally endangered thread-leaved Brodiaea (Brodiaea filifolia) during a season when they are identifiable, one to two years prior to implementation. Surveys will be conducted following a season with adequate precipitation to stimulate germination/flowering. If these conditions are not obtainable, areas considered to be suitable habitat will be excluded from treatment.
- Herbicide application will not take place within 68 feet of any known TES plant species without barriers set up to shield individuals.
- Spot herbicide application will not take place within 25 feet of Threatened and Endangered plant species. Non-herbicide treatments may be conducted throughout the plant locations with the presence of a Forest Service Botanist.
- Spot herbicide application will not be allowed within 10 feet of the sensitive plant location. Non-herbicide treatments may be conducted throughout Forest Service Sensitive plant locations with the presence of a Forest Service Botanist.

Invasive Species

- All equipment staging areas will be located away from known areas with invasive species occurrences.
- Livestock will not be used as part of this project.
- Protocol standards will be used in the washing of equipment to prevent the spread of non-native

invasive species. Documentation forms regarding this activity will be maintained by the Project Manager and forwarded to the Forest Botanist.

- To prevent further disturbance, no mechanized equipment will be permitted in the locations where invasive species are removed. Hand treatment will be permitted.
- To reduce seed spread, disposal of invasive weeds removed will be as follows: If no flowers or seeds are present – pull the weed and place it on the ground to dry out. If flowers or seeds are present and have the potential for the seed to be widely dispersed during treatment (such as Spanish broom) – remove the flowering head and place in container then pull the weed and place in an appropriate container for disposal.
- Areas with bare soil created by the treatment of noxious weed will be evaluated for restoration to prevent further infestations by the same or new invasive weeds. Whenever possible, protect non-target vegetation to minimize the creation of exposed ground and the potential for re-infestation. A Forest Service Botanist will be consulted prior to any restoration implementation.
- Certified weed-free mulches (or rice straw and mulch) and local weed-free seed sources will be used in restoration or soil stabilization efforts.
- Efforts will be made to ensure that seeds and/or vegetative propagules of invasive weeds will be removed from clothing and equipment prior to leaving treatment site.
- Transport of removed invasive weeds with seeds or vegetative propagules will occur in enclosed disposal containers, or in an enclosed vehicle.
- Invasive weeds to be disposed offsite will be taken to a facility (landfill) that contains the disposed items.
- If burning of removed noxious weeds is to occur, burn piles will be monitored the following year to assess potential needs for revegetation or additional weed removal treatments.
- In order to limit the potential for spread of purple veldt grass, only two entry points are permitted: the gate at intersection of Tanbark Flats Road and Glendora Ridge Road. All vehicles and machinery entering the project at this point will exit through Sycamore Flat Motorway (FS Road. 1N152) or Big Dalton Canyon Road (FS Road 1N141). A second access point is permitted at Sunset Peak.
- The portion of the project area from Peacock Saddle to Sunset Peak will be treated first. Entry to this section of the project will be made from Sunset Peak. All equipment will exit at Sunset Peak as well.
- Monitoring and eradication of all new veldt grass seedlings will occur yearly, for no fewer than three years in areas treated adjacent to known infestation areas.

Invasive Species Treatment

- Transport, store, and dispose of pesticides and pesticide containers in accordance with applicable State and local laws and regulations, as well as Federal laws and regulations.
- Monitor sensitive environments during pesticide applications in order to detect and evaluate unanticipated effects.
- Permit only certified personnel or those under the supervision of a certified applicator to use restricted-use pesticides (Forest Service Manual 2154.2).
- Provide specific measures to minimize human exposure to the chemicals (in high traffic areas, treat before or after the peak season on week days rather than weekends).

Threatened, Endangered and Forest Service Sensitive Wildlife Species

- A Limited Operating Period (LOP) will be in effect between March 1 and August 31 for California spotted owl to minimize disturbance during the species' breeding season.

D. Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in Table 2 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2. – Comparison of effects between the No Action Alternative and Proposed Action Alternative

	No Action – Alternative 1	Proposed Action - Alternative 2
Acres of mechanically treated	0 acres	Up to 787 acres
Acres of prescribed burn treatment	0 acres	Up to 787 acres
Acres of non-native invasive species treatment	0 acres	2 acres
Number of invasive non-native invasive species treated	0	5
Project area with no vegetation treatment	936 acres	149 acres
Acres burned during modeled fire (7-day simulation)	5,054 acres	3,429 acres
Number of known heritage resources potentially affected in the project area	0	7*
Existing Erosion Rate (Undisturbed)	1.0 yd^3/acre	Not Applicable
Erosion Rates for Mechanical Thinning	Not Applicable	1.1 yd^3/acre
Erosion Rates for Prescribed burning	Not Applicable	2.3 yd^3/acre
Erosion Rates for Wildfires	32.7 yd^3/acre	Not Applicable
Scenic Integrity Objectives changes in the project area following a wildfire	No change	Lowered by no more than one level**
Scenic Attractiveness Class changes in the project area following a wildfire	No change	Lowered by no more than one level**

*****Mitigation measures associated with the Proposed Action negate any potential effects associated with project implementation. The entire project area burned at high severity during 2002 or 2003. Any effects which could be associated with prescribed fire have been exceeded by past wildfires burning in the project area.

**When mitigation measures are implemented with the vegetation treatments, the project area would maintain a natural appearance. The scenic integrity objectives and scenic attractiveness class should not be lowered.

IV Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives (outlined in Table 2 on previous page).

A. Risk of Catastrophic Wildfire

If the project area is not treated to reduce vegetation, the communities of Glendora, La Verne, San Dimas, and Claremont—as well as the small communities along the East Fork of the San Gabriel River—are all at risk of catastrophic wildfire. These communities are at risk of fire due to the high probability of wildfire based on fire history and a flammable fire environment which includes extended periods of high temperatures, chaparral vegetation, and limited summer and fall rains. The area also has a high risk for accidental ignitions due to the presence of heavy recreational use, transportation routes, and activities that occur in the foothill communities of the San Gabriel Valley.

Background

Environmental Concerns

A prior history of large-scale wildfires exists in and adjacent to the project area, including the 2002 Williams Fire and the 2003 Padua Fire.

Proximity of Travel Routes

There are numerous sources of unplanned ignitions including vehicle fires and arson associated with the travel routes immediately adjacent to the Tanbark Fuelbreak. The Glendora Ridge Road and the Glendora Mountain Road are primary access routes for visitors to the national forest lands. Accidental and arson ignitions occur annually along these travel corridors (District Fire Staff, personal comm., 2010).

Recreational Use

The East Fork of the San Gabriel River, approximately three air miles north of the project area, is a heavily used recreational area—especially during the summer months. More than 5,000 visitors have been estimated to use the river corridor during summer holiday weekends. Access to San Gabriel Canyon is often restricted by local law enforcement over concerns for public safety when recreation use reaches this level.

An ignition from recreational activities could easily burn upslope to the Tanbark Fuelbreak, as demonstrated by the 2002 Williams Fire.

Vegetation Condition

The project area was burned during the 2002 Williams Fire. A small portion of the project area near Sunset Peak was burned again in the 2003 Padua Fire. Annual grasslands, buckwheat/sage, and sprouting chaparral currently dominate the fuelbreak.

Due to terrain features or aspect, scattered pockets of bigcone Douglas-fir and coast live oak occur on areas protected from past fire. Interior live oak is more common on the fuelbreak's north facing aspects.

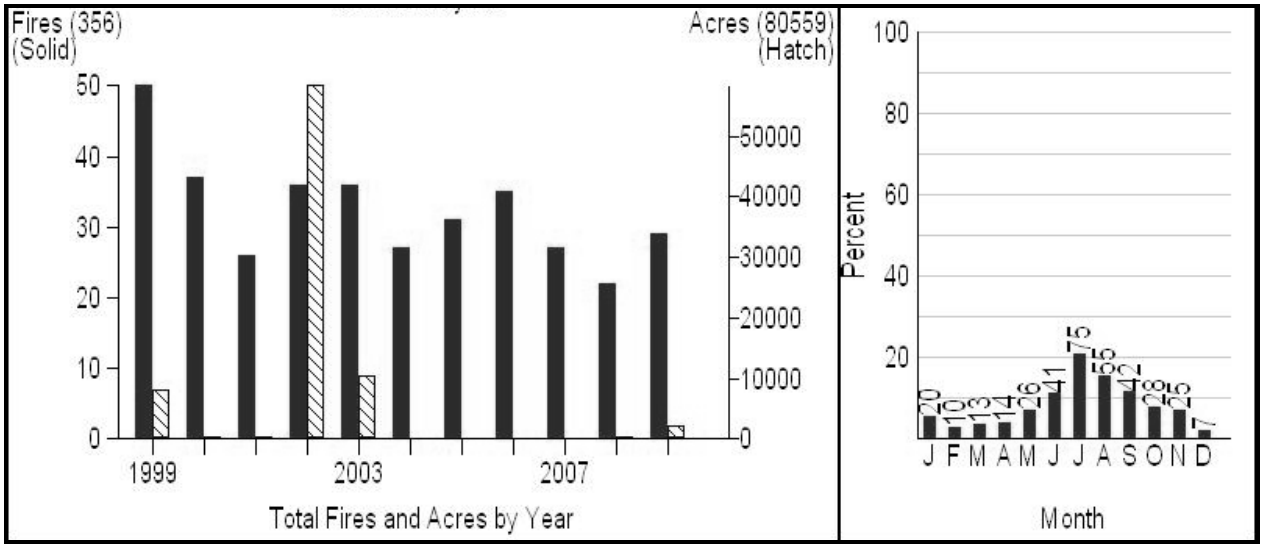
Sprouting chaparral species are currently reestablishing along the fuelbreak. Without additional disturbance from wildfire or some other mechanism, chaparral will dominate the fuelbreak in future years.

Fire History

The area surrounding the Tanbark Fuelbreak has a history of frequent, high-intensity wildfires. Bounded on the west by Highway 39 and the north by East Fork Road, a steady stream of vehicle traffic and forest users frequent the project area's vicinity. This concentration of people and vehicles has contributed to an elevated fire frequency when compared to other locations on the Angeles National Forest. Nearly all fires within this area are human caused, with only a rare lightning-ignited fire occurring.

The San Gabriel River Ranger District has a year round fire season with wildfires occurring every month of the year. While the majority of fires are contained during initial attack, large fires (300 acres and greater) are common. Nearly 50,000 acres burned on the San Gabriel River Ranger District in 2002. Figure 3 summarizes fire statistics for the San Gabriel River Ranger District from 1999 to 2009.

The most recent large fire in the project vicinity was the 2009 Morris Fire that burned approximately 2,168 acres to the south and west of the proposed treatment area. Within the last ten years, four other large fires have burned in—or immediately adjacent to—the proposed treatment area. These fires include: the Padua Fire, 2003; the Williams Fire, 2002; the Curve Fire, 2002; and the Bridge Fire, 1999.



Source: FireFamily Plus

Figure 3 – San Gabriel River Ranger District Fire Statistics from 1999 to 2009.

Table 3 – Tanbark RAWS summary from 1988 to 2008.

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual monthly Mean
Max. Temp. (ºF)	62.8	62.8	66.0	69.0	73.9	81.5	88.9	90.1	86.9	79.5	70.6	63.9	74.7
Min. Temp. (ºF)	43.7	43.5	45.0	46.6	50.4	55.7	62.9	64.4	62.2	56.6	49.5	44.0	52.0
Total Precip. (inches)	6.8	6.4	3.5	1.9	0.6	0.3	0.1	0.0	0.2	1.3	0.9	2.9	2.1
Wind Speed (mph)	4.9	4.9	5.2	5.6	5.7	6.0	6.6	7.0	6.8	6.1	5.5	4.7	5.8

Weather

Weather data is based on the Tanbark Remote Automated Weather Station (RAWS). The Tanbark weather station is located at approximately 2,600 feet in the vicinity of the Tanbark Flats Station, approximately ½ mile south of the fuelbreak. Table 3 provides a summary of weather data from the Tanbark RAWS from 1988 to 2008.

Santa Ana winds commonly affect the project area. Through a combination of pressure gradients and compressional heating of the air mass, warm, dry, gusty north-to-northeast winds develop over the project area that escalate fire danger during these weather events.

Santa Ana events are most common between the months of September and March. The critical fire danger associated with these events generally ends with the first "wetting rain" of the fall. A "wetting rain" is defined as a widespread rain that over an extended period of time significantly reduces fire danger (NWCG 2004).

Direct/Indirect Effects

Alternative 1

Because no actions are proposed under the No Action Alternative, it has no direct effects. However, under this alternative, local communities will remain at an elevated risk of catastrophic wildfire.

Based on fire history, weather patterns, fuel conditions and potential ignition sources, it is assumed that the entire project area will be involved in one or more wildfires in the future.

(A comparison of fire behavior characteristics and fireline production rates associated with both the No Action Alternative and the Proposed Action Alternative are discussed in Alternative 2.)

Alternative 2

Fire behavior modeling was used to analyze measurable changes in the flame length, rate of spread, and fire perimeter growth between the No Action and Proposed Action alternatives. Differences between these two alternatives regarding fireline production rates and coverage levels for aerially applied fire retardant are also evaluated (NWCG 2004, NWCG 1996).

Fuel models were assigned to the project area based on proposed fuel treatment and no treatment with 10 years of fuel accumulation in the vicinity of the project area. Table 4 displays the fuel models used in the analysis.

The analysis used 80th percentile weather data from the Tanbark RAWS for fire behavior modeling. Modeling shows measurable changes between the alternatives for rate of spread and flame length. Tables 5 and 6 summarize these changes.

Table 4 – Fuel Model Assumptions.

Existing Condition[1]	Proposed Action	No Action (10 yrs of fuel accumulation[2])
GR1	GR1	GS1
GR2	GR1	GS2
GS1	GR2	GS2
GS2	GR2	SH2
SH2	SH1	SH5
SH7	SH1	SH7
TU1	TU1	TU5
TU5	TU1	TU5
TL3	TL1	TL5

[1]Fuel model data provided by LANDFIRE Rapid Refresh (2006-2008).

[2]No Action also assumes that no wildfires or other fuel reduction activities would occur.

Table 5 – Rate of spread in the project area during a simulated wildfire.

Rate of Spread		Percentage of total project area burned in simulation	
Feet/Minute	Chains/Hour	No Action (10 years fuel accumulation)	Proposed Action
0 - 5	0 - 4.5	88	97
5 - 10	4.6 - 9	9	2
10 - 15	9.1 – 13.6	2	1
15 - 20	13.7 – 18.2	1	0

Table 6 – Flame length comparison.

Flame Length (feet)	Percentage of Fuelbreak Burned	
	No Action (10 years fuel accumulation)	Proposed Action
0 - 4	63	85
4 - 8	27	13
8 - 11	3	1
11 - 15	7	1
15 - 20	1	0

Table 7 – Control Line Production Rates: Fuel Models SH2 and GS2

Resource Type	No Action Fuel Model SH2 chains/hr	Proposed Action Fuel Model GS2 chains/hr	Change
Type 1 crew	6	24	+18
Type 2 crew	4	16	+12
Type 3 engine (5 person crew)	20	25	+5
Type I dozer (26-40% slope)	50-75 uphill 110-130 downhill	70-100 uphill 140-155 downhill	+20-25 +25-30
Type II dozer (26-40% slope)	45-70 uphill 105-120 downhill	60-85 uphill 130-145 downhill	+15 +25

SH2 - moderate load shrub

GS2 - low load grass.

A change in the fireline production rates for suppression equipment is used to display the difference in firefighting capabilities between the No Action and Proposed Action alternatives. Table 7 compares the change in fireline production rates due to the changes in fuel models associated with implementing the Proposed Action. Fireline production rates are published in the Fireline Handbook Appendix A (NWCG 2004). Fireline production rates for all resource types increase as a result of implementing the proposed action.

Changes in fire suppression effectiveness by aerial resources is measured by changes in the fire retardant coverage rates required to effectively coat fuels during wildfire suppression actions. As surface fuel loading is decreased, a decrease in the retardant coverage level is required to slow fire spread. Table 8 displays the retardant coverage level associated with both the No Action and Proposed Action alternatives.

Table 8 – Retardant Coverage Level Changes by Fuel Model (FM).

No action NFFL FM (Scott and Burgan FM)	Post-treatment NFFL FM (Scott and Burgan FM)	Coverage level change (gal/100ft^2)
2 (GS1, GS2)	1 (GR1,GR2)	-1
5 (SH2)	2 (GR2)	-1
4 (SH5, SH7)	5 (SH1)	-3

Summary
The Proposed Action Alternative creates a nine percent reduction in the overall rate of spread of the modeled fire, and a 22 percent increase in acres modeled with flame lengths four feet or less.

The Proposed Action Alternative creates a desirable effect by reducing fire behavior. The reduction in modeled fire behavior and improved production rates for ground-based and aerial firefighting resources enhances opportunities for successful wildfire suppression operations along the length of the fuelbreak.

The vegetation adjacent to the fuelbreak may still pose a threat to firefighter and public safety and may have a negative impact on firefighter tactics.

Cumulative Effects

Alternative 1
Under the No Action Alternative, wildfire will spread more rapidly and at higher intensities. The interconnecting nature of the fuelbreak system will be degraded and a weak spot in the system of fuelbreaks will be created as vegetation matures on the footprint of the existing Tanbark Fuelbreak.

Alternative 2
Under the Proposed Action Alternative, recent wildfires and fuel treatment projects have created a local environment where reduced fireline intensities and increased fireline production rates are anticipated until the shrub component dominates the landscape again. Fuel treatments connecting to existing burned areas cumulatively create a fire environment where wildfire spread and intensity would be lower than historic averages and where the potential for successfully suppressing wildfire would be increased.

Fuelbreaks and other fuel treatment projects in close proximity provide a network of tactical fire suppression options for fire managers. This “web” of interconnected fuelbreaks provides enhanced tactical and strategic opportunities for stopping or slowing a wildfire by reducing fireline intensities. Fuelbreaks also provide improved tactical options by enhancing access, increasing fireline production rates, and providing pre-established control features for indirect firefighting operations.

Conclusion/Findings

Alternative 1
Under Alternative 1, no vegetation treatments would occur and fuel loading would continue to increase over time, reducing the effectiveness of the existing Tanbark Fuelbreak as a wildfire control feature. Fireline intensities along the fuelbreak will increase and fireline production rates will decrease as the fuel loading increases. No direct or indirect community protection would be achieved.

Furthermore, this alternative does not meet direction specified in the 2005 Land Management Plan (Fire-5 - Fuelbreaks and Indirect Community Protection and Forest Heath-2, Prevention of Fire Induced Type Conversion).

Alternative 2
Under Alternative 2, vegetation treatments would significantly reduce the fuel loadings along the Tanbark Fuelbreak. Therefore, reduced fireline intensity and increased fireline production rates along the fuelbreak would be achieved.

The Tanbark Fuelbreak would continue to serve as a viable strategic and tactical option during wildfire control operations.

Indirect wildfire protection would be provided to the communities of Glendora, San Dimas, La Verne, Claremont, as well as those smaller in-holders along the East Fork of the San Gabriel River.

Wildlife habitat and native vegetation would be indirectly protected by the fuelbreak, leading to enhancements to the shrub and forest environment.

In addition, this alternative meets the direction in the 2005 Angeles National Forest Land Management Plan, Fire-5, Fuelbreaks and Indirect Community Protection and Forest Heath-2, Prevention of Fire Induced Type Conversion.

B. Air Quality

Background

The Tanbark Fuelbreak represents a strategic series of ridgelines in the San Gabriel Mountains that separate the backcountry and wilderness areas on the San Gabriel River Ranger District from the wildland-urban interface areas of Glendora, San Dimas, La Verne, and Claremont, all located to the west.

The project is located entirely within the South Coast Air Basin with air quality regulated by the South Coast Air Quality Management District (SCAQMD).

The proposed vegetation treatments include:

- Total analysis area – 936 acres
- No treatment area – 148 acres
- Total proposed treatment – 788 acres
- Total brush crush area – 414 acres
- Total brush mastication area – 374 acres
- Total oak stands hand clearing and pile burn – 12 acres
- Proposed maximum brush crush / prescribed burn (80 percent of 414 acres) – 331 acres
- Proposed maximum mastication / prescribed burn (80 percent of 374 acres) – 373 acres

The South Coast Air Basin does not meet the National Ambient Air Quality Standards (NAAQS) for many regulated pollutants and has been designated a "non-attainment" area by the Environmental Protection Agency (EPA).

States must demonstrate to the public and the EPA how a non-attainment area will meet the NAAQS based on the control of emission sources. Such demonstrations employ control plans that are part of a State Implementation Plan (SIP), including emissions from fuel treatment projects. Table 9 presents the current state of California attainment status for the South Coast Air Management Quality District.

Table 9 – Air quality designations for the South Coast Air Basin.

Criteria Pollutant	(1) Federal Status	(2) State Status
Carbon Monoxide	Attainment Maintenance Area – Formerly Serious Non-attainment	Attainment
Ozone 1 Hour	-	Extreme Non-attainment
Ozone 8 Hour	Severe 17 Non-attainment	Non-attainment
PM-10	Serious Non-attainment	Non-attainment
PM-2.5	Non-attainment	Non-attainment

(1) Source U.S. EPA Criteria Pollutant Area Summary Report (Green Book) accessed 2/25/10: http://www.epa.gov/oar/oaqps/greenbk/astate.html

(2) Source California Air Resources Board accessed 2/25/10: http://www.arb.ca.gov/desig/adm/adm.htm

Table 10 – Comparison of acres burned by wildfire and prescribed fire across all ownerships by decade within the South Coast Air Basin.

Decade	Wildfire	Prescribed Burns
1980-1989	650,481	38,993
1990-1999	426,496	16,434
2000-2008	805,084(1)	9,456
TOTAL	**1,882,061**	**64,883**

Source: California Department of Forestry, Fire and Resource Assessment Programand Forest Service fire history GIS database.

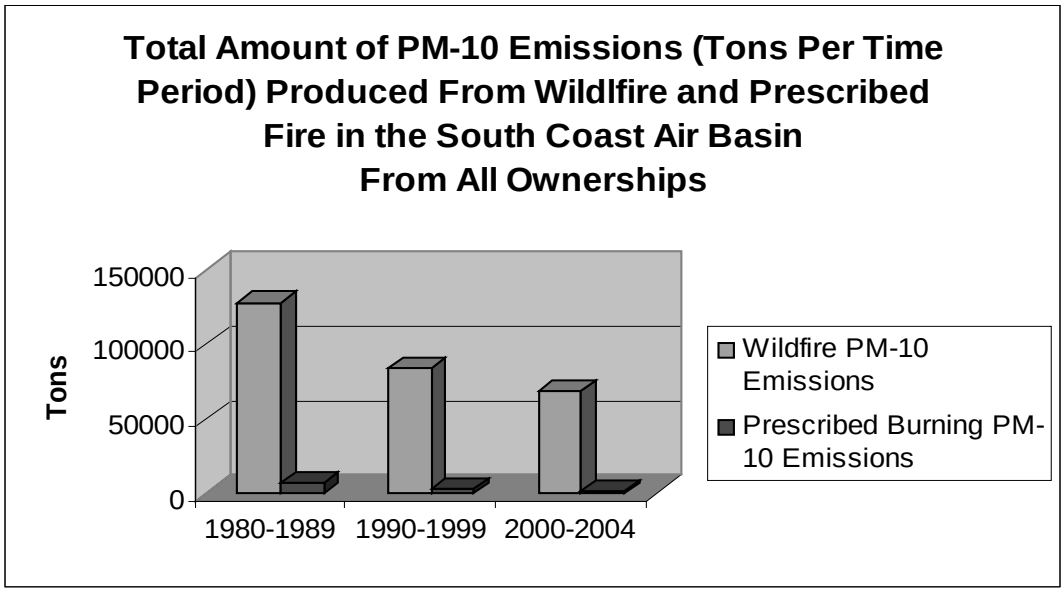
(1) Includes the 2009 Station and Morris fires within the South Coast Air Basin.

Smoke

Within the South Coast Air Basin, a majority of the pollution is derived from the nearby urban areas. Wildfire is one of the few exceptions. Since 1980, 1,882,061 acres have burned in wildfires and 64,883 acres have been treated with prescribed fire. Table 10 displays the acres of wildfires and prescribed fires that have burned in the South Coast Air Basin by decade for all ownerships since 1980.

Unlike most industrial and urban sources, wildfire smoke is usually transitory in nature, lasting only a few days at a single location. Figure 4 compares estimated smoke produced from wildfire and prescribed fires since 1980 using the acreage estimates from the previous table (Table 10).

Emissions were estimated using AP-42 (U.S. EPA 1995) default fuel loadings and consumption for California chaparral for prescribed burning conditions.



Almanac: http://www.arb.ca.gov/aqd/almanac/almanac.htm

Figure 4 – Comparison of emissions produced by wildfire and prescribed fire across all ownerships by decade within the South Coast Basin.

Smoke Sensitive Areas

Many potentially smoke sensitive features exist within a 15-mile radius of the center of the project. Due to the relative minor number of acres ignited on any one day coupled with the prevailing southerly wind direction, it is unlikely that the smoke from prescribed burning activities will affect these locations.

Table 11 – Summary of smoke sensitive areas where significant numbers of people would be present near the Tanbark Project Area – distances measured from approximate project center.

Sensitive Receptors	Receptor	Approximate Distance (miles)	Direction from Project to Receptor
Roads	Angeles Crest Scenic Byway	11	N
	Interstate 210	8	SW
	State Highway 66 and 30	6	S
Towns, Cities, Communities	Glendora	7	SW
	San Dimas	6	SSW
	La Verne	6	S
	Claremont	7	SE
	San Antonio Heights	9	ESE
	Arcadia	16	WSW
	Wrightwood	14	NE
	Pamona	12	S
	Ontario	13	SSE
	Chino	15	SSE
Recreation Areas	Marshall Canyon Regional Park	6	SE
	San Gabriel Canyon area	6	W
	Crystal Lake area	9	NNW
	Lake Mescal area	13	NNE
Hospitals	East Valley Hospital Medical Center	7	WSW
	Foothill Presbyterian Hospital	7	WSW
	Citrus Valley Medical Center	14	SW
	San Dimas Community Hospital	8	SSW
	Claremont Hospital	8	S
	Pamona Radiology Services	9	S
	Montclair Hospital Medical Center	10	SSE
	Chino Valley Medical Center	13	SSE
	Kindred Hospital – Ontario	12	SSE
	City of Hope national Medical Center	12	WSW
	San Antonio Community Hospital	10	SE
	Letterman Developmental Center	11	SSE
	Rancho Specialty Hospital	14	SE
Schools: There are approximately 85 elementary, middle, high and continuation schools within 15 miles from the center of the Tanbark Project Area.			
Indian Reservations	Morongo	50	ESE
Airports	Ontario	16	SE

Sources: Angeles National Forest Recreation Map, 1995; Sothern and Central California Atlas and Gazetter, 1996; Google Earth, 2010

General Conformity Rule, 1990 Clean Air Act Amendments
The Federal Clean Air Act (CAA) General Conformity Rule mandates that the Federal government not engage, support, or provide financial assistance for licensing or permitting or approve any activity not conforming to an approved CAA implementation plan.

The General Conformity Rule divides the air conformity process into two distinct areas: applicability and determination.

Federal agencies must initially assess if an action is subject to the Conformity Rule (Applicability Analysis). Then, if the action does not conform to an applicable implementation plan, a Conformity Determination must be prepared.

The General Conformity Analysis is used to determine if significant impacts to air quality are reasonably foreseeable based on implementation of the proposed action.

Mitigation Measures
All prescribed burning activity related to the Proposed Action would apply Best Available Control Measures (BACMs) described in the U.S. Environmental Protection Agency's (USEPA) *Prescribed Burning Background Document and Technical Information Document for Best Available Control Measures*, 1992.

This document provides guidance on the general level of applicability of BACMs to prescribed fire projects. It stresses that each burn has a unique combination of characteristics that affect the applicability of each emission reduction technique.

The BACMs which are compatible and would be utilized are:

- *Fuel Moisture Content:* Burning when fuels are dry increases the combustion efficiency and therefore reduces the emissions from the burn. The burn prescription shall specify an acceptable range of fuel moisture contents for the burn to proceed.
- *Residual Mop-Up:* Emissions of the smoldering phase of fires have been estimated to be about 40 percent of total fire emissions. Rapid mop-up and extinguishing of residual smoke following the flaming phase can significantly reduce the emissions of the smoldering phase. Under typical conditions, mop-up within 8 hours reduces overall emissions by ten percent.
- *Smoke Management:* Wind and weather conditions would be monitored before and during the burn to ensure that smoke would be directed away from populated areas. The California Air Resources Board (CARB) and South Coast Air Quality Management District (SCAQMD) make a "burn /no burn" day determination each day. The SCAQMD Rule 444(f) only allows prescribed burning under specific meteorological conditions. Conduct all prescribed burns only on

II Introduction

A. Document Structure

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

The document is organized into four sections:

Introduction

The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Comparison of Alternatives, including the Proposed Action

This section provides a more detailed description of the agency's proposed action for achieving the stated purpose. This alternative was developed based on significant issues raised by the public, other agencies, and internal agency comment. This discussion also includes mitigation measures.

Environmental Consequences

This section describes the environmental effects of implementing the No Action and Proposed Action alternatives. This analysis is organized by resource area. Within each resource area, the affected environment is described, followed by the effects of the No Action alternative—which provides a baseline for evaluation and comparison of the Proposed Action Alternative.

Consultation, Coordination, and References

This section provides a list of preparers, agencies, and individuals consulted during the development of this Environmental Assessment as well as the various references used in this assessment.

The information contained in this Environmental Assessment is based on analysis completed by the resource specialists on the project's Interdisciplinary Team. Additional documentation, including complete analyses of project-area resources, is available in the project planning record located at the San Gabriel River Ranger District Office in Glendora, California.

B. Purpose and Need for Action

The Tanbark Fuelbreak represents a strategic series of ridgelines separating the backcountry and wilderness areas on the San Gabriel River Ranger District from the wildland-urban interface of Glendora, San Dimas, La Verne and Claremont, California. The entirety of the planning area was burned in the 2002 Williams and 2003 Padua fires. Over time, brush has begun to establish back on the fuelbreak—reducing its potential effectiveness.

A need therefore exists for fuel reduction on the fuelbreak to assure this wildfire control feature continues to provide for firefighter safety through its use as a strategic and tactical wildfire control feature.

This fire suppression control feature also provides protection to the research facilities and ongoing experiments of the San Dimas Experimental Forest. Maintenance of the fuelbreak has been authorized by the management of the San Dimas Experimental Forest.

During the past ten years, there has been extensive wildfire activity on the San Gabriel River Ranger District. The 2009 Station Fire burned just west of the project area. Also in 2009, the 2,200-acre Morris Fire burned south of the proposed action area. The main and east forks of the San Gabriel River are highly utilized recreation areas, with increased risk of unplanned ignitions due to the number of Forest users concentrated in these areas.

The proposal is to maintain a strategic fuelbreak through the use of mechanical and prescribed fire treatments. These treatments are designed to maintain a light fuel loading on the fuelbreak to enhance the effectiveness of both ground-based and aerial firefighting personnel.

This action is consistent with the existing Angeles National Forest Land and Resource Management Plan (ANF Forest Plan) (USDA Forest Service, 2005, pages 127 -129).

C. The Proposed Action

The San Gabriel River Ranger District on the Angeles National Forest proposes to reduce the fire risk on and adjacent to the Tanbark Fuelbreak Project Area. (See Figure 1 – featuring a map that displays the proposed treatment area.) Proposed actions include mastication, crushing, hand cutting and piling, prescribed fire, as well as the selective use of herbicide on approximately two acres of non-native invasive species to limit the spread of these species. No new roads will be constructed under this proposed action. The total assessment area is 936 acres.

The objective of the proposed action is to attain a desired condition which provides for community protection and enhances wildfire suppression operations into the future. The proposed treatments are tools that will be used to achieve these desired conditions.

Specific Actions

Mastication

Mastication, or mulching, is a mechanical fuel treatment that changes the structure and size of fuels. An Angeles National Forest-owned ASV skidsteer with masticating head will be used in these units. The brush will be

masticated to a depth not to exceed six inches. The masticated material will remain on site—unless prescribed fire is applied—to provide a barrier to invasive species spreading into the treated areas. A maximum of 80 percent of the standing brush will be treated in the units. Within any single unit, the presence of slopes in excess of 35 percent and rocks may decrease the overall mastication treatment percentage below 80 percent. Any tree-form oaks within the units will be retained. Pockets of untreated brush no smaller than ¼ acre in size will be retained in the masticated units. Where feasible; sage, Manzanita, and ceanothus species will be favored in the retained pockets.

Brush Crushing

Crushing will be achieved with a bulldozer operated cylinder that is lowered down-slope by a cable system. The bulldozer will operate off of ridgetops only. Crushing will be utilized on slopes greater than 35 percent. The San Gabriel River Ranger District may choose to burn the crushed units to reduce the dead fuel loading generated by the proposed crushing. A maximum of 80 percent of the standing brush will be treated in the crush units. All tree-form oaks within the units will be retained.

Prescribed Fire

Ground-based ignition techniques may be used to remove 70 to 90 percent of the vegetation (treated or untreated) from the entirety of the treatment units. A combination of live and dead fuel moistures, temperature, wind and humidity will be used to prescribe a moderate intensity fire. Firelines may be constructed as part of this treatment to provide control points and to allow access for firefighters. Firelines will be no wider than four feet and may be constructed down to mineral soil. All seasons will be considered appropriate for burning, unless mitigation actions are required to limit the seasonality of the burn. Burning will only occur with authorization from the South Coast Air Quality Management District.

Hand Clearing

Three identified oak stands and remnant pockets of planted conifers exist in the project area. Native species will be retained and pruned to ten feet or ½ of their live crown height, whichever is less. No live native species trees greater than 16 inches diameter-breast-height will be removed from the project area. All non-native species—regardless of diameter—will be cut, with material either piled and burned at a later date, chipped, or removed from the project area.

Small areas within the overall project not immediately identifiable in the analysis may be hand cleared to meet project standards. These hand treatments will occur after all mechanical treatments. The project area will be evaluated by the District Fuels Officer to assure that additional treatment is required prior to any work being undertaken.

Invasive Species Treatment

Spot treatment with herbicide will occur on approximately two acres of the project area on the following non-native species: Spanish Broom (*Spartium junceum* L.), rockrose (*Cistus sp.*), grose (*Ulex europaea*), tobacco tree (*Nicotiana glauca*), and Eucalyptus. These species will be directly treated with Garlon 4 after hand cutting. To minimize the potential of spreading seed from individual plants, cutting and herbicide treatment will occur only during months when the species are not flowering. Treatment of the Eucalyptus stumps will occur after removing the trees from the fuelbreak. A backpack pump sprayer will be utilized to apply the herbicide. Only direct treatment of the non-native invasive plant is planned. No landscape level application is proposed.

D. Decision Framework

Given the purpose and need, the deciding official, the San Gabriel River District Ranger, reviews the analysis of the No Action and Proposed Action alternatives and public comment to determine whether to authorize activities to treat vegetation using mechanical treatment (brush crushing, mastication, and/or chipping), hand clearing, and/or prescribed fire. If vegetation treatments are selected, the deciding official would need to determine a finding of "no significant impact" to proceed with implementation based on this Environmental Assessment. If the vegetation treatments are authorized, the deciding official would also determine:

- Where and how many acres of each treatment would occur,
- The mitigation measures that would be included with the treatment, and
- Over what time period treatment would occur.

E. Public Involvement

This proposal was originally listed in the Schedule of Proposed Actions (SOPA) for the Angeles National Forest during July 2009. One comment was received in response to this listing. No public meetings were held regarding this proposed action.

The analysis in this Environmental Assessment is available for comment and review for 30 days starting with a legal notice in the Inland Valley Bulletin. Once the comment period has ended, the San Gabriel River District Ranger will determine whether to cancel the project, complete a Decision Notice and Finding of No Significant Impact, or choose to complete further documentation in an amended Environmental Assessment or Environmental Impact Statement (EIS).

The decision regarding this analysis may be subject to administrative review (appeal) pursuant to 36 CFR Part 215. If the decision is subject to appeal, individuals or non-Federal organizations who submit written comments during the 30-day comment period—or otherwise express interest in this particular action prior to the close of the comment period—would have standing to appeal the decision.

F. Issues

The Interdisciplinary Team developed a list of issues to address based on the Angeles National Forest Land and Resource Management Plan, public comments, and knowledge of the resources present in the project area.

These issues were separated into two groups: "Significant" and "Non-Significant" issues. "Significant" issues were defined as those directly or indirectly caused by implementing the proposed action.

"Non-Significant" issues are identified as those issues:

- Outside the scope of the proposed action;
- Already decided by law, regulation, Forest Plan, or other higher-level decision;
- Irrelevant to the decision to be made;
- Conjectural and not supported by scientific or factual evidence; or
- Substantially addressed or mooted by project design, standard agency protocols, or mitigation measures.

The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7: *"…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…"*

Non-Significant Issues

Five Non-Significant issues were identified in this Environmental Assessment's Interdisciplinary Team process. These issues were determined to be not significant because the Angeles National Forest Land and Resource Management Plan details ways to manage the issues or mitigation measures that were developed for the project that minimize or eliminate the impacts of concern.

The Five Non-Significant Issues

Issue 1. Impacts on management indicator species (MIS), wildlife habitat, and sensitive plants,

Issue 2. May open lands to creation of unauthorized motorized roads and trails,

Issue 3. Could affect heritage resources,

Issue 4. Could affect visual quality, and

Issue 5. Has the potential to increase soil erosion and sedimentation

Significant Issues

The Interdisciplinary Team identified one significant issue:

Issue 1 - Risk of Catastrophic Wildfire

If the project area is not treated to reduce fuel loadings, the communities of Glendora, La Verne, San Dimas, and Claremont—as well as the improvements in the East Fork of the San Gabriel River and the Tanbark Flats area—are at risk of catastrophic wildfire. These communities are at risk due to the high probability of a wildfire based

on fire history, extended periods of drought, condition of the vegetation, and risk of unplanned ignition.

G. Background

The communities of Glendora, La Verne, San Dimas, and Claremont are at risk of catastrophic wildfire. These communities were identified as "Wildland-Urban Interface Communities within the Vicinity of Federal Lands That Are at High Risk from Wildfire" (Federal Register, Volume 66, Number 160). These areas are considered part of the Wildland-Urban Interface (WUI) as described in the Healthy Forests Restoration Act of 2003:

> *"WUI (as defined by the Act) is a variable width up to 1½ miles from communities at risk or as defined in individual community fire protection plans. This forest plan further identifies a direct protection zone (WUI Defense Zone) and an indirect protection zone (WUI Threat Zone) that fall within the broader definition of WUI. A WUI Defense Zone is the area directly adjoining structures and evacuation routes that is converted to a less-flammable state to increase defensible space and firefighter safety. The WUI Threat Zone is an additional strip of vegetation modified to reduce flame heights and radiant heat. The Threat Zone generally extends approximately 1¼ miles out from the Defense Zone boundary. Yet, actual extents of Threat Zones are based on fire history, local fuel conditions, weather, topography, existing and proposed fuel treatments, and natural barriers to fire and community protection plans, and therefore could extend well beyond the 1¼ miles. The two zones together are designed to make most structures more defendable.*

According to the Angeles National Forest 2009 Fire Management Plan, this Forest should:

> *Maintain the existing system of roadside fuelbreaks and fuelbreaks along watershed boundaries to minimize fire size and the number of communities threatened by both fires and floods. Consider constructing new fuelbreaks on land outside of wilderness or other special designations (Angeles Fire Management Plan, page 12):*
>
> *<u>Objectives/Strategies</u>*
>
> - *Consider an opportunistic approach to fuels management. Take advantage of previously burned or treated areas to link future fuels and vegetation or wildlife habitat improvement projects when doing fuels planning.*
> - *Utilize fire landscape analysis to aid in the design of future fuelbreak systems, maintain multiple lines of community defense to minimize future wildland fire size.*
> - *Develop a plan to minimize the propagation of invasive non-native species during fire suppression and fuels or vegetation management activities.*

Based on the Angeles National Forest Land and Resource Management Plan and Fire Management Plan, the risk of catastrophic wildfire on the Angeles National Forest is a significant issue, which has driven the development of the action alternative to meet direction.

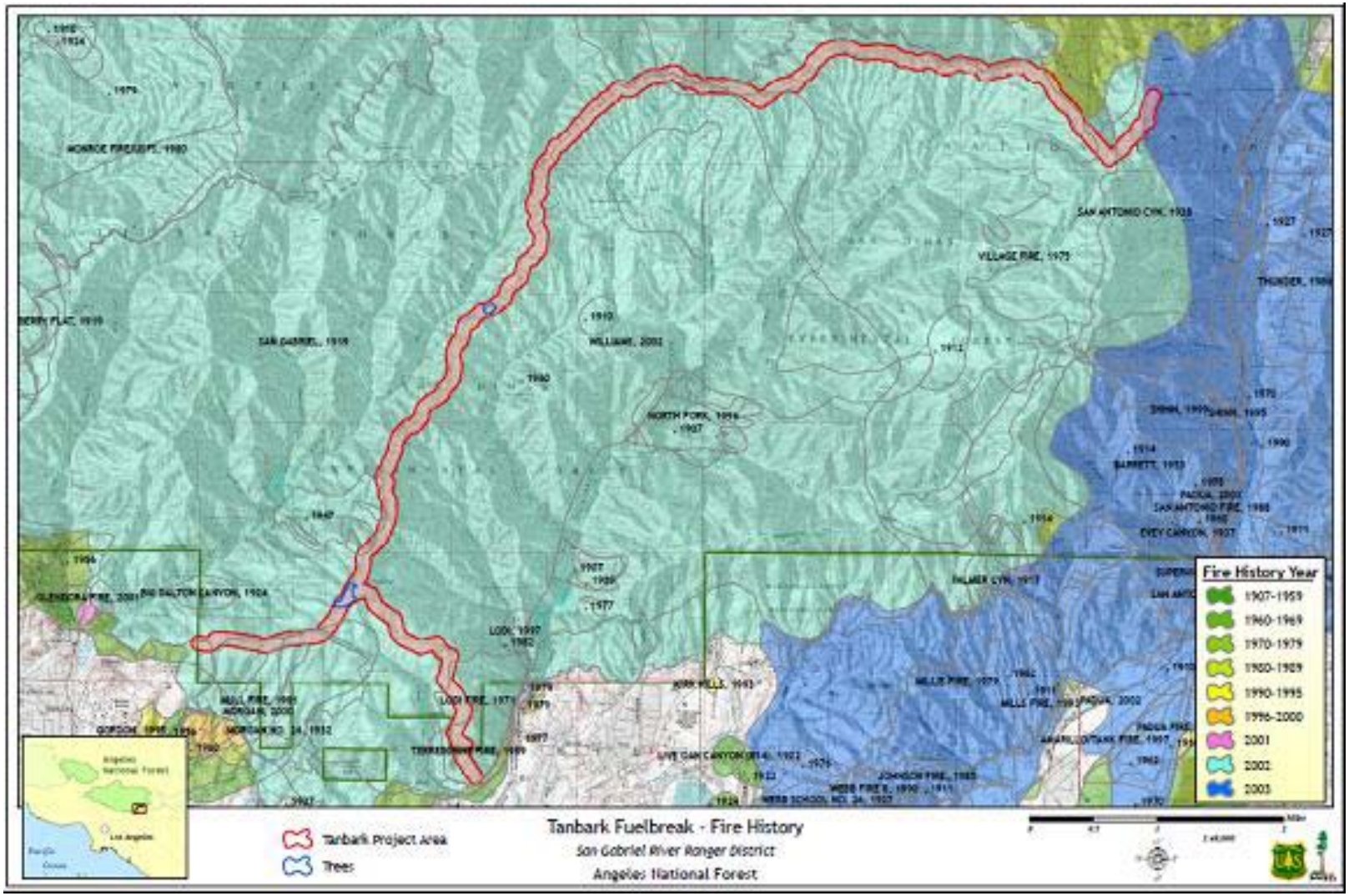


Figure 2 – Fire history in the vicinity of the Tanbark Fuelbreak.

III Alternatives

This section of this Environmental Assessment describes and compares the alternatives considered for the Tanbark Fuelbreak Maintenance Project. It includes a description of each alternative that was considered. It also presents the alternatives in comparative form, defining the differences between the alternatives and providing a clear basis for choice by the decision maker and the public.

A. Alternative 1 – No Action

Under the No Action Alternative, current management would continue in the project area. No vegetation reduction treatments, mastication, crushing, chipping or prescribed burning would be implemented. Vegetation would be allowed to grow on the footprint of the existing fuelbreak. The tactical and strategic wildfire suppression advantages associated with reduced fuel loadings along the ridge system would be lost as the vegetation grows back over time.

There is a high probability that wildfire would return to this area with significant threat to life and property. The communities along the East Fork of the San Gabriel River and at Tanbark Flats would not benefit from the enhanced wildfire suppression opportunities offered by the Tanbark Fuelbreak.

The fuelbreak would not exist as a partial barrier to fire spread. This would increase the probability that a fire would spread off of the Angeles National Forest into the communities of Glendora, La Verne, San Dimas, and Claremont. Probabilities of a fire spreading out of these foothill communities and impacting the Angeles National Forest and its various users would also increase.

B. Alternative 2 – The Proposed Action

The action proposed by the Forest Service to meet the purpose and need is mechanical treatment and prescribed burning to maintain the strategic and tactical advantages of the Tanbark Fuelbreak during wildfire control operations.

The maintained fuelbreak would offer enhanced wildfire protection to the communities of Glendora, La Verne, San Dimas, and Claremont—as well as those improvements along the East Fork of the San Gabriel River and at Tanbark Flats.

The Proposed Action Alternative would include both mechanical and prescribed fire treatments. One maintenance treatment following the initial entry is proposed to maintain low fuel loadings during the ten-year life of the proposed project.

Cumulative Effects Actions/Activities

Eight projects were identified by the San Gabriel River Ranger District for inclusion in the cumulative effects analysis. The projects/activities include four proposed fuelbreaks, two ongoing fuel treatment projects, and two past wildfires. A list of actions considered is outlined in Table 1.

Table 1. – Actions considered in the cumulative effects analysis.

Project	Size (ac.)	Location and Distance From Tanbark Fuelbreak	Project Description and Treatment Type	Occurred or Planned When?
Glendora Fuelbreak	569	Runs Ridge to West from Tanbark Junction	Consistent with Tanbark Fuelbreak	FY 2011
Sunset Fuelbreak	108	Directly adjacent on the east end of the project	Consistent with Tanbark Fuelbreak	FY 2011
Monroe Fuelbreak	205	5 miles to West	Consistent with Tanbark Fuelbreak	FY 2011
Mt. Baldy Village	75	2 miles to the east	Pruning, release, chipping, piling, pile and broadcast burning, all completed by hand	Current Project
Tanbark Admin	141	1 mile from Tanbark gate	Pruning, release, chipping, piling, pile and broadcast burning, completed by hand and machine	FY 2012
La Verne Fuelbreak	12	1 mile from SE corner	Consistent with Tanbark Fuelbreak	FY 2011
Williams Fire	30,000 +	burned or encompassed entire project area	Wildfire	2002
Padua Fire	10,000+	burned the far east side of the project area	Wildfire	2003

C. Mitigation Measures

All Forest Service projects conducted on the four southern California national forests are conducted pursuant to the revised Land Management Plans (LMP) for those forests which were finalized in 2005. A part of those plans include Management Direction (Parts 1 and 2) and Design Criteria (Part 3) (USDA Forest Service 2005) which apply to all projects and are incorporated by reference into this Environmental Assessment.

In addition to the LMP direction, the Interdisciplinary Team developed the following mitigation measures to reduce and avoid some of the potential impacts of project implementation. The mitigation measures would be applied to the Proposed Action Alternative. These mitigation measures and design features include:

Heritage Resources

- Ground disturbing activity such as mastication and crushing, along with prescribed burning and handlines and equipment staging, may not occur within the delineated cultural resource boundaries.
- Prescribed burning and hand treatments will only be permitted in localized areas (Ref # 2009SGR14ISP in project file).
- As a result of poor ground visibility and dense vegetation,

mastication or other ground disturbing activities are not allowed in localized areas (Ref# 2009SGR14ISP in project file). Prescribed burning and hand treatments are allowed in these areas.

- If previously unknown cultural resources are encountered during implementation of the project, activities will be halted and the Angeles Heritage Program Manager will be notified.

Soils and Hydrology

- Provide ground cover such as slash, wood chips, or masticated material adequate to prevent erosion in disturbed areas.
- A combination of natural barriers (rocks, logs, etc.), screening, and fencing will be used as required to prevent/discourage illegal vehicle activity during and after the project treatment. Fire Prevention Technicians and other staff will monitor the area, and if/when problem areas arise, remedial and preventative actions would be taken as appropriate. Coordination with adjacent landowners, public education, and signing would be used as appropriate.
- Any heavy equipment staging areas and access points will be rehabilitated and blocked after project completion. Rehabilitation would include returning the ground to natural contours; implementing de-compaction and erosion control measures as needed, and covering bare soil with slash, chips, needles, or cut brush as necessary.
- Plan prescribed fire to ensure that fire intensity and duration do not result in detrimentally burned soils. Whenever feasible, plan prescribed fire for when soils are wetter and fuels are dry to decrease damage to soils.
- Prescribed burning or crushing should not occur on slopes where only grass is growing.
- Transport, store, and dispose of pesticides and pesticide containers in accordance with applicable State and local laws and regulations, as well as Federal laws and regulations.
- Garlon 4 herbicide should be applied during August or September when Spanish Broom is not flowering and dry weather is forecasted.
- Permit only certified personnel or those under the supervision of a certified applicator to use restricted-use pesticides (Forest Service Manual 2154.2).

Threatened, Endangered, and Forest Service Sensitive Plant Species

- Extend protection to any newly discovered populations of Threatened, Endangered or Forest Service Sensitive (TES) plants found before or during project implementation. In the event of the change in a plant's or wildlife protection status becoming Threatened, Endangered, or Forest Service Sensitive, additional analysis will be completed to determine potential impacts. If applicable, initiate U.S. Fish and Wildlife consultation.
- To prevent injury to individuals of Forest Service Sensitive urn-flowered alumroot (Heuchera elegans), treatment will be excluded from Sunset Peak as identified in the project file. This includes exclusion of all machinery—including vehicles—from the spur road at Sunset Peak off Forest Service Road 2N012.
- Flag and avoid populations of Forest Service Sensitive fragrant pitcher sage (Lepechinia fragrans) and Plummer's mariposa lily (Calochortus plummerae) populations with a 100-foot buffer.
- Surveys will be conducted in the areas identified as suitable habitat for the Federally endangered thread-leaved Brodiaea (Brodiaea filifolia) during a season when they are identifiable, one to two years prior to implementation. Surveys will be conducted following a season with adequate precipitation to stimulate germination/flowering. If these conditions are not obtainable, areas considered to be suitable habitat will be excluded from treatment.
- Herbicide application will not take place within 68 feet of any known TES plant species without barriers set up to shield individuals.
- Spot herbicide application will not take place within 25 feet of Threatened and Endangered plant species. Non-herbicide treatments may be conducted throughout the plant locations with the presence of a Forest Service Botanist.
- Spot herbicide application will not be allowed within 10 feet of the sensitive plant location. Non-herbicide treatments may be conducted throughout Forest Service Sensitive plant locations with the presence of a Forest Service Botanist.

Invasive Species

- All equipment staging areas will be located away from known areas with invasive species occurrences.
- Livestock will not be used as part of this project.
- Protocol standards will be used in the washing of equipment to prevent the spread of non-native

invasive species. Documentation forms regarding this activity will be maintained by the Project Manager and forwarded to the Forest Botanist.

- To prevent further disturbance, no mechanized equipment will be permitted in the locations where invasive species are removed. Hand treatment will be permitted.
- To reduce seed spread, disposal of invasive weeds removed will be as follows: If no flowers or seeds are present – pull the weed and place it on the ground to dry out. If flowers or seeds are present and have the potential for the seed to be widely dispersed during treatment (such as Spanish broom) – remove the flowering head and place in container then pull the weed and place in an appropriate container for disposal.
- Areas with bare soil created by the treatment of noxious weed will be evaluated for restoration to prevent further infestations by the same or new invasive weeds. Whenever possible, protect non-target vegetation to minimize the creation of exposed ground and the potential for re-infestation. A Forest Service Botanist will be consulted prior to any restoration implementation.
- Certified weed-free mulches (or rice straw and mulch) and local weed-free seed sources will be used in restoration or soil stabilization efforts.
- Efforts will be made to ensure that seeds and/or vegetative propagules of invasive weeds will be removed from clothing and equipment prior to leaving treatment site.
- Transport of removed invasive weeds with seeds or vegetative propagules will occur in enclosed disposal containers, or in an enclosed vehicle.
- Invasive weeds to be disposed offsite will be taken to a facility (landfill) that contains the disposed items.
- If burning of removed noxious weeds is to occur, burn piles will be monitored the following year to assess potential needs for revegetation or additional weed removal treatments.
- In order to limit the potential for spread of purple veldt grass, only two entry points are permitted: the gate at intersection of Tanbark Flats Road and Glendora Ridge Road. All vehicles and machinery entering the project at this point will exit through Sycamore Flat Motorway (FS Road. 1N152) or Big Dalton Canyon Road (FS Road 1N141). A second access point is permitted at Sunset Peak.
- The portion of the project area from Peacock Saddle to Sunset Peak will be treated first. Entry to this section of the project will be made from Sunset Peak. All equipment will exit at Sunset Peak as well.
- Monitoring and eradication of all new veldt grass seedlings will occur yearly, for no fewer than three years in areas treated adjacent to known infestation areas.

Invasive Species Treatment

- Transport, store, and dispose of pesticides and pesticide containers in accordance with applicable State and local laws and regulations, as well as Federal laws and regulations.
- Monitor sensitive environments during pesticide applications in order to detect and evaluate unanticipated effects.
- Permit only certified personnel or those under the supervision of a certified applicator to use restricted-use pesticides (Forest Service Manual 2154.2).
- Provide specific measures to minimize human exposure to the chemicals (in high traffic areas, treat before or after the peak season on week days rather than weekends).

Threatened, Endangered and Forest Service Sensitive Wildlife Species

- A Limited Operating Period (LOP) will be in effect between March 1 and August 31 for California spotted owl to minimize disturbance during the species' breeding season.

D. Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in Table 2 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2. – Comparison of effects between the No Action Alternative and Proposed Action Alternative

	No Action – Alternative 1	Proposed Action - Alternative 2
Acres of mechanically treated	0 acres	Up to 787 acres
Acres of prescribed burn treatment	0 acres	Up to 787 acres
Acres of non-native invasive species treatment	0 acres	2 acres
Number of invasive non-native invasive species treated	0	5
Project area with no vegetation treatment	936 acres	149 acres
Acres burned during modeled fire (7-day simulation)	5,054 acres	3,429 acres
Number of known heritage resources potentially affected in the project area	0	7*
Existing Erosion Rate (Undisturbed)	1.0 yd^3/acre	Not Applicable
Erosion Rates for Mechanical Thinning	Not Applicable	1.1 yd^3/acre
Erosion Rates for Prescribed burning	Not Applicable	2.3 yd^3/acre
Erosion Rates for Wildfires	32.7 yd^3/acre	Not Applicable
Scenic Integrity Objectives changes in the project area following a wildfire	No change	Lowered by no more than one level**
Scenic Attractiveness Class changes in the project area following a wildfire	No change	Lowered by no more than one level**

*****Mitigation measures associated with the Proposed Action negate any potential effects associated with project implementation. The entire project area burned at high severity during 2002 or 2003. Any effects which could be associated with prescribed fire have been exceeded by past wildfires burning in the project area.

**When mitigation measures are implemented with the vegetation treatments, the project area would maintain a natural appearance. The scenic integrity objectives and scenic attractiveness class should not be lowered.

IV Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives (outlined in Table 2 on previous page).

A. Risk of Catastrophic Wildfire

If the project area is not treated to reduce vegetation, the communities of Glendora, La Verne, San Dimas, and Claremont—as well as the small communities along the East Fork of the San Gabriel River—are all at risk of catastrophic wildfire. These communities are at risk of fire due to the high probability of wildfire based on fire history and a flammable fire environment which includes extended periods of high temperatures, chaparral vegetation, and limited summer and fall rains. The area also has a high risk for accidental ignitions due to the presence of heavy recreational use, transportation routes, and activities that occur in the foothill communities of the San Gabriel Valley.

Background

Environmental Concerns

A prior history of large-scale wildfires exists in and adjacent to the project area, including the 2002 Williams Fire and the 2003 Padua Fire.

Proximity of Travel Routes

There are numerous sources of unplanned ignitions including vehicle fires and arson associated with the travel routes immediately adjacent to the Tanbark Fuelbreak. The Glendora Ridge Road and the Glendora Mountain Road are primary access routes for visitors to the national forest lands. Accidental and arson ignitions occur annually along these travel corridors (District Fire Staff, personal comm., 2010).

Recreational Use

The East Fork of the San Gabriel River, approximately three air miles north of the project area, is a heavily used recreational area—especially during the summer months. More than 5,000 visitors have been estimated to use the river corridor during summer holiday weekends. Access to San Gabriel Canyon is often restricted by local law enforcement over concerns for public safety when recreation use reaches this level.

An ignition from recreational activities could easily burn upslope to the Tanbark Fuelbreak, as demonstrated by the 2002 Williams Fire.

Vegetation Condition

The project area was burned during the 2002 Williams Fire. A small portion of the project area near Sunset Peak was burned again in the 2003 Padua Fire. Annual grasslands, buckwheat/sage, and sprouting chaparral currently dominate the fuelbreak.

Due to terrain features or aspect, scattered pockets of bigcone Douglas-fir and coast live oak occur on areas protected from past fire. Interior live oak is more common on the fuelbreak's north facing aspects.

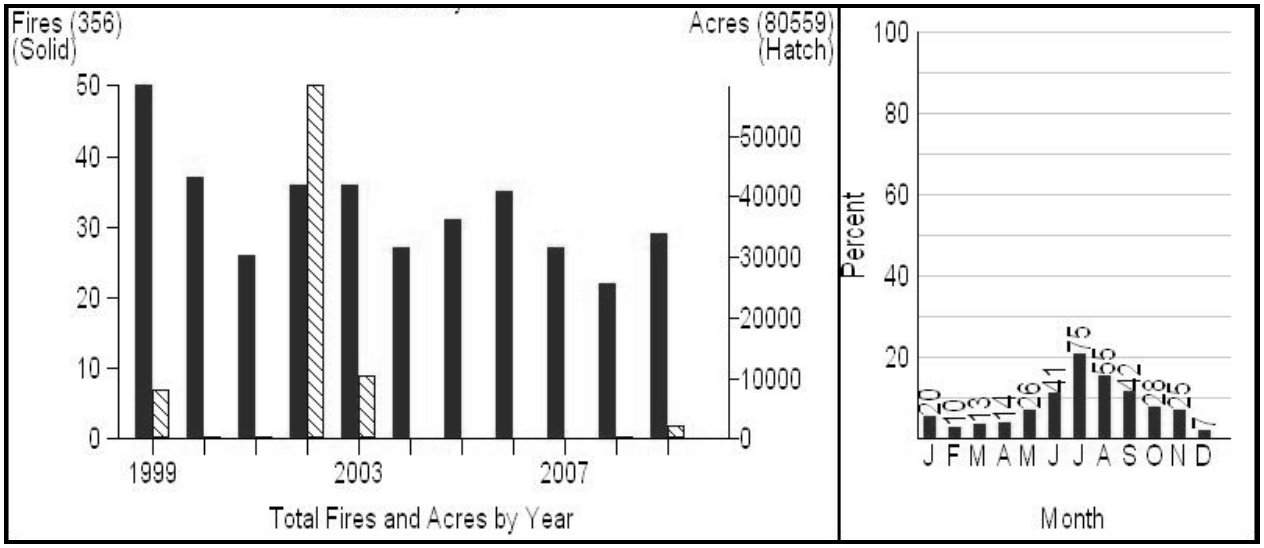
Sprouting chaparral species are currently reestablishing along the fuelbreak. Without additional disturbance from wildfire or some other mechanism, chaparral will dominate the fuelbreak in future years.

Fire History

The area surrounding the Tanbark Fuelbreak has a history of frequent, high-intensity wildfires. Bounded on the west by Highway 39 and the north by East Fork Road, a steady stream of vehicle traffic and forest users frequent the project area's vicinity. This concentration of people and vehicles has contributed to an elevated fire frequency when compared to other locations on the Angeles National Forest. Nearly all fires within this area are human caused, with only a rare lightning-ignited fire occurring.

The San Gabriel River Ranger District has a year round fire season with wildfires occurring every month of the year. While the majority of fires are contained during initial attack, large fires (300 acres and greater) are common. Nearly 50,000 acres burned on the San Gabriel River Ranger District in 2002. Figure 3 summarizes fire statistics for the San Gabriel River Ranger District from 1999 to 2009.

The most recent large fire in the project vicinity was the 2009 Morris Fire that burned approximately 2,168 acres to the south and west of the proposed treatment area. Within the last ten years, four other large fires have burned in—or immediately adjacent to—the proposed treatment area. These fires include: the Padua Fire, 2003; the Williams Fire, 2002; the Curve Fire, 2002; and the Bridge Fire, 1999.



Source: FireFamily Plus

Figure 3 – San Gabriel River Ranger District Fire Statistics from 1999 to 2009.

Table 3 – Tanbark RAWS summary from 1988 to 2008.

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual monthly Mean
Max. Temp. (ºF)	62.8	62.8	66.0	69.0	73.9	81.5	88.9	90.1	86.9	79.5	70.6	63.9	74.7
Min. Temp. (ºF)	43.7	43.5	45.0	46.6	50.4	55.7	62.9	64.4	62.2	56.6	49.5	44.0	52.0
Total Precip. (inches)	6.8	6.4	3.5	1.9	0.6	0.3	0.1	0.0	0.2	1.3	0.9	2.9	2.1
Wind Speed (mph)	4.9	4.9	5.2	5.6	5.7	6.0	6.6	7.0	6.8	6.1	5.5	4.7	5.8

Weather

Weather data is based on the Tanbark Remote Automated Weather Station (RAWS). The Tanbark weather station is located at approximately 2,600 feet in the vicinity of the Tanbark Flats Station, approximately ½ mile south of the fuelbreak. Table 3 provides a summary of weather data from the Tanbark RAWS from 1988 to 2008.

Santa Ana winds commonly affect the project area. Through a combination of pressure gradients and compressional heating of the air mass, warm, dry, gusty north-to-northeast winds develop over the project area that escalate fire danger during these weather events.

Santa Ana events are most common between the months of September and March. The critical fire danger associated with these events generally ends with the first "wetting rain" of the fall. A "wetting rain" is defined as a widespread rain that over an extended period of time significantly reduces fire danger (NWCG 2004).

Direct/Indirect Effects

Alternative 1

Because no actions are proposed under the No Action Alternative, it has no direct effects. However, under this alternative, local communities will remain at an elevated risk of catastrophic wildfire.

Based on fire history, weather patterns, fuel conditions and potential ignition sources, it is assumed that the entire project area will be involved in one or more wildfires in the future.

(A comparison of fire behavior characteristics and fireline production rates associated with both the No Action Alternative and the Proposed Action Alternative are discussed in Alternative 2.)

Alternative 2

Fire behavior modeling was used to analyze measurable changes in the flame length, rate of spread, and fire perimeter growth between the No Action and Proposed Action alternatives. Differences between these two alternatives regarding fireline production rates and coverage levels for aerially applied fire retardant are also evaluated (NWCG 2004, NWCG 1996).

Fuel models were assigned to the project area based on proposed fuel treatment and no treatment with 10 years of fuel accumulation in the vicinity of the project area. Table 4 displays the fuel models used in the analysis.

The analysis used 80th percentile weather data from the Tanbark RAWS for fire behavior modeling. Modeling shows measurable changes between the alternatives for rate of spread and flame length. Tables 5 and 6 summarize these changes.

Table 4 – Fuel Model Assumptions.

Existing Condition[1]	Proposed Action	No Action (10 yrs of fuel accumulation[2])
GR1	GR1	GS1
GR2	GR1	GS2
GS1	GR2	GS2
GS2	GR2	SH2
SH2	SH1	SH5
SH7	SH1	SH7
TU1	TU1	TU5
TU5	TU1	TU5
TL3	TL1	TL5

[1]Fuel model data provided by LANDFIRE Rapid Refresh (2006-2008).

[2]No Action also assumes that no wildfires or other fuel reduction activities would occur.

Table 5 – Rate of spread in the project area during a simulated wildfire.

Rate of Spread		Percentage of total project area burned in simulation	
Feet/Minute	Chains/Hour	No Action (10 years fuel accumulation)	Proposed Action
0 - 5	0 - 4.5	88	97
5 - 10	4.6 - 9	9	2
10 - 15	9.1 – 13.6	2	1
15 - 20	13.7 – 18.2	1	0

Table 6 – Flame length comparison.

Flame Length (feet)	Percentage of Fuelbreak Burned	
	No Action (10 years fuel accumulation)	Proposed Action
0 - 4	63	85
4 - 8	27	13
8 - 11	3	1
11 - 15	7	1
15 - 20	1	0

Table 7 – Control Line Production Rates: Fuel Models SH2 and GS2

Resource Type	No Action Fuel Model SH2 chains/hr	Proposed Action Fuel Model GS2 chains/hr	Change
Type 1 crew	6	24	+18
Type 2 crew	4	16	+12
Type 3 engine (5 person crew)	20	25	+5
Type I dozer (26-40% slope)	50-75 uphill 110-130 downhill	70-100 uphill 140-155 downhill	+20-25 +25-30
Type II dozer (26-40% slope)	45-70 uphill 105-120 downhill	60-85 uphill 130-145 downhill	+15 +25

SH2 - moderate load shrub

GS2 - low load grass.

A change in the fireline production rates for suppression equipment is used to display the difference in firefighting capabilities between the No Action and Proposed Action alternatives. Table 7 compares the change in fireline production rates due to the changes in fuel models associated with implementing the Proposed Action. Fireline production rates are published in the Fireline Handbook Appendix A (NWCG 2004). Fireline production rates for all resource types increase as a result of implementing the proposed action.

Changes in fire suppression effectiveness by aerial resources is measured by changes in the fire retardant coverage rates required to effectively coat fuels during wildfire suppression actions. As surface fuel loading is decreased, a decrease in the retardant coverage level is required to slow fire spread. Table 8 displays the retardant coverage level associated with both the No Action and Proposed Action alternatives.

Table 8 – Retardant Coverage Level Changes by Fuel Model (FM).

No action NFFL FM (Scott and Burgan FM)	Post-treatment NFFL FM (Scott and Burgan FM)	Coverage level change (gal/100ft^2)
2 (GS1, GS2)	1 (GR1,GR2)	-1
5 (SH2)	2 (GR2)	-1
4 (SH5, SH7)	5 (SH1)	-3

Summary
The Proposed Action Alternative creates a nine percent reduction in the overall rate of spread of the modeled fire, and a 22 percent increase in acres modeled with flame lengths four feet or less.

The Proposed Action Alternative creates a desirable effect by reducing fire behavior. The reduction in modeled fire behavior and improved production rates for ground-based and aerial firefighting resources enhances opportunities for successful wildfire suppression operations along the length of the fuelbreak.

The vegetation adjacent to the fuelbreak may still pose a threat to firefighter and public safety and may have a negative impact on firefighter tactics.

Cumulative Effects

Alternative 1
Under the No Action Alternative, wildfire will spread more rapidly and at higher intensities. The interconnecting nature of the fuelbreak system will be degraded and a weak spot in the system of fuelbreaks will be created as vegetation matures on the footprint of the existing Tanbark Fuelbreak.

Alternative 2
Under the Proposed Action Alternative, recent wildfires and fuel treatment projects have created a local environment where reduced fireline intensities and increased fireline production rates are anticipated until the shrub component dominates the landscape again. Fuel treatments connecting to existing burned areas cumulatively create a fire environment where wildfire spread and intensity would be lower than historic averages and where the potential for successfully suppressing wildfire would be increased.

Fuelbreaks and other fuel treatment projects in close proximity provide a network of tactical fire suppression options for fire managers. This “web” of interconnected fuelbreaks provides enhanced tactical and strategic opportunities for stopping or slowing a wildfire by reducing fireline intensities. Fuelbreaks also provide improved tactical options by enhancing access, increasing fireline production rates, and providing pre-established control features for indirect firefighting operations.

Conclusion/Findings

Alternative 1
Under Alternative 1, no vegetation treatments would occur and fuel loading would continue to increase over time, reducing the effectiveness of the existing Tanbark Fuelbreak as a wildfire control feature. Fireline intensities along the fuelbreak will increase and fireline production rates will decrease as the fuel loading increases. No direct or indirect community protection would be achieved.

Furthermore, this alternative does not meet direction specified in the 2005 Land Management Plan (Fire-5 - Fuelbreaks and Indirect Community Protection and Forest Heath-2, Prevention of Fire Induced Type Conversion).

Alternative 2
Under Alternative 2, vegetation treatments would significantly reduce the fuel loadings along the Tanbark Fuelbreak. Therefore, reduced fireline intensity and increased fireline production rates along the fuelbreak would be achieved.

The Tanbark Fuelbreak would continue to serve as a viable strategic and tactical option during wildfire control operations.

Indirect wildfire protection would be provided to the communities of Glendora, San Dimas, La Verne, Claremont, as well as those smaller in-holders along the East Fork of the San Gabriel River.

Wildlife habitat and native vegetation would be indirectly protected by the fuelbreak, leading to enhancements to the shrub and forest environment.

In addition, this alternative meets the direction in the 2005 Angeles National Forest Land Management Plan, Fire-5, Fuelbreaks and Indirect Community Protection and Forest Heath-2, Prevention of Fire Induced Type Conversion.

B. Air Quality

Background

The Tanbark Fuelbreak represents a strategic series of ridgelines in the San Gabriel Mountains that separate the backcountry and wilderness areas on the San Gabriel River Ranger District from the wildland-urban interface areas of Glendora, San Dimas, La Verne, and Claremont, all located to the west.

The project is located entirely within the South Coast Air Basin with air quality regulated by the South Coast Air Quality Management District (SCAQMD).

The proposed vegetation treatments include:

- Total analysis area – 936 acres
- No treatment area – 148 acres
- Total proposed treatment – 788 acres
- Total brush crush area – 414 acres
- Total brush mastication area – 374 acres
- Total oak stands hand clearing and pile burn – 12 acres
- Proposed maximum brush crush / prescribed burn (80 percent of 414 acres) – 331 acres
- Proposed maximum mastication / prescribed burn (80 percent of 374 acres) – 373 acres

The South Coast Air Basin does not meet the National Ambient Air Quality Standards (NAAQS) for many regulated pollutants and has been designated a "non-attainment" area by the Environmental Protection Agency (EPA).

States must demonstrate to the public and the EPA how a non-attainment area will meet the NAAQS based on the control of emission sources. Such demonstrations employ control plans that are part of a State Implementation Plan (SIP), including emissions from fuel treatment projects. Table 9 presents the current state of California attainment status for the South Coast Air Management Quality District.

Table 9 – Air quality designations for the South Coast Air Basin.

Criteria Pollutant	(1) Federal Status	(2) State Status
Carbon Monoxide	Attainment Maintenance Area – Formerly Serious Non-attainment	Attainment
Ozone 1 Hour	-	Extreme Non-attainment
Ozone 8 Hour	Severe 17 Non-attainment	Non-attainment
PM-10	Serious Non-attainment	Non-attainment
PM-2.5	Non-attainment	Non-attainment

(1) Source U.S. EPA Criteria Pollutant Area Summary Report (Green Book) accessed 2/25/10: http://www.epa.gov/oar/oaqps/greenbk/astate.html

(2) Source California Air Resources Board accessed 2/25/10: http://www.arb.ca.gov/desig/adm/adm.htm

Table 10 – Comparison of acres burned by wildfire and prescribed fire across all ownerships by decade within the South Coast Air Basin.

Decade	Wildfire	Prescribed Burns
1980-1989	650,481	38,993
1990-1999	426,496	16,434
2000-2008	805,084(1)	9,456
TOTAL	**1,882,061**	**64,883**

Source: California Department of Forestry, Fire and Resource Assessment Programand Forest Service fire history GIS database.

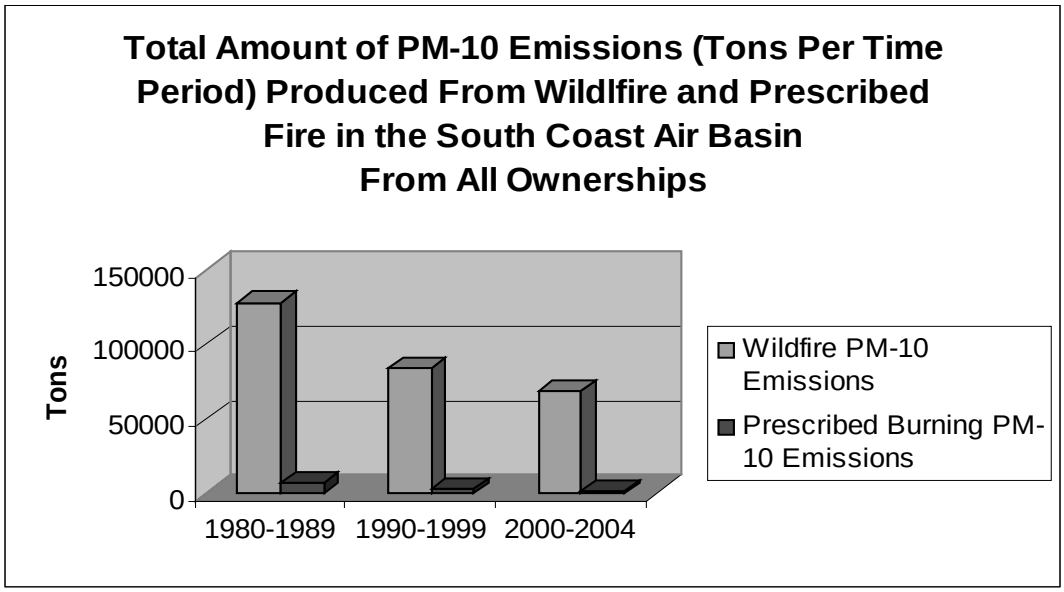
(1) Includes the 2009 Station and Morris fires within the South Coast Air Basin.

Smoke

Within the South Coast Air Basin, a majority of the pollution is derived from the nearby urban areas. Wildfire is one of the few exceptions. Since 1980, 1,882,061 acres have burned in wildfires and 64,883 acres have been treated with prescribed fire. Table 10 displays the acres of wildfires and prescribed fires that have burned in the South Coast Air Basin by decade for all ownerships since 1980.

Unlike most industrial and urban sources, wildfire smoke is usually transitory in nature, lasting only a few days at a single location. Figure 4 compares estimated smoke produced from wildfire and prescribed fires since 1980 using the acreage estimates from the previous table (Table 10).

Emissions were estimated using AP-42 (U.S. EPA 1995) default fuel loadings and consumption for California chaparral for prescribed burning conditions.



Almanac: http://www.arb.ca.gov/aqd/almanac/almanac.htm

Figure 4 – Comparison of emissions produced by wildfire and prescribed fire across all ownerships by decade within the South Coast Basin.

Smoke Sensitive Areas

Many potentially smoke sensitive features exist within a 15-mile radius of the center of the project. Due to the relative minor number of acres ignited on any one day coupled with the prevailing southerly wind direction, it is unlikely that the smoke from prescribed burning activities will affect these locations.

Table 11 – Summary of smoke sensitive areas where significant numbers of people would be present near the Tanbark Project Area – distances measured from approximate project center.

Sensitive Receptors	Receptor	Approximate Distance (miles)	Direction from Project to Receptor
Roads	Angeles Crest Scenic Byway	11	N
	Interstate 210	8	SW
	State Highway 66 and 30	6	S
Towns, Cities, Communities	Glendora	7	SW
	San Dimas	6	SSW
	La Verne	6	S
	Claremont	7	SE
	San Antonio Heights	9	ESE
	Arcadia	16	WSW
	Wrightwood	14	NE
	Pamona	12	S
	Ontario	13	SSE
	Chino	15	SSE
Recreation Areas	Marshall Canyon Regional Park	6	SE
	San Gabriel Canyon area	6	W
	Crystal Lake area	9	NNW
	Lake Mescal area	13	NNE
Hospitals	East Valley Hospital Medical Center	7	WSW
	Foothill Presbyterian Hospital	7	WSW
	Citrus Valley Medical Center	14	SW
	San Dimas Community Hospital	8	SSW
	Claremont Hospital	8	S
	Pamona Radiology Services	9	S
	Montclair Hospital Medical Center	10	SSE
	Chino Valley Medical Center	13	SSE
	Kindred Hospital – Ontario	12	SSE
	City of Hope national Medical Center	12	WSW
	San Antonio Community Hospital	10	SE
	Letterman Developmental Center	11	SSE
	Rancho Specialty Hospital	14	SE
Schools: There are approximately 85 elementary, middle, high and continuation schools within 15 miles from the center of the Tanbark Project Area.			
Indian Reservations	Morongo	50	ESE
Airports	Ontario	16	SE

Sources: Angeles National Forest Recreation Map, 1995; Sothern and Central California Atlas and Gazetter, 1996; Google Earth, 2010

General Conformity Rule, 1990 Clean Air Act Amendments
The Federal Clean Air Act (CAA) General Conformity Rule mandates that the Federal government not engage, support, or provide financial assistance for licensing or permitting or approve any activity not conforming to an approved CAA implementation plan.

The General Conformity Rule divides the air conformity process into two distinct areas: applicability and determination.

Federal agencies must initially assess if an action is subject to the Conformity Rule (Applicability Analysis). Then, if the action does not conform to an applicable implementation plan, a Conformity Determination must be prepared.

The General Conformity Analysis is used to determine if significant impacts to air quality are reasonably foreseeable based on implementation of the proposed action.

Mitigation Measures
All prescribed burning activity related to the Proposed Action would apply Best Available Control Measures (BACMs) described in the U.S. Environmental Protection Agency's (USEPA) *Prescribed Burning Background Document and Technical Information Document for Best Available Control Measures*, 1992.

This document provides guidance on the general level of applicability of BACMs to prescribed fire projects. It stresses that each burn has a unique combination of characteristics that affect the applicability of each emission reduction technique.

The BACMs which are compatible and would be utilized are:

- *Fuel Moisture Content:* Burning when fuels are dry increases the combustion efficiency and therefore reduces the emissions from the burn. The burn prescription shall specify an acceptable range of fuel moisture contents for the burn to proceed.
- *Residual Mop-Up:* Emissions of the smoldering phase of fires have been estimated to be about 40 percent of total fire emissions. Rapid mop-up and extinguishing of residual smoke following the flaming phase can significantly reduce the emissions of the smoldering phase. Under typical conditions, mop-up within 8 hours reduces overall emissions by ten percent.
- *Smoke Management:* Wind and weather conditions would be monitored before and during the burn to ensure that smoke would be directed away from populated areas. The California Air Resources Board (CARB) and South Coast Air Quality Management District (SCAQMD) make a "burn /no burn" day determination each day. The SCAQMD Rule 444(f) only allows prescribed burning under specific meteorological conditions. Conduct all prescribed burns only on

approved burn days as issued by the SCAQMD.

- *Fugitive Dust:* Driving speeds on native surface roads are not expected to exceed 15 mph. Speed control is accepted as fugitive dust mitigation. Track-out onto pubic roadways will be monitored and removed if necessary.

Direct/Indirect Effects

Alternative 1

The No Action Alternative would not result in any activities and therefore would not produce any direct effects on air quality. However, because no wildfire control features would be associated with the No Action Alternative, the potential for large-scale wildfires increases under this alternative. The expected wildfire would result in smoke emissions which would not meet the standards of the Federal Clean Air Act (CAA) and would likely result in the production of significant but short-term impacts on local and regional air quality.

Alternative 2

The Proposed Action Alternative would have a direct, short-term and intermittent effect on local air quality during times when prescribed fire activities occur. However, the project is found to conform to the requirements of the Clean Air Act and the direction of the State Implementation Plan (SIP) for the South Coast Air Quality Management District (SCAQMD).

Methods for Determining Conformity

Under the Proposed Action Alternative, the total direct and indirect emissions are specifically identified and accounted for in the SIP. The SCAQMD has an integrated smoke management program in place to coordinate the emissions from prescribed burning to ensure they remain within the State's emission budget for forest management activities.

The PM-10 emissions from "prescribed forest management burning" were included the 1997 South Coast Air Quality Management Plan. Furthermore, the SCAQMD 2003 Air Quality Management Plan contains the relevant inventories for this project. The South Coast SIP components were adopted by the California Air Resources Board (ARB) on October 23, 2003.

The California Air Resources Board submitted the South Coast and Coachella SIPs to the Environmental Protection Agency on January 9, 2004 (CARB, 2004a). The inventories include emission budgets for forest management activities found under Miscellaneous Processes – Waste Burning and Disposal. Therefore, based on these conditions, this action is in compliance with all relevant requirements contained in the applicable implementation plan and is determined to meet the conformity requirements.

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Table 12 – Comparison of project emissions with conformity 'de minimis' levels and State Implementation Plan emissions budgets

	Emissions (tons/year)			
	(1) ROG	**PM_{10}**	**CO**	**NO_X**
Project Maximum Direct and Indirect Emissions	5.8	7.3	23	3
Applicability Threshold ("De Minimis") as per 51.853 (b)(1)	10	70	100	10
Project less than Threshold?	*Yes*	*Yes*	*Yes*	*Yes*
(2) SIP Emission Budgets	2,624	4,518	35,580	1,784
Project more than SIP?	*No*	*No*	*No*	*No*
Determined to Conform?	**Yes**	**Yes**	**Yes**	**Yes**

(1) For purposes of this document, Reactive Organic Gases (ROG) and Volatile Organic Compounds (VOC) are considered synonymous—per Mike McCorison, Southern California Province Air Resource Specialist, U.S. Forest Service, California Region, 8/30/05.

(2) Data from 2003 South Coast State Implementation Plan. Final 2003 Air Quality Management Plan. Appendix III. Attachment A. Annual Average Emissions by Major Source Category. Table A-10, 2010 Annual Average Emissions by Source Category in South Coast Air Basin (Tons/Day). Number 670 Waste Burning and Disposal. Source accessed 3-25-2010: http://www.aqmd.gov/aqmp/docs/2003AQMPAppIII_AtchA.pdf

Cumulative Effects

Alternative 1

Cumulative effects for the No Action Alternative would be a potential for significant increases in air quality impacts should a future wildfire increase in size because the Tanbark Fuelbreak is not available for use during fire suppression operations. In the event of a large-scale wildfire, air quality would most likely exceed current Federal Clean Air Act and State Implementation Plan standards.

Alternative 2

No concurrent Federal activities are identified under this alternative that would contribute to negative cumulative effects. Because smoke dissipates rapidly after ignition of a prescribed fire, impacts on air quality associated with the proposed action would be short term.

Given the prevailing south to southwest wind pattern in the vicinity of the Tanbark Fuelbreak, smoke from any prescribed fire would rapidly disperse over a wide geographic area—with the majority of smoke dispersed over the relatively unpopulated areas of the Angeles National Forest.

All prescribed fires within the South Coast Air Basin must be permitted by the South Coast Air Quality Management Plan (SCAQMD). By permitting these activities, the SCAQMD has the ability to control cumulative effects through the issuance of burn permits. It is through this regulatory authority that the SCAQMD assures that cumulative activities do not have a negative impact on air quality within the basin.

Conclusion/Findings

Alternative 1
Because a primary wildfire control feature would not be available for use during fire suppression operations under the No Action Alternative, this alternative increases the probability that a large-scale wildfire will occur in the vicinity of Tanbark.

In addition, degradation of the local and regional air quality will occur during a large wildfire, leading to a potential negative impact on public health. State and Federal air quality standards are expected to be exceeded due to smoke produced by the wildfire.

Alternative 2
The Proposed Action Alternative conforms to the Clean Air Act and the applicable State Implementation Plan. Under this alternative, predicted emissions would be less than the conformity thresholds for significance.

Therefore, this alternative meets the conformity requirements as specified in 40 CFR part 51—subpart W and part 93—subpart B. The application of proposed Best Available Control Measures will reduce the emissions and prevent impacts to the fullest extent possible.

C. Heritage

Background

Field reconnaissance and standard archaeological inventory strategies set forth by the Region 5 Programmatic Agreement and the Interim Protocol for Hazardous Fuel Reduction Projects were followed for this project. Previously unsurveyed portions of the project area were inventoried. The National Register eligibility of all resources and their susceptibility to adverse effects by the proposed project were then analyzed.

A resource is identified as being susceptible to adverse effects based on resource characteristics (such as flammability or fragility) and undertaking parameters (such as fuel load or fire temperature, or equipment weight or type) (Interim Protocol, 2004).

Mechanical treatments have the potential to adversely affect cultural resources by disturbing surface and subsurface materials and by crushing materials. Studies have also shown that "fire can thermally alter all artifact types" and "even low-intensity burns have some degree of negative result" (Lentz 1996:84). An exception to this is when low-intensity prescribed burning may be allowed within the boundaries of some cultural resources—when the area is known to have been burned by a moderate to high intensity wildfire.

A total of seven cultural resource sites (listed in Table 13) were identified in the proposed action area.

Mitigation Measures

The standard protection measures are required for the protection of historic resources by the Region 5 Programmatic Agreement regarding Section 106 of the National Historic Preservation Act (NHPA). These protection measures are:

- Flag and avoid (Stip. I[B][1] – NRHP eligibility not determined).
- The project was already modified (with the no treatment measures so the project modification stipulation was removed from the updated Section 106 clearance form).
- Establish Buffer Zone (Stip. I[C]
- Monitoring (Stipulation I[E]
- Notify the Heritage Program Manager before project implementation to schedule monitoring by the Heritage Resources Staff of the Angeles National Forest (Stip. I(B)[2]).
- Mitigation actions designed to protect cultural resources must be made known to all personnel involved with the project, including those who perform the actual implementation.

Table 13 – Cultural resource sites associated with the Proposed Action.

Forest Service #	Primary #	Type	National Register of Historic Places Listing
05015200044	19-002054	Historic	Not Eligible
05015200050	19-002256	Historic	Unevaluated
05015200077	19-180667	Historic	Unevaluated
05015200101	19-186918	Historic	Unevaluated
05015200137	19-188326	Historic	Unevaluated
05015200152	not assigned	Historic	Unevaluated
05015200153	not assigned	Prehistoric	Unevaluated

Direct/Indirect Effects

Alternative 1

Because no activities with the possibility to cause adverse effects will occur under this alternative, no direct impacts will occur to cultural resources. Because no action will result in the continued build up of hazardous fuels along the Tanbark Fuelbreak, indirect effects include damage from wildfire and wildfire suppression activities.

Alternative 2

The direct effects the Proposed Action would be the possible disturbance or destruction of cultural resources located within the project area. Because cultural resources are non-renewable, the direct effect could be long term.

The management objectives of the Angeles National Forest and various applicable laws and regulations require that cultural resources are preserved and protected. The Region 5 Programmatic Agreement with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation allows for modification of projects and the implementation of standard resource protection measures to protect cultural resources while allowing projects to be implemented.

Short-term effects of hazardous fuel projects will be a lowered potential danger of damages to cultural resources than would occur from high-intensity wildfire and associated fire suppression activities. This beneficial short-term effect can also be a long-term effect if the fuelbreak is periodically maintained.

Alternative 2 creates a desirable condition for maintaining cultural resource integrity by ensuring a lack of ground disturbance within cultural resource zones as well as the reduction of hazardous fuels around these areas.

Use of the mitigation measures and the restrictions presented in document Ref# 2009SGR14ISP of the project file, leads to a finding of “no adverse effect” associated with the Proposed Action Alternative as well as compliance with the National Historic Preservation Act (NHPA) under this alternative.

Cumulative Effects

Alternative 1
Past wildfires have damaged or consumed cultural resources. The cumulative effect of not reducing hazardous fuels is continued damage to cultural resources from future high intensity wildfires.

Alternative 2
The current proposed project, implemented with mitigation measures, should not significantly adversely affect cultural resources within the project area. Rather, it will have the beneficial effect of reducing the danger of damage from future high-intensity wildfires.

Furthermore, impacts of past projects/events (such as wildfires) will not add to any current significant impacts to cultural resources. Similarly, future projects—implemented with the necessary mitigation measures—will not have any significant effect to cultural resources.

Conclusion/Findings

Alternative 1
The negative impacts of the No Action Alternative would include an indirect effect of a higher potential of damage to cultural resources from wildfires—due to the lack of hazardous fuel removal and the continued buildup of these fuels over time.

Alternative 2
It has been determined by the Heritage Resources Staff of the Angeles National Forest that the proposed project—implemented with appropriate design features and mitigations—would not cause adverse effects to cultural resources and is compliant with the National Historic Preservation Act.

D. Hydrology and Soils

Background

Watersheds

The proposed treatment area is within two Hydrologic Unit Compartment (HUC) 6 subwatersheds, two HUC 7 subwatersheds, and two HUC 8 subwatersheds (see Table 14).

Table 14 – Areas of Subwatersheds Covered by the Proposed Action

Subwatershed	Subwatershed Acres	Project Acres Per Subwatershed	Subwatershed Covered by Treatment Area
Cattle Canyon	13,038	187	1%
San Dimas Canyon	11,922	414	3%
Big Dalton Canyon	4,676	195	4%
North San Dimas Wash	3,676	130	4%
Oak Canyon	741	31	4%
Dry Lake Canyon	677	26	4%

There are no documented springs, seeps, or wetlands within the proposed treatment area. Cattle Canyon is the only perennial stream. Several ephemeral drainages originate near the Tanbark Fuelbreak and flow in response to precipitation events.

The upper reaches of the intermittent channels flow in steep, narrow canyons carved into bedrock. The streams below the project area—including the North Fork San Gabriel River, Big Dalton Wash, and San Dimas Wash—are capable of moving high volumes of sediments during significant storm events. The channels appear to be generally stable.

In 2000, the Angeles National Forest conducted a Forest-wide watershed condition assessment. The assessment of the North Fork San Gabriel watersheds received a rating of 1.55—indicating a relatively low level of impact. Water flow was described as *"unnatural"* due to dams, but noted that it *"wasn't in overly bad condition"* (USDAFS, b).

Soils

The Natural Resources Conservation Service (NRCS) soil mapping of the Angeles National Forest shows that the Trigo—granitic substratum-Exchequer families-rock outcrop complex—covers approximately 33 percent of the proposed treatment area. The Lodo-Modesto families complex covers about 20 percent of the treatment area. Rock outcrops cover about 53 acres of the proposed treatment area.

The soils within the treatment area are generally coarse-grained loam or sandy loams. Most of the soils within the proposed treatment area are shallow, with approximately 20 inches to bedrock. These soils have slow infiltration and water transmission rates when wet and the runoff potential is moderately high. Almost 90 percent of treatment area soils have a high NRCS Fire Damage Potential rating due to low amounts of soil organic matter, coarse surface textures, and

Table 15 – Soil characteristics of the Proposed Action area.

Soil Type	NRCS Texture	Slope (%)	Depth to Bedrock (in)	Runoff Potential	Fire Damage Potential	Maximum Erosion Hazard	Acres
Trigo, granitic substratum-Exchequer families-rock outcrop	Very stony sandy loam	30 – 60	Shallow	Moderately high	High	Severe	320
Lodo-Modesto families complex	Shaly clay loam	30 – 70	Shallow	Moderately high	Moderate	Severe	200
Vista-Trigo, granitic substratum-Modesto families complex	Coarse sandy loam	40 – 70	Moderately deep	Moderately high	Moderate	Very Severe	187
Stukel-Sur-Winthrop families complex	Gravelly loam	60 – 100	Shallow	Moderately high	High	Very Severe	97
Tollhouse-Stukel-Wrentham families complex	Coarse sandy loam	60 – 90	Shallow	Moderately high	Moderate	Very Severe	75
Trigo, granitic substratum-Exchequer families-Rock outcrop	Very stony sandy loam	60 – 100	Shallow	Moderately high	High	Very Severe	39
Stukel-Olete families association	Gravelly loam	50 – 100	Shallow	Moderately high	High	Very Severe	36
Typic Xerorthents, warm	Very gravelly sandy loam	55 – 90	Shallow to deep	Not rated	Moderate	Very Severe	16
Caperton-Trigo, granitic substratum-Lodo families complex	Gravelly loam	50 – 80	Shallow	Moderately high	Moderate	Very Severe	15

high amounts of rock fragments (USDA, NRCS).

Due to coarse surface textures and steep slopes, approximately 50 percent of treatment area soils have a very severe NRCS Erosion Hazard rating. Soils also have a severe Rutting Hazard rating on 55 percent of the treatment area, indicating ruts could form easily on wet soils with standard rubber-tired vehicles.

Mitigation Measures
Provide ground cover such as slash, wood chips, or masticated material adequate to prevent erosion in disturbed areas.

A combination of natural barriers (rocks, logs, etc.), screening, and fencing will be used as required to prevent/discourage illegal vehicle activity during and after the project treatment. Fire Prevention Technicians and other staff will monitor the area. Should problem areas arise, remedial and preventative actions would be taken as appropriate. Coordination with adjacent landowners, public education, and signing would also be used as appropriate.

- Any heavy equipment staging areas and access points will be rehabilitated and blocked after project completion. Rehabilitation would include returning the ground to natural contours; implementing decompaction, and erosion control measures as needed—as well as covering bare soil with slash, chips needles, or cut brush as necessary.
- Plan prescribed fire to ensure that fire intensity and duration do not result in detrimentally burned soils. Whenever feasible, plan prescribed fire for when soils are wetter and fuels are dry to decrease damage to soils.
- Prescribed burning or crushing should not occur on slopes where only grass is growing.
- Transport, store, and dispose of pesticides and pesticide containers in accordance with applicable Federal, State and local laws and regulations.
- Apply Garlon 4 herbicide during August or September when Spanish Broom is not flowering and dry weather is forecasted.
- Permit only certified personnel or those under the supervision of a certified applicator to use restricted-use pesticides (Forest Service Manual 2154.2).

Direct/Indirect Effects

Alternative 1
Under this alternative, because no activities would occur, no direct effects would occur to hydrologic function, soil quality or soil erosion. Indirect effects would include damage from a future wildfire and wildfire suppression activities—because no action would be taken to curtail the continued build up of hazardous fuels.

Because 50 percent of the proposed treatment area has a moderate Fire Damage Potential rating and 47 percent has a high Erosion Hazard Potential rating, soils burned by a high intensity wildfire will require maintenance to mitigate the detrimental effects to soil physical and chemical properties.

Complete combustion of chaparral in the San Gabriel Mountains of California was found to increase rates of erosion an average of 15 times on north aspects and an average of 30 times on south aspects compared to rates prior to burning. Burning the vegetation in the San Gabriel Mountains leads to accelerated erosion for eight to ten years after the fire

with erosion rates nine to ten times greater that the rates observed prior to a wildfire (Sinclair, 1954). Erosion from a wildfire on the slopes near the Tanbark Fuelbreak will be higher than rates from prescribed burning.

Alternative 2

Dozers operating crushers and masticators will create some soil disturbance and compaction as they move through treatment areas. On areas where the dozer operates, the structure of the disturbed soils will likely be destroyed in the top few inches of the surface horizon. The rubber-tracked, low ground pressure ASV skidsteers used on the mastication unit will limit soil disturbance in those treatment units compared to using a steel tracked masticator. A restricted operating period to assure that treatments do not occur on wet soils will limit the extent and magnitude of soil compaction.

Currently, vegetation cover to limit erosion is adequate on the majority of the project area. Removal of vegetation during prescribed fire treatment is likely to result in increased erosion and sediment transport in the first year after treatment—particularly if intense or prolonged rainfall occurs.

Landslides within the project area appear stable. There are no fresh scarps or disturbed areas. Therefore, the proposed treatments are not likely to have any effects on destabilizing landslides.

Based on measurements of sediment volumes in debris basins, background erosion rates are 1.7 cubic yards per acre (yd^3/ac) in the North Fork San Gabriel River watershed and 3.1 yd^3/ac in the San Dimas Canyon watershed (Rowe, 1949). Removing vegetative cover by burning will increase the erosion rate to approximately 99 yd^3/ac in the first year. Sediment production will decrease as vegetation begins to reestablish on the fuelbreak (see Figure 5).

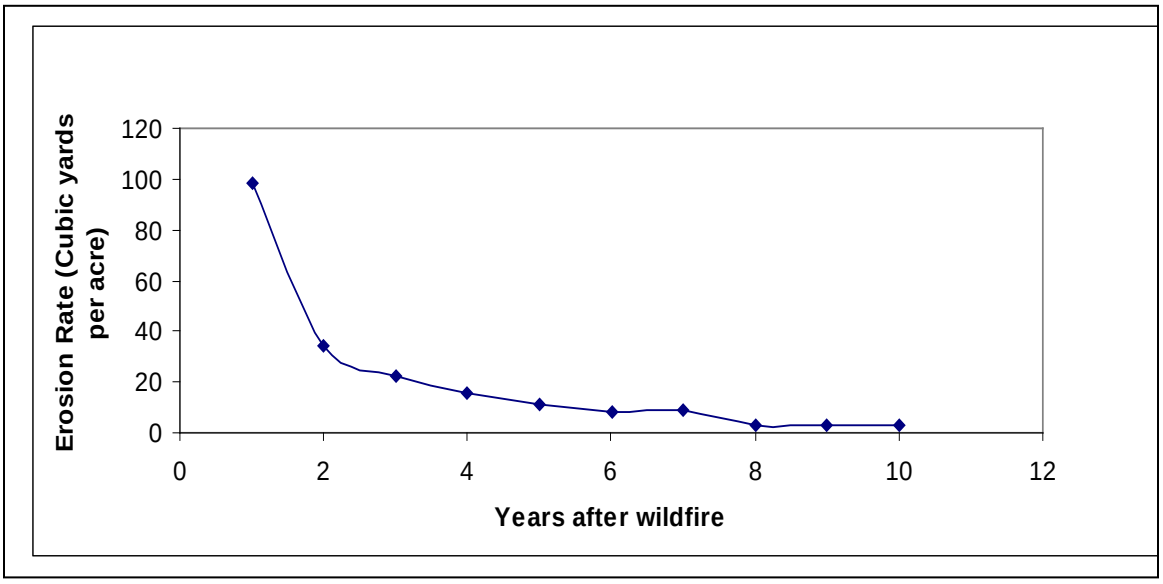

Figure 5 – Post-wildfire sediment production in San Dimas Canyon.

The proposed treatment occurs on only one to four percent of the subwatersheds treated. With treatments spread over up to five years, it is not anticipated that any change in water quality or peak flow will occur as a result of the proposed action.

Water Erosion Prediction Project Modeling

The Fuels Management Extension (FuME) of Water Erosion Prediction Project (WEPP) modeling was used to model sediment production resulting from mastication, crushing, and hand thinning.

For the first year following treatment, modeling results indicate an increase in sediment yield of approximately 2 yd^3/ac. Prescribed burning could increase sediment yield to approximately 3 yd^3/ac, while wildfire could increase sediment yield to approximately 47 yd^3/ac (see Table 16).

These volumes are less than those calculated by Rowe. They reflect the erosivity of soils within the project area rather than the entire watershed. WEPP modeling indicates ten times less sediment would be generated from thinning and prescribed burning treatments than if a wildfire would burn the project area.

Table 16 – Predicted average annual hillslope erosion within +/- 50 percent.

	Surface	**Slope (%)***			**Hillslope segment distances (feet)**			**Ave. annual hillslope sedimentation (yrd3/acre)**			
Soil Map Unit	Texture	Top	Middle	Toe	Total	Treated	Buffer	Undist-urbed	Wild-fire	Rx Fire	Thin
Stukel-Sur Winthrop complex	Gravelly loam	90	90	90	1200	200	1000	1.0	40.5	1.8	1.1
Trigo, granitic substratum-Exchequer families rock outcrop complex	Sandy loam	90	90	90	1350	350	1000	1.1	43.4	2.9	1.3
Trigo, granitic substratum-Exchequer families rock outcrop complex	Sandy loam	85	90	90	1300	300	1000	0.8	39.1	3.2	1.0
Tollhouse-Stukel-Wrentham families complex	Sandy loam	90	90	90	1400	300	1100	0.8	38.0	3.1	1.1
Stukel-Olete families complex	Gravelly loam	90	90	90	886	206	680	0.4	19.6	0.9	0.4
Vista-Trigo, granitic substratum-Modesto families complex	Coarse Sandy Loam	90	90	90	1250	250	1000	0.4	21.6	1.0	0.5
Lodo-Modesto families complex	Clay Loam	80	90	90	1250	250	1000	1.7	32.9	2.7	1.7
Lodo-Modesto families complex	Clay Loam	85	90	90	850	240	610	1.3	26.2	2.6	1.3
Average								1.0	32.7	2.3	1.1

Invasive Species Treatment
Within the proposed treatment area, a total of two acres of invasive plants will be treated with herbicide to limit their potential spread. The herbicide treatments are non-contiguous and widely scattered throughout the project area. Application will be site specific, utilizing a backpack sprayer with a handheld wand to apply the product.

The locations proposed for treatment are Trigo and Vista soils. Both of these soils are shallow to moderately deep and have a moderately high runoff potential as well as coarse grained surface texture and low amounts of clay and organic matter.

Tricolpyr, the active ingredient in Garlon 4, is highly mobile in soils as the Trigo and Vista soils are low in clay and organic matter and have a moderately high runoff potential. Upon its application, Garlon 4 will begin to be degraded by microbes in soil with the half-life of the product ranging between 10 to 46 days following application.

Areas to be treated with Garlon 4 are more than a mile from any perennial streams. Based on historic climatic conditions for the Tanbark area (where less than one inch of rain falls between the months of May and September), it is highly unlikely that any Garlon 4 would reach a perennial water course.

During November within the project area, monthly precipitation increases to four inches. By November, approximately 10 percent of the applied product would be potentially available to be dissolved and transported to a watercourse. Once dissolved in water, Garlon 4 has a half-life of four to six hours (USDAFS, c) and would soon be undetectable.

Cumulative Effects

Alternative 1
Under the No Action Alternative, no fuel reduction treatments would occur. Background erosion rates would continue unchanged, or trend slightly lower, as vegetation becomes more dense and continuous across the project area.

Alternative 2
Potential cumulative effects from past, current, and future activities within sub-watershed boundaries were analyzed. Several other fuel reduction and fuel break treatments are proposed within or adjacent to the sub-watersheds of the Tanbark Fuelbreak.

While the proposed treatment has an insignificant effect on the sub-watersheds, other activities occurring can lead to cumulative effects. The other fuel treatments considered in the cumulative effects analysis will have similar or slightly reduced effects on soil erosion quantities and water quality, as most treatments are significantly smaller than the Tanbark Fuelbreak.

Considering all fuelbreaks, no sub-watershed will have more than 10 percent of its area treated over a cumulative effects time period of 10 years. Treatments are assumed to be staggered in both time and space, assuring that no sub-watershed will be adversely impacted from the total work proposed.

In most cases, the effects of fuel treatments will begin to diminish within two years—as vegetation grows in the treated areas. Within five to ten years, effects to hydrology would be reduced to close to background levels.

The interconnecting system of fuelbreaks could have a beneficial effect by providing multiple opportunities to limit the size of a wildfire by increasing the effectiveness of firefighters. If the fuelbreak system results in fewer acres burned in a wildfire, any impacts associated with treating the fuelbreaks will be off-set by retaining vegetation on the landscape—which, otherwise, would have burned during a wildfire.

Conclusion/Findings

Alternative 1
Under the No Action Alternative erosion rates will continue to decrease as the area recovers from the effects of the 2002 and 2003 wildfires. No effects to water quality will occur as no actions will be undertaken. In the event of a wildfire near the proposed project area—because a defensible fuels treatment zone will not exist under this alternative—there is a probability that the fire will be larger. In addition, soil erosion could increase between 10 to 60 times more than background rates following a wildfire.

Alternative 2
Under the Proposed Action Alternative, the proposed treatments will result in the removal of varying amounts of cover and localized compaction and soil disturbance. Vegetation on the lower slopes of the sub-watersheds would remain, providing a buffer to runoff and sediments.

Crushed and masticated vegetation is expected to be less than three inches in depth and is likely to be burned at relatively low intensity during a prescribed fire. Lower fire intensities limit the potential soil damage. By design, prescribed burning treatments will leave at least 10 to 30 percent cover, which will also reduce erosion and sediment transport.

The net result of the proposed action is that erosion and sediment transport are likely to be within the normal range of erosion rates for the area.

E. Threatened, Endangered, and Sensitive Species

Background

Background

Field surveys were conducted March through June of 2009 to analyze the anticipated biological effects of the proposed action on all Federally listed threatened, endangered and Forest Service sensitive plant and wildlife species (TES) that are known to occur, or have the potential to occur within the Tanbark Fuelbreak Maintenance Project area. These surveys helped to determine whether the proposed action will result in a trend toward a Sensitive species becoming Federally listed as Threatened or Endangered under the Endangered Species Act (1973, as amended).

One threatened species, thread-leaved Brodiaea, and ten Forest Service Sensitive species were identified as being present—or having suitable habitat—within or immediately adjacent to the proposed action area.

These Forest Service Sensitive species are:

- Slender mariposa lily
- Plummer's mariposa lily
- Urn-flowered alumroot
- Fragrant pitcher sage
- California spotted owl
- Pallid bat
- Townsend's big eared bat
- San Bernardino mountain kingsnake
- San Diego horned lizard
- California legless lizard

Mitigation Measures

Threatened, Endangered and Forest Service Sensitive Plant Species

- Extend protection to any newly discovered populations of Threatened, Endangered or Forest Service Sensitive (TES) plant species found before or during project implementation. In the event of the change in a plant's or wildlife protection status to becoming threatened, endangered, or Forest Service sensitive, additional analysis will be completed to determine potential impacts. Reinitiating U.S. Fish and Wildlife consultation will occur, if applicable.
- To prevent injury to individuals of Forest Service Sensitive urn-flowered alumroot (*Heuchera elegans)* treatment will be excluded from Sunset Peak as identified in the project file. This includes exclusion of all machinery, including vehicles, from the spur road at Sunset Peak.
- Flag and avoid populations of Forest Service Sensitive urn-flowered alumroot fragrant pitcher sage (*Lepechinia fragrans)* and Plummer's mariposa lily (*Calochortus plummerae)* populations with a 100-foot buffer.
- Surveys will be conducted in the areas identified as suitable habitat for the Federally endangered thread-leaved

Brodiaea (*Brodiaea filifolia)* during a season when they are identifiable one to two years prior to implementation. Surveys will be conducted following a season with adequate precipitation to stimulate germination/flowering. If these conditions are not obtainable, areas considered to be suitable habitat will be flagged and avoided.

- Threatened and Endangered Plants: Spot herbicide application will not take place within 25 feet of Threatened and Endangered plant species. Non-herbicide treatments may be conducted throughout the plant locations with the presence of a Forest Service botanist.
- Herbicide application will not take place within 68 feet of any known TES plant species without barriers set up to shield individuals.
- Sensitive Plants: Spot herbicide application will not be allowable within 10 feet of the sensitive plant location. Non-herbicide treatments may be conducted throughout Forest Service Sensitive plant locations with the presence of a Forest Service botanist.

Forest Service Sensitive Wildlife Species

- Project activities will not be conducted within a quarter mile of active California spotted owl nests and critical nest stands of protected activity centers (PACs), between March 1 and August 31.

Direct/Indirect Effects

Alternative 1

Because no action will be undertaken, there will be no direct or indirect effects to thread-leaved Brodiaea or any Forest Service Sensitive species.

Alternative 2

Botanical Resources

There will be no direct effects to urn-flowered alumroot or fragrant pitcher sage due to protective design features under the Proposed Action Alternative. No indirect effects are anticipated for urn-flowered alumroot either, due to the nature of its habitat.

Plummer's mariposa lily may incur direct impacts due to its geophytic nature, allowing it to lie dormant and unobservable during field surveys. While this is also the habit of both thread-leaved Brodiaea and slender mariposa lily, protection measures that require pre-surveys for the thread-leaved Brodiaea and the low potential for slender mariposa lily to occur reduce the potential direct impacts to these species to negligible.

Direct impacts to Plummer's mariposa lily include trampling by machinery and foot traffic that could crush and injure individuals or underground structures of dormant individuals.

Application of Garlon 4® will occur near populations of Plummer's mariposa lily. There is the potential for drift or accidental direct application to negatively impact this species, by directly injuring or killing individuals, and/or by the residual in the soil negatively impacting unexpressed bulbs. This is likely to be a localized and short-term impact though, as the design features require shields to be used when applying Garlon 4® within 68 feet of occurrences and injury to individuals is not anticipated to impact viability.

The greatest indirect impact to all botanical species considered are the multiple treatments conducted in portions of the project area that are in early successional stages. There is the high probability that suitable habitat and vegetation surrounding protected known populations will be converted to annual grasslands (Zedler et al. 1983) with multiple treatments. This will reduce the suitability of the habitat and potentially limit recruitment potential, and may add additional competition pressures from invasive nonnative plant species.

This has been identified as a threat (CNPS 2009) for all species—other than urn-flowered alumroot—being considered. Much of the project area south of Johnstone Peak already has high coverage by annual and perennial grasses due to historic wildfires and fuel treatments.

Wildlife Resources

The proposed project will not directly affect California spotted owls because there is no roosting or nesting habitat in the project area. A Limited Operating Period (LOP) will be in effect to minimize disturbance during the breeding season to owls located within 0.25 mile of the project area. This LOP will apply to a single protected activity center (PAC) located northeast of the project area.

The proposed project may directly impact individual California legless lizards, San Bernardino mountain kingsnakes, and the San Diego horned lizard due to the presence of personnel and heavy equipment in the project area during treatment activities. All of these species could be trampled or crushed during mastication and crushing activities. They may also be temporarily displaced by all project activities, particularly prescribed burning treatments. Indirect effects from project activities are due to habitat modification. Vegetation treatments will result in an open area, which may increase the amount of basking areas for individuals.

Individual pallid bats and Townsend big-eared bats may be impacted by project activities. Bats roosting within the project area could be disturbed by project activities such as equipment noise and vibration, smoke, and chainsaw operations. This could lead to temporary displacement.

Project activities could impact roosts, if they occur in the project area. Additionally, foraging habitat would be affected by changes in vegetation structure.

The treatment of invasive plants is not expected to directly affect any wildlife species because herbicide application will be localized. Only targeted plants will

be treated. Treatments will also help prevent the spread of these species in the future. Invasive plants change the structure of native vegetation which often results in a lower quality of habitat for several wildlife species.

Cumulative Effects

Alternative 1
Because no action will be undertaken, no cumulative effects will occur.

Alternative 2
Impacts are considered based on whether or not they interact synergistically with the proposed action alternative. Impacts from large wildfires in the immediate project area are also considered.

Wildfire

Two notable fires have burned within the project area in recent history. These fires have resulted in earlier seral plant communities that are recovering. Implementation of this project contributes to these wildfire events cumulatively by impacting the vegetation within a disturbance regime interval that has the potential to shift the vegetation composition to an earlier seral stage.

Wildfires impact wildlife species by altering and removing suitable habitat. This project will not contribute toward the cumulative impacts of wildfire to wildlife species.

Other Fuel Reduction Projects

Other fuel reduction projects impact vegetation, reverting it to an earlier seral stage. This can result in similar vegetation shifts that reduce the suitability of habitat for TES species. Most of the ongoing and proposed project areas underwent wildfire in the past 10 years, increasing the likelihood for long-term vegetation alteration. This project would contribute to the loss of additional ridgeline habitat.

Other Management Activities

The majority of the project area falls within the boundaries of the San Dimas Experimental Forest (SDEF), which is closed to the public use. Experiments conducted in the SDEF have resulted in some areas being intentionally converted into non-native grasslands. In addition, there are several communications towers located on Johnstone Peak that are routinely visited for maintenance. The areas surrounding the communication towers are highly disturbed and maintained at an early seral stage.

Development

Development on private land is reducing native communities and fragmenting the remaining communities (Stephenson and Calcarone 1999) in the southern California bioregion. This has resulted in the extirpation of sensitive species and

the reduced capacity for gene flow between separated populations. This is an ongoing impact that has begun—and is likely to continue—to increase in intensity to the south of the project area.

This project contributes to this cumulative effect by contributing to disturbance factors that likely render the habitat less suitable for TES species.

Conclusion/Findings

Summary of Determinations of Effects on TES

- **Thread-leaved brodiaea:** Will have no effect on the species or its designated critical habitat.
- **Urn-flowered alumroot:** Will have no effect.
- **Slender mariposa lily:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
- **Plummer's mariposa lily:** May affect individuals but is not likely to result in a trend toward Federal listing or loss of viability.
- **California spotted owl:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
- **California legless lizard:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
- **San Bernardino mountain kingsnake:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
- **San Diego horned lizard:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
- **Townsend's big-eared bat:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.
- **Pallid bat:** May affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability.

F. Non-Native Invasive Species

Background

Background

Field surveys were conducted in March, April, May and June of 2009 for this project. The field reconnaissance found five "high rating", 11 "moderate rating", and nine "limited rating" invasive plant species in the proposed action area (see box on right for rating definitions).

Invasive species identified during field reconnaissance are listed in Table 17.

Rating for invasive species have the following definitions as designated by the California Invasive Plant Council (Cal-IPC):

- **High rating** species have severe ecological impacts on ecosystems that impact physical processes and plant and animal communites.
- **Moderate rating** species have substantial and apparent, but generally not severe, ecological impacts on ecosystems.
- **Limited rating** species are invasive but either their ecological impacts are minor on a statewide level though they may be locally persistent and problematic.

Mitigation Measures

Invasive Species

- All equipment staging areas will be located away from known areas with invasive species occurrences.
- Livestock will not be used as part of this project.
- Protocol standards will be used in the washing of equipment to prevent the spread of non-native invasive species. Documentation forms regarding this activity will be maintained by the project manager and forwarded to the Forest Botanist.
- To prevent further disturbance, no mechanized equipment will be permitted in the locations where invasive species are removed. Hand treatment will be permitted.
- To reduce seed spread, disposal of invasive weeds removed will be as follows: If no flowers or seeds are present, pull the weed and place it on the ground to dry out. If flowers or seeds are present and have the potential for the seed to be widely dispersed during treatment (such as with Spanish broom), remove the flowering head and place in container then pull the weed and place in an appropriate container for disposal.
- Areas with bare soil created by the treatment of noxious weeds will be evaluated for restoration to prevent further infestations by the same or new invasive weeds. Whenever possible, protect non-target vegetation in order to minimize the creation of exposed ground and the potential for re-infestation. A Forest Service botanist will be consulted prior to any restoration implementation.
- Certified weed-free mulches (or rice straw and mulch) and local weed-free seed sources will be used in restoration or soil stabilization efforts, if required.

Table 17 – Non-native invasive species associated with the Tanbark Fuelbreak.

Scientific Name	Common Name	Comments
High Ranking		
Bromus madritensis ssp. rubens	red brome	Common throughout project area.
Bromus tectorum	cheat grass	Throughout project area.
Ehrharta calycina	purple veldt grass	Abundant south of Glendora Ridge Rd. Occasional other places.
Spartium junceum	Spanish broom	Known from numerous locations in the project area, especially along roads.
Ulex europaea	gorse	One individual known along Johnstone Peak Rd.
Moderate Ranking		
Avena sp.	oat	Common throughout project area.
Bromus diandrus	ripgut brome	Common throughout project area.
Cirsium vulgare	bull thistle	Uncommon.
Carduus pycnocephalus	Italian thistle	Locally abundant, known from one location near Johnstone Peak.
Centaurea melitensis	tocolote	Common throughout project area.
Hordeum murinum	mouse barley	Locally abundant southeast of Johnstone Peak.
Hirschfeldia incana	shortpod mustard	Common throughout project area, especially in lower elevations.
Lolium multiflorum	Italian rye grass	Occasional south of Johnstone Peak.
Phalaris minor	Mediterranean canarygrass	Locally abundant southeast of Johnstone Peak.
Piptatherum milliaceum	smilograss	Occasional throughout project area below 5000’.
Vulpia myuros	rattail fescue	Common throughout project area.
Limited Ranking		
Bromus hordeaceous	soft brome	Common throughout project area.
Dactylis glomerata	orchard grass	Locally abundant.
Erodium cicutarium	redstem filaree	Locally abundant, though known from throughout the project area.
Eucalyptus sp	eucalyptus	Locally abundant, on large stand along Johnstone Peak Rd.
Marrubium vulgare	white horehound	Uncommon.
Medicago polymorpha	bur clover	Occasional below Johnstone Peak.
Nicotiana glauca	tree tobacco	Occasional along Johnstone Peak Road.
Silybum marianum	milk thistle	Locally abundant, known from Johnstone Peak.
Schismus barbatus	Mediterranean grass	Uncommon.
Not Listed by Cal-IPC		
Cistus ladanifer	common rockrose	Known from scattered individuals along Johnstone Peak Rd. Large (approximately 1 acre) population known from eastern spur south of Johnstone Peak, apparently expanding.

- Efforts will be made to ensure that seeds or vegetative propagules of invasive weeds will be removed from clothing and equipment prior to leaving treatment site.
- Transport of removed invasive weeds with seeds or vegetative propagules will occur in enclosed disposal containers or in an enclosed vehicle.
- Invasive weeds to be disposed of off-site will be taken to a facility (landfill) that contains the disposed items.
- If burning of removed noxious weeds is to occur, burn piles will be monitored the following year to assess potential needs for revegetation or additional weed removal treatments.
- In order to limit the potential for spread of purple veldt grass, only two entry points are permitted: the gate at intersection of Tanbark Flats Road and Glendora Ridge Road. All vehicles and machinery entering the project at this point will exit through Sycamore Flat Motorway (FS Rd. 1N152) or Big Dalton Canyon Road (FS Rd. 1N141). A second access point is permitted at Sunset Peak.
- The portion of the project area from Peacock Saddle to Sunset Peak will be treated first. Entry to this section of the project will be made from Sunset Peak. All equipment will exit at Sunset Peak.
- Monitoring and eradication of all new purple veldt grass seedlings will occur yearly for no fewer than three years in areas treated adjacent to known infestation areas.

Direct/Indirect Effects

Alternative 1

The No Action Alternative is not anticipated to directly impact invasive non-native species distribution and abundance. This alternative is anticipated to allow for the recovery of the vegetation to pre-fire canopy closure levels. This will result in a reduction in the distribution and abundance of invasive non-native species—especially in the chaparral and scrub habitats.

In the event of another wildfire, under this no treatment alternative, the project area will burn at higher severities, which has been shown to be positively correlated with the decrease in a post-fire invasive response (Keeley et al. 2008). However, whether this mechanism is a result of lower pre-fire presence of invasives or is a result of the increased temperatures is not clear (Keeley, *personal communications).*

Alternative 2

There is the high probability with repeat suppression of the native chaparral and scrub communities that areas treated multiple times will likely undergo vegetative conversion to non-native grasslands (Zedler et al. 1983). This alteration is anticipated to mainly impact the chaparral vegetation which represents approximately 69 percent of the proposed action area. Non-native grasslands already exist on the fuelbreak as a result of past disturbance from both wildfire and fuel reduction activities.

Because portions of the project area from Peacock Saddle to the southwest have high levels of colonization by invasive non-native plant species, it is likely that there will be increases in the distribution and abundance of invasive non-native species into treated areas. The abundance of the non-native species will be dependent on treatment type.

Studies (Bradley et al. 2006, Stephens et al. 2002) have found prescribed fire to have the lowest non-native response when compared to mastication and hand treatment areas. These studies also found mastication combined with prescribed fire to have the highest invasive non-native response. The crusher treatments create high levels of soil disturbance due to the use of a bulldozer. Use of bulldozers has been found to significantly increase non-native abundance and cover (Merriam et. al 2006).

The proposed action will use a herbicide, Garlon4, and other methods to remove Spanish broom, common rockrose, eucalyptus, tobacco tree, and gorse. These species represent approximately two acres within the 936-acre proposed action area. Eradication is unlikely, with the exception of eucalyptus and common rockrose, as the remaining species likely have seedbanks that could germinate with disturbance due to fuel reduction activities. Follow-up treatment throughout the life of the project could potentially control these species in the project area for the long term, which would be a beneficial impact.

Purple veldt grass is a species that has been in the San Dimas Experimental Forest since the late 1960s. There is some suspicion that it was a component of one of the seed mixes used for experiments in type converting watersheds (J. Beyers, personal communications). There is no herbaria record of this species occurring north of Johnstone Peak, though it was observed thriving in abundance between Johnstone Peak Road and the Glendora Ridge Road. No-treatment areas have been established within the proposed action area to eliminate or reduce the potential spread of purple veldt grass.

Cumulative Effects

Alternative 1
Under Alternative 1, these effects are passively beneficial and potentially long term as chaparral species increase in size and continuity across the Tanbark Fuelbreak. The increased density of the chaparral may limit the spread of non-native invasive species into currently unoccupied areas.

Alternative 2
Under this alternative, as with previous wildfires, other fuel reduction projects currently in the planning phase will impact vegetation by reverting it to an earlier seral stage. These fuel treatment projects will likely result in the increase in invasive species in the cumulative effects analysis area. The Tanbark Fuelbreak Maintenance Project contributes to these effects as its proposed actions could increase invasive non-native species distribution and abundance.

There are also several non-project depended vectors that could contribute to invasive non-native distribution including hikers, communications tower maintenance vehicles,

apiary management vehicles, and—most importantly—vehicles driving along Glendora Ridge Road. Openings created along Glendora Ridge Road will be prime suitable habitat for new and present invasive species.

Reducing shrub cover enhances the opportunities for illegal OHV activity within the proposed action area. Alternative 2 reduces shrub cover, but has integrated design features that greatly reduce the risk of the implementation contributing to this cumulative effect.

Conclusion/Findings

There are five “high ranking”, 11 “moderate ranking”, and nine “limited ranking” invasive plant species known within the project area. Of these 25 species, red brome, cheat grass, oat, ripgut brome, tocalote, shortpod mustard, rattail fescue, and redstem filaree are ubiquitous throughout the project area and are the species that are commonly known to occur in non-native grasslands.

While herbicide application to Spanish broom, gorse, common rockrose, tobacco tree and eucalyptus will reduce numbers of these species, without follow-up treatment, post fuel reduction treatments could result in the reestablishment of these species due to the suitable habitat created through disturbance.

Purple veldt grass is not anticipated to extend its range due to project design features—specifically targeted to limit its capacity for range extension. However, it is anticipated that purple veldt grass will increase in abundance within the footprint of the project area within its current distribution. The remaining species are anticipated to increase in abundance within the project area, but range extension is likely to be limited.

Ground disturbing activities associated with the maintenance of the existing fuelbreak could result in the increased capacity for the fuelbreak to act as a “corridor” for invasive species to spread. The edges of the vegetation adjacent to the fuelbreak could have increased colonization of invasive species. The greater the distance from the fuelbreak, the more this colonization will decrease.

The proposed action contributes to cumulative impacts to a limited extent by increasing the number of acres of highly infested early seral vegetation in the cumulative effects analysis area.

Overall, the increase in invasive species is anticipated to be localized and minor (confined to the ridgetop) and long term.

G. Management Indicator Species

Management indicator species (MIS) identified in the Land Management Plan (LMP) for the Angeles National Forest in Part 1, page 45 (USDA Forest Service 2005) are evaluated to determine the effects of vegetation treatment on the Tanbark Fuelbreak.

Background

Guidance regarding MIS set forth in the LMP directs Forest Service resource managers to:

- At the project scale: Analyze the effects of proposed projects on the habitats of each MIS affected by such projects.
- At the national forest level: Monitor populations and habitat trends of Forest MIS.

Table 18 – Management Indicator Species.

Species	Indicators of Management	Relevance to project
Mountain Lion	Fragmentation	Occurs in project area
Mule Deer	Healthy diverse habitats	Occurs in project area
California Spotted Owl	Montane Conifer Forest	Occurs in project area
Bigcone Douglas-fir	Bigcone Douglas-fir Forest	Occurs in project area
Arroyo Toad	Aquatic habitat	Does not occur in project area
Song Sparrow	Riparian habitat	Does not occur in project area
Engelmann Oak	Oak regeneration	Does not occur in project area
Coulter Pine	Coulter Pine Forest	Introduced in project area
California Black Oak	California Black Oak Forest	Does not occur in project area
White Fir	Montane Conifer Forest	Does not occur in project area

Direct/Indirect Effects

Alternative 1

The No Action Alternative would have no direct impacts on habitat of any of the MIS. No action may create the potential for indirect impacts by leaving the area exposed to a higher risk of severe wildfire. Wildfire is not expected to impede the movement of mule deer or mountain lion and may actually result in minor benefits to both species due to increased diversity of habitat and production of younger and more nutritious browse for the deer following a wildfire within the project area.

A large-scale wildfire would have an adverse effect on both bigcone Douglas-fir and California spotted owl, as the nesting and foraging habitat would be significantly degraded should a high-intensity wildfire burn the bigcone Douglas-fir stands north of Sunset Peak which are currently utilized by the owls.

Alternative 2

Direct and Indirect Effects to Mule Deer

Deer are found throughout the Angeles National Forest (662,983 acres). The total area impacted by the proposed action is 936 acres, or 0.14 percent of the Forest. Areas impacted by project activities will modify or remove suitable habitat for mule deer. However, as vegetation in the area re-sprouts, the project area will provide suitable mule deer habitat in the future (after five years).

The project-level habitat impacts will not alter or contribute to the existing Forest-wide population trends for the mule deer.

Direct and Indirect Effects to Mountain Lion

Mountain lion are found throughout the Angeles National Forest (662,983 acres). The total area impacted by the proposed action is 936 acres, or 0.14 percent of the Forest. Areas impacted by project activities will modify or remove suitable habitat for mule deer, the primary prey species of mountain lion. However, as vegetation in the area re-sprouts, the project area will provide suitable mule deer habitat in the future (after five years), and increase the amount of prey available for mountain lion in the area.

The proposed action will not eliminate corridor linkages for mountain lion within the Angeles National Forest. The project-level habitat impacts will not alter or contribute to the existing Forest-wide population trends for the mountain lion.

Direct and Indirect Impacts on California Spotted Owl

Approximately 42 acres of suitable California spotted owl foraging habitat will be impacted by the proposed action. California spotted owls are associated with mature conifer forests with a dense, multi-layered canopy. They are often in proximity of riparian areas. Bigcone Douglas-fir/canyon live oak, mixed conifer-pine and mixed conifer-fir forests comprise 120,624 acres on the Angeles National Forest. The suitable spotted owl habitat included for treatment in the proposed action constitutes approximately 0.03 percent of this habitat on the Forest.

The proposed action will not eliminate California spotted owl roosting or nesting habitat on the Angeles National Forest. The project-level habitat impacts will not alter or contribute to the existing Forest-wide population trends for the California spotted owl.

Direct and Indirect Effects on Bigcone Douglas-fir

The total area impacted by the proposed action is approximately 193 acres. There are approximately 40,000 acres of bigcone Douglas-fir on the Angeles National Forest. The analysis area constitutes 0.48 percent of this habitat type on the Forest.

The proposed action does not target bigcone Douglas-fir for treatment and will not impact habitat. The project-level habitat impacts are not expected to alter or contribute to the existing forest-wide trends for bigcone Douglas-fir.

Cumulative Effects

Alternative 1

Under this alternative, no cumulative impacts will occur as no action will be taken within the project area. The risk of a large-scale wildfire may increase as a strategic wildfire control feature is lost as fuels continue to increase in loading and continuity on the fuelbreak.

Alternative 2

This alternative would reduce the potential for a large-scale wildfire by maintaining a portion of the existing integrated fuelbreak system on the Angeles National Forest. The potential for limiting large-scale wildfire helps to maintain habitat and forage at a landscape level. Because the area has had extensive wildfire impacts over the last 10 years, preserving unburned and recovering vegetation adjacent to the proposed action area is important to maintaining the viability of the MIS on the Angeles National Forest.

Conclusion/Findings

Alternative 1

Under this alternative, because the risk of a large-scale wildfire remains, the risk to MIS habitat, populations, and individuals within the project area would remain high.

Alternative 2

Under this alternative, while no MIS populations would be measurably affected by implementation of the proposed action, some individuals may be temporarily disturbed or displaced during project implementation. The proposed action may have a minor positive effect on mule deer and mountain lion.

H. Scenery

Background

The Angeles National Forest Land Management Plan (LMP) was revised in 2005 under the 1982 Planning Rule and the Scenery Management System (SMS) was incorporated into the revision.

Scenic Integrity Objectives (SIO) are prescribed in the LMP. The SIO for the Tanbark Fuelbreak project area is designated as “High” with a few minor sections of “Moderate”. Because the Moderate designation constitutes less than 1 percent of the project area, the project area is considered as having a High SIO for the purposes the scenic inventory.

The existing landscape character of the project area consists of a mixed chaparral vegetative pattern on steep slopes with dense low scrub on north slopes and drainages, and more open grassland on south slopes and ridges. Occasional stands of oak are interspersed throughout the landscape.

Non-native, invasive plant species—including Spanish broom, eucalyptus and purple veldt grass—occur along roadsides and other disturbed areas both within and adjacent to the project area.

Existing conditions include anomalies in line color form and texture including roads, communication towers, and the fuelbreak itself. These anomalies are currently evident but do not dominate the landscape. The larger landscape mainly appears natural or slightly altered and is consistent with a Moderate-High Scenic Integrity level.

Mitigations Measures

- Provide ground cover adequate to prevent erosion in disturbed areas, such as slash, wood chips, or masticated material.
- A combination of natural barriers (rocks, logs, etc.) screening and fencing will be used as required to prevent/discourage illegal vehicle activity during and after project treatment.

For scenic integrity to meet the level of High within three years, the following mitigation treatments must be implemented. These mitigation measures will reduce anomalies in landscape character and mitigate the negative scenic integrity effects of the project area.

1. Unit Design and Layout:

- Mimic the natural pattern of the landscape character to be more barren on ridgelines and denser in drainages while meeting fuel reduction objectives. The shape along shrub and tree lines should relate to the topographic forms of the land and flow with the contours.
- Avoid straight lines by undulating edges and feathering along edges of vegetation.

- Blend fuelbreaks and treatment areas with natural landscape features such as natural openings and rock outcrops.
- Randomly sized and randomly distributed islands of vegetation will be retained in the masticated areas. Precaution will be taken to prevent scarring of leave trees by equipment.
- The fuelbreak is to be of varying widths on the ridgeline rather than of equal width on either side of the ridgeline.

2. Foreground (within ½ mile)

- Remove slash within 150 feet from travelways open to public use. Masticated material should not exceed 6 inches in depth.
- Flush cut any stumps within 4 inches of the uphill side of the stump where practicable.
- Leave shrub islands of various shapes and size in a random distribution to provide a natural appearance and reduce visual contrasts.
- Do not locate equipment staging areas perpendicular to the road—to eliminate direct views into staging area from the road when possible.

3. Travelways

- Minimize the vegetative clearing limits above and below the road prism to help screen the road.
- Material to be burned will be piled in irregularly spaced intervals. Do not build piles in straight lines. Create irregularly shaped burn piles to prevent leaving circular burn footprints.

4. Prescribed Burning

- Firelines and slash piles should not be visible from Glendora Ridge Road.
- Firelines will avoid disturbance of adjacent vegetation.
- To reduce the color contrast of the exposed soil, scatter burned slash on control lines following prescribed fire.

Two alternatives are analyzed and potential change in scenic integrity is assessed and impacts to scenery resources analyzed from the key viewpoints. Table 19 identifies the

potential for change in the scenic integrity of the existing landscape character as they relate to these two alternatives.

Table 19 – Potential change in scenic integrity.

Viewpoint	Visibility	SIO	Scenic Integrity Level		
			No Action/ Existing	Proposed Action (1-3 yrs)	Proposed Action (After 3 yrs)
Glendora Country Club	Mg/1	High	Moderate – High	No Change	No Change
Lone Hill Ave.	Mg/1	High	High	No Change	No Change
Glendora Mountain Rd.	Mg/1	High	Moderate – High	Drop to Moderate	No Change
Glendora Ridge Road	Fg/1	High	High	Drop to Moderate	No Change
Glendora Ridge Road	Fg/1	High	Moderate – High	Drop to Moderate	No Change
Glendora Ridge Road	Fg/1	High	Moderate – High	Drop to Moderate	No Change

Visibility: Viewing distance and level of concern: Mg = Middleground, Fg = Foreground
SIO: Scenic Integrity Objectives

Direct/Indirect Effects

Alternative 1
Under the No Action Alternative there would be no direct effect to landscape character associated with the project area. There would be no foreseeable change to the future landscape character. Therefore, no change in future scenic integrity would occur within the project area from current conditions.

If the No Action Alternative is selected and no fuel reduction occurs, potential indirect effects to the landscape character would include the potential loss of vegetation and land scarring associated with a large-scale wildfire.

This alternative could potentially be more damaging to the landscape character of the project area because of the risk associated within the natural ecosystem fire regime. Wildfire can dramatically change the vegetation composition of the forest, resulting in scenery with a negative appearance for two to five years.

Alternative 2
Effects to scenery directly resulting from the Proposed Action Alternative include the visual reduction in vegetation. The linear character of the fuelbreak has the potential to impact scenic integrity by inserting a highly visible, unnatural appearing line into the landscape.

Masticated vegetation, slash piles and stumps would be visible from Glendora Ridge Road because of the low chaparral vegetation, steep slopes, the low visual absorption capability of the soil, and close distance. Additional direct effects include the mosaic of blackened vegetation and earth associated with prescribed burning that would contrast with the undisturbed setting.

These impacts would have an immediate negative effect on scenic integrity by accentuating the evidence of human activity within a largely natural appearing landscape. However, these impacts would be temporary. Within two to three growing seasons, the disturbance would not be dominant and the desired landscape character would closely resemble current conditions.

With the implementation of the mitigation measures, the Proposed Action Alternative would have no negative impact to the landscape character. The mitigation measures will help blend the management activities into the characteristic landscape.

Overall, the Scenic Integrity level may drop to Moderate for a short period of time, but a level of High Scenic Integrity—with small sections of Moderate as established by the LMP—would be achieved in the long term. A High Scenic Integrity level is reestablished within two to three growing seasons.

Cumulative Effects

Alternative 1
The No Action Alternative cumulative effects analysis for the scenery resources of this fuel reduction and vegetation treatment project include analysis of the project areas and the land area encompassing the Front Country, San Gabriel Canyon, and Angeles Uplands East.

If the No Action Alternative is selected, reasonably foreseeable future actions would be the potential for a large-scale wildfire spreading over a larger area within the project location. This could have a negative effect on scenic resources on Angeles National Forest lands at a regional level.

Alternative 2
The projects considered for cumulative effects will have similar impacts as the Proposed Action. However, within two to three years, the vegetation will recover to the desired landscape condition and will have a negligible effect on scenic integrity. Additionally, the cumulative effect of fuel treatments would reduce the risk of another catastrophic wildfire such as the 2002 Williams Fire.

Conclusion/Findings

Alternative 1
If the No Action Alternative is selected there would be no immediate effect to the scenery resources of the project areas. However, there is potential for the loss of scenic integrity levels associated with a large-scale wildfire. If a large-scale wildfire were to occur because of the loss of the Tanbark Fuelbreak as a wildfire control feature, the scenic

effect would be that of a high-intensity, stand-replacing fire. Fire damage to the surrounding improvements could be exceptional and scenic integrity of the landscape could take more than a decade to recover.

Alternative 2

Mitigation measures and design features assure that the outcome of the Proposed Action Alternative complies with the Aesthetic Management Standards contained in the LMP. The activities would modify the existing condition of the vegetation, but would have a natural appearing landscape character in the long term.

Under this alternative, the temporary changes in the landscape character would lower the scenic integrity of the project area down one level. According to the LMP Aesthetic Management Standards, management activities shall be designed to meet the Scenic Integrity Objectives with the following exceptions:

- Minor adjustments, not to exceed a drop of one SIO level, are allowable with the Forest Supervisor's approval.
- Temporary drops of more than one SIO level may be made during and immediately following project implementation, providing they do not exceed three years in duration.

With the implementation of mitigations, the project area is expected to meet the SIO of High with small sections of Moderate within three years, therefore complying with the management direction established in the LMP.

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