

**Notice of Exemption****Appendix E**

**To:** Office of Planning and Research  
P.O. Box 3044, Room 113  
Sacramento, CA 95812-3044

County Clerk

County of: San Diego

**From:** (Public Agency): Resource Conservation  
District of Greater San Diego County (RCDGSDC)

11769 Waterhill Rd, Lakeside, CA 92040

(Address)

Project Title: Palomar Ranger District Observatory Campground Forest Health Project (Project)

Project Applicant: Cleveland National Forest (CNF) - United States Forest Service (USFS), Palomar Ranger District  
(District)

Project Location - Specific: Highway S6, State Park Road #21485, Palomar Mountain, CA 92060

Observatory Campground and immediately adjacent National Forest System lands within the Palomar Ranger District of the Cleveland National Forest, near Canfield Road and Fry Creek.

Project Location - City: \_\_\_\_\_ Project Location - County: San Diego

Description of Nature, Purpose and Beneficiaries of Project:

Name of Public Agency Approving Project: RCDGSDC

Name of Person or Agency Carrying Out Project: CNF - USFS

Exempt Status: **(check one):**

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- Categorical Exemption. State type and section number: \_\_\_\_\_
- Statutory Exemptions. State code number: PRC § 4799.05(d)(1)(A)

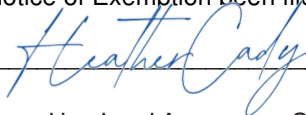
Reasons why project is exempt:

Lead Agency

Contact Person: Heather Cady Area Code/Telephone/Extension: (619) 562-0096 Ext. 108

**If filed by applicant:**

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature:  Date: \_\_\_\_\_ Title: \_\_\_\_\_

Signed by Lead Agency Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.  
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: \_\_\_\_\_



# DECISION NOTICE AND FINDING OF NO SIGNIFICANT IMPACT PALOMAR MOUNTAIN VEGETATION TREATMENT PROGRAM

U.S. FOREST SERVICE  
CLEVELAND NATIONAL FOREST  
PALOMAR RANGER DISTRICT  
SAN DIEGO COUNTY, CA

## INTRODUCTION

The Forest Service prepared an Amended Final Supplemental Environmental Assessment (SEA) to the 2013 EA for *Palomar Mountain Vegetation Treatment Program* and this Decision Notice-Finding of No Significant Impact (DN-FONSI) in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C.A. §4321 to 4370(h)), Council on Environmental Quality implementing regulations (40 C.F.R. Parts 1500 to 1508), and Forest Service supplemental NEPA regulations (36 C.F.R. Part 220). The SEA analyzed changes to an ongoing action, analyzed in the 2013 EA. For more information, see SEA Sections 1.0 and 2.0. Both documents are incorporated by reference into this DN-FONSI.

## DECISION AND RATIONALE

On behalf of the Forest Service, Amy L. Reid, Palomar District Ranger on the Cleveland National Forest (CNF), has selected the *Proposed Action* (modification to an ongoing action) to meet the purpose and need of continued implementation of the program is necessary to reduce the potential for loss of life, property, and habitat from catastrophic wildfires in accordance with CNF's Land Management Plan (LMP), the 2001 Federal Wildland Fire Management Policy, and the 2014 National Cohesive Wildland Fire Management Strategy (SEA, Section 1.2).

The following *mitigation and monitoring* will be conducted as part of the Proposed Action:

- All project design features in Section 2.3 of the SEA;
- All mandatory mitigation and monitoring requirements in Section 4.0 of the SEA; and
- As time and resources permit, discretionary monitoring listed in Section 4.0 of the SEA.

Adaptive management is critical to implementing the Proposed Action and minor adjustments may be required to ensure the purpose and need is met into the future. Future modifications that are within the scope of potential effects discussed in the SEA would be documented in a Forest Service "Supplemental Information Report" and saved in the project record (SEA, Section 4.0).

Reference to Proposed Action hereafter assumes integration of these requirements.

## OTHER ACTION ALTERNATIVES CONSIDERED

Two action alternatives were considered and analyzed – the Ongoing Action (No Action) and Proposed Action. Because the SEA analyzed changes to an ongoing action, potential alternatives were limited to mitigation alternatives (e.g., methods, timing, and/or duration) (SEA, Section 2.0).

## PUBLIC INVOLVEMENT

As explained in Section 1.7 of the SEA, the proposal was listed on the CNF Schedule of Proposed Actions in April of 2019 and updated periodically. The Draft SEA and supporting documents were posted to the project webpage and subject to a 30-day public comment period (November 20 to December 20, 2019), which was initiated following publication of a legal notice in the *San Diego Union-Tribune*. In addition, specific notice (letters and emails) was provided to persons and entities

that commented on the 2013 EA as well as other potentially interested or affected persons. Three comments were received from Native American tribes. The Forest Service considered comments as summarized in the SEA, Sections 1.6 and 1.7. The Final SEA, as amended, was prepared from November to June 2020.

## GOVERNMENT-TO-GOVERNMENT CONSULTATION

The Forest Service engaged in government-to-government coordination and consultation with *Viejas Band of Kumeyaay Indians*, *Campo Band of Mission Indians*, *Pechanga Band of Luiseño Indians*, and *Rincon Band of Luiseño Indians* in accordance with its obligations set forth in Executive Order 13175 (*Consultation and Coordination with Indian Tribal Governments*) and agency policies (U.S. Department of Agriculture, Departmental Regulation 1350-002 (*Tribal Consultation, Coordination, and Collaboration*), and Forest Service Handbook 1509.13 (*Tribal Relations*)).

Implementation of the Proposed Action has the potential to affect tribal resources important to the following Native American tribes – *Viejas Band of Kumeyaay Indians*, *Campo Band of Mission Indians*, *Pechanga Band of Luiseño Indians*, and *Rincon Band of Luiseño Indians*.

As explained in SEA, Section 1.6, the Forest Service revised **NATIVE-1** and added **NATIVE-2** in response to comments received on the Draft SEA. At the time of the Final SEA, consultation with the *Pechanga Band of Luiseño Indians* was ongoing. The Forest Service concluded consultation on April 8, 2020 with no additional measures requested to protect tribal resources. This information has been updated in the Final SEA, as amended.

## FINDING OF NO SIGNIFICANT IMPACT (40 CFR 1508.27<sup>1</sup>)

Based on the potential effects discussed in Section 3.0 of the SEA, it is my determination that implementing the Proposed Action would not have significant *individual or cumulative* effects to the human environment based on context and intensity of anticipated effects.

As to *context*, the Proposed Action would be implemented across several project areas within the CNF and near communities bordering the CNF in eastern San Diego County (SEA, Section 1.3).

As to *intensity*, the Proposed Action may result in *adverse effects* to human health and safety and natural resources (air quality, plants, soil and water resources, wildlife, and inventoried roadless areas) from implementing fuel break and forest health treatments (SEA, Sections 3.0 and 3.7).

Potential *adverse effects* would be dispersed over a large area, not implemented at the same time (as personnel are available), and avoid or minimize effects, to the extent possible, by adhering to project design features **SILVI-1 to SILVI-13**, **FUELS-1 to FUELS-3**, **HERB-1 to HERB-20**, **AIR-1 to AIR-2**, **HSA-1 to HSA-9**, **BIO-1 to BIO-11**, **CM-1 to CM-10**, **ITS-1**, **RPM-1** and **TC-1** (SEA, Section 2.3). Potential *adverse effects* to heritage and tribal resources would be avoided by adhering to project design features **HER-1 to HER-5** and **NATIVE-1 to NATIVE-2** (SEA, Section 2.3). Monitoring and adaptive management would ensure potential effects remain within the scope of the SEA (SEA, Section 4.0). These potential effects are balanced against the *beneficial effects* of reducing the risk of loss of life, property, and habitat from catastrophic wildfires (SEA, Section 1.2). In addition, the Proposed Action's forest health and reforestation treatments seek to improve existing conditions of Jeff Valley, Boucher Hill, and Morgan Hills project areas (SEA, Section 2.2).

Based on my review of the SEA, I make the following specific findings:

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<sup>1</sup> Regulation available at: <https://www.law.cornell.edu/cfr/text/40/1508.27>

- There would not be significant effects to public safety with targeted application of herbicides and incorporation of project design features **HERB-1 to HERB-20**, which would limit exposure to people and the environment (SEA, Section 2.3 and 3.2).
- There would not be significant effects to unique characteristics of the geographic area:
  - Effects to vegetation are intended from treatment methods **SILVI-1 to SILVI-13** and **FUEL-1 to FUEL-3** (purpose and need) but would not affect mature chaparral since the areas for treatment are those previously treated or affected by wildfire.
  - The Proposed Action may affect and is likely to adversely affect the ESA-listed species *Quino Checkerspot Butterfly*, *Laguna Mountains Skipper*, their designated critical habitat, and *San Bernardino Bluegrass* over the short-term, as treatments are applied. The long-term effect is expected to be beneficial, as the fuels work will help to maintain more open habitat conditions for *Quino Checkerspot* and will reduce the encroachment of trees into the meadow habitat that is preferred by *Laguna Mountains Skipper* and *San Bernardino Bluegrass*. To ensure compliance with ESA, project design features **CM-1 to CM-10**, **ITS-1**, **RMP-1** and **TC-1** are incorporated into the Proposed Action.
  - Adverse effects to NHPA-protected historic properties would be avoided by adhering to project design features **HER-1 to HER-5** and continued coordination with the Forest Service archeologist during implementation.
  - Adverse effects to tribal resources would be avoided by adhering to project design feature **NATIVE-1 to NATIVE-2**. *Note: additional requirements may apply pending ongoing consultation with potentially affected Native American tribes.*
  - Potential effects to riparian areas, including wetlands and other waterbodies, and riparian-dependent species would be minimized with soils and water quality project design features **HSA-1 to HSA-9-**, which are intended to curb existing and future erosion and sedimentation into the surrounding environment.
  - The Proposed Action would involve treating an additional 53 and 16 acres in the Cutca and Barker Valley Inventories Roadless Area (IRA), respectively. Treatment in these IRAs are permissible under the Roadless Area Conservation Rule (see 36 CFR § 294.13(b)(1)(ii)).
- Potential effects of the Proposed Action are not highly controversial, highly uncertain, or involving unique or unknown risks. The Proposed Action includes routine activities – *fuel reduction and forest health treatments*. Fuel reduction has been occurring on the CNF for decades with potential effects less than what would occur as a result of a natural wildfire (SEA, Sections 1.2 and 3.1). Use of herbicides is intended to prolong the effectiveness of fuelbreaks, which are intended to protect life and property. The potential risk of using herbicides to human health and the environment would be minimized with project design features **HERB-1 to HERB-20**. Forest health treatments seek to improve the condition of National Forest System lands and species habitat in the long-term, although there may be some short-term adverse effects from initial activities.
- The Proposed Action does not establish any apparent precedent for future actions with significant effects or represent a decision in principle about a future matter. This DN-FONSI is specific to the Proposed Action. Future, similar projects would be subject to environmental analysis and public review prior to any decision.

- The potential effects of the Proposed Action’s fuel reduction component, in combination with other relevant federal and non-federal projects focused on fuel reduction, may result in cumulative effects to various resources including – *air quality; human health and safety; plants; soil and water resources; and wildlife* (SEA, Section 3.0). However, the combined effects are not anticipated to be significant. This is because all the projects in combination would not overlap in space and time, have different potentials for adverse effects, and include mitigation measures to avoid and minimize effects. Overall, these projects seek to make efforts to reduce the potential for future catastrophic wildfires in California and would result in increased beneficial effects to people and the environment by making efforts to reduce the risk of loss of life, property, and habitat from wildfires at a larger scale. For instance, future adverse effects to air quality and contributions to climate change would be reduced from these projects in comparison to the scenario that would play out if the area was left untreated and consumed by a wildfire (SEA, Section 3.1).

Based on the foregoing, potential effects are anticipated to be within acceptable levels and further analysis in an environmental impact statement is not required. Monitoring and adaptive management would ensure effects remain within the scope of the SEA.

## **FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS**

The SEA sufficiently demonstrates NEPA and other legal compliance. No additional findings are required in this DN-FONSI. As explained in Sections 1.1, 1.2, 1.5, 3.0, and 3.7 of the SEA, the Proposed Action was developed to implement relevant CNF Land Management Plan (LMP) management direction (basis for purpose and need) and to ensure the Proposed Action would be implemented in accordance with other applicable and relevant federal laws, namely the: Clean Air Act, Clean Water Act, Endangered Species Act, National Historic Preservation Act, and 2001 Roadless Area Conservation Rule.

## **PRE-DECISIONAL ADMINISTRATIVE REVIEW (OBJECTION PROCESS)**

This decision was subject to objection pursuant to 36 CFR 218. A legal notice of the opportunity to object was published on April 12, 2020 in *The San Diego Union-Tribune*. This initiated the 45-calendar day objection period which ends 45 calendar days from date of publication. All parties who had standing to object, due to submission of comments in the prior comment period, were notified via email of the objection period timeline and issuance of the Draft DN-FONSI (posted on-line for review).

One objection was received from the California Chaparral Institute (CCI). During the objection process, it was discovered that the CCI submitted comments in 2019 that were inadvertently overlooked. The Forest Service agreed to and CCI determined that the best course of action was to address previously raised concerns as part of the objection process. During an objection resolution meeting on June 5, 2020, the Forest Service agreed to provide additional clarifying information on certain aspects of the Proposed Action (e.g., reforestation and forest health treatments) as well as the need for these treatments (SEA, Section 1.7) in an amended SEA.

## **IMPLEMENTATION**

The Proposed Action may be implemented any time after this DN-FONSI is signed subject to the notification and coordination requirements listed below.

Program Duration. The initial program was estimated to take 5 years, but is currently closer to 10 years. *Fuel reduction* will be ongoing work, but initial treatment of all the areas would be complete in the next 5 years. Pre-burning activities will typically occur 6 months to 1 year prior to prescribed fire implementation. Prescribed burning is typically conducted between the months of November to



June, but may be done outside of that time-frame based on weather and fuels conditions. Burning at any one location can vary from a single day to multiple days dependent on weather and conditions. *Forest health treatments* are estimated to take up to 7 years. *Maintenance* of all project areas would be carried out into the future, indefinitely under the program, so long as potential effects remain within the scope of the 2013 EA and 2020 SEA.


Notification. In advance of program activities in specific project areas, the public would be notified via phone calls, emails, social media posts, and/or a combination thereof. Native American tribes would be notified in advance of the use of herbicides (**HERB-20**) to ensure resources that may be gathered for traditional cultural uses are not adversely affected.

Coordination. In advance of program activities in specific project areas, project implementers shall ensure that all project design features and any clarification required, is obtained from Forest Service resource specialists listed in Section 1.8.1 of the SEA.

## CONTACT

For additional information on the Proposed Action, please contact:

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 Ramona, CA 92065  
[robert.hamm@usda.gov](mailto:robert.hamm@usda.gov)  
 (760) 788-0250

  
 \_\_\_\_\_  
 AMY L. REID  
 District Ranger

6/16/2020  
 \_\_\_\_\_  
 Date

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United States  
Department of  
Agriculture

Forest  
Service

April 2020



# Final Supplemental Environmental Assessment

## Palomar Mountain Vegetation Treatment Program

Cleveland National Forest, Palomar Ranger District  
San Diego County, California



(Photo Date: August 14, 2019)

Lead agency: USDA Forest Service  
Responsible official: Amy L. Reid, District Ranger  
Palomar Ranger District  
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Ramona, CA 92065  
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## 1.0 INTRODUCTION

This Final SEA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C.A. §§4321 to 4370(h)), Council on Environmental Quality implementing regulations (40 C.F.R. §§1500 to 1508), Forest Service supplemental regulations (36 C.F.R. Part 220), and other relevant laws, regulations and policies discussed herein.<sup>1</sup>

This SEA evaluates potential effects of modifications and corrections to an ongoing action previously analyzed and authorized in the Environmental Assessment (EA) and Decision Notice-Finding of No Significant Impact (DN-FONSI) for *Palomar Mountain Vegetation Treatment Program* (2013), which is incorporated by reference into this SEA.<sup>2</sup>

The Forest Service primarily prepared this SEA to evaluate the potential effects of herbicide use and ensure compliance with NEPA for modifications to an ongoing action.

### 1.1 Background

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On August 1, 2013, former Palomar District Ranger, Joan Friedlander, signed the DN-FONSI for the program and selected Alternative 2, which authorized fuelbreak maintenance on 1,687 acres of pre-existing fuelbreaks (1970-era) and forest health treatments on 1,377 acres of oak-woodland and mixed-conifer forest on Palomar Mountain. Aguanga Ridge is the main fuelbreak and Highpoint, Cottonwood, Observatory and Butterfield are secondary fuelbreaks.

The information below is a summary of the activities and methods authorized under the 2013 DN-FONSI,<sup>3</sup> and a summary of what actually occurred during implementation. This is provided for transparency as well as to inform the environmental effects analyses in this SEA.

Authorized *fuelbreak maintenance activities* involves vegetation reduction by mechanized and non-mechanized treatment methods. The primary treatments are manual cutting of shrubs with chainsaws followed by controlled burning (prescribed fire) to maintain a light fuel load in the project areas. The goal is to treat 20% of areas annually.

- *Mechanized* treatments – a track mounted masticator and/or tractor to cut and mulch live shrubs and small trees to within 2” of the ground. This is performed to create a mosaic pattern (e.g., irregular perimeter edges and islands of vegetation) for wildlife cover, vegetative recruitment, and aesthetic values.
- *Non-mechanized* treatments – manual labor to cut understory shrubs and small trees using chainsaws; hand-piling of “activity fuels” (e.g., cut vegetation and existing dead and down woody debris); targeted goat grazing (reduce and/or control annual grass and weed species); and the use of prescribed fire (pile burning and broadcast burning). Broadcast burning typically occurs twice. The initial broadcast burn of an area followed by a second within five years to reduce obligate seeding brush species.

Authorized *forest health activities* involve vegetation reduction by mechanized and non-mechanized treatment methods. Forest health treatments are designed to thin and remove dead and overstocked tree stands, reduce hazardous fuels, and enhance native vegetation communities. Treatments are

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<sup>1</sup> Although the Healthy Forest Restoration Act (HFRA) was cited in the 2013 EA, the 2013 EA and this SEA were prepared following the standard NEPA process and therefore the non-HFRA objection process regulations would apply to the Draft DN-FONSI (see Section 1.5 of this SEA).

<sup>2</sup> See U.S. Forest Service, Cleveland National Forest, Projects, Palomar Mountain Vegetation Treatment Program Supplemental EA, at: <https://www.fs.usda.gov/project/?project=55777> (under “supporting” tab).

<sup>3</sup> See 2013 EA (pp. 1-9, 2-2, 2-4, 2-5).

primarily, thinning, trimming, and piling of cut vegetation. *Thinning* would affect live conifer and hardwood trees less than 14 inches diameter at breast height (DBH). Branches of live trees would be pruned up to 6 feet in height or 1/3 of the total tree height, whichever is less. *Understory thinning* would affect existing brush up to 6 feet tall and thinning of dense mixed conifer and hardwood saplings and small poles (up to 30 feet in height). Thinning is followed by *mastication, chipping, and/or pile burning*. Mastication and/or tractor crushing is limited to piled material and/or areas of dense understory. *Understory prescribed burning* is a possible final treatment.

- *Mechanized* treatments involve mastication, using a track mounted excavator or skid-steer, in areas where shrubs are undesirable, and tractor piling of existing dead and down woody debris where fuel loads are heavy.
- *Non-mechanized* treatments are the same as discussed above.

A general sequence for treatments is provided below. This is offered for illustrative purposes and shows typical work conducted under the program.

- Initial Entry. Thinning of individual or groups of trees and shrubs and subsequent piling of activity slash and existing dead and down (surface fuels); limited forest product removal depending on stand density and existing fuel loading.
- Second Entry. Involves prescribed burning of piles to dispose of activity fuels. In some cases where access is limited this may also be the final entry of treatment.
- Third (or Final) Entry. Prescribed fire understory burning to consume remaining surface fuels and reintroduce fire into the ecosystem.
- Maintenance. Prescribe fire on irregular intervals, typically between 7 and 11 years would be used to maintain conifer forested stands. Oak stands may receive prescribed fire maintenance, as early as 3 years after initial treatment to control conifer establishment. In cases of heavy fuel loading or high stand densities, a mechanical entry may occur more than once before the third and final entry is carried out.
- Monitoring. Monitoring would be conducted to determine when maintenance would be necessary to maintain desired conditions for fuels reduction based on vegetation type and geographic location. Maintenance intervals may increase or decrease depending on whether management activities or environmental conditions shorten or prolong treatment effectiveness.

The *timing* of these entries varies. Initial entries – typically occur in summer and fall but may run into early winter when precipitation amounts are low. Increases in soil moisture limit heavy equipment operations and no operations would occur over snow. Second and third entries – typically occur in late fall after the initial rains have fallen and run through late spring. Presently, the Ongoing Action is limited to the maintenance phase for existing fuelbreaks, but initial entries are still needed for forest health treatments that have not been completed (402 of 1,377 acres completed to-date). The Proposed Action would follow the general sequence.

The original decision also authorized use of *existing roads* throughout the project areas, including paved and unpaved roads. No new forest system or temporary roads were authorized for construction. Unpaved roads were anticipated to need some maintenance to implement the project. Maintenance activities may include removing roadside brush, repairing waterbars, grading, cleaning ditches and culverts, and removing small trees or brush and limbs that interfere with traffic and/or sight distance around curves.

The following information is a summary of *treatments completed to date*:

- Approximately 1,259 acres of existing fuelbreak have been treated within the Aguanga Ridge

Fuelbreak and associated secondary fuelbreaks. Fuelbreak maintenance treatments included mastication with tracked machinery, hand cutting of shrubs and small trees, hand-piling of activity fuels, and prescribed fire either by pile or broadcast burning. Goat grazing was employed once on a subset of acres in 2014. To date, no maintenance treatments have occurred on Butterfield or the western portion of Observatory fuelbreaks.

- Forest health treatments have been conducted on approximately 403 acres of oak woodland and mixed-conifer forest, primarily in the Birch Hill and Fry Creek project areas. Forest health treatments included: hand cutting of small diameter trees, typically under 10 inches in DBH; hand-piling and tractor piling of activity fuels and existing dead and down woody debris; and use of prescribed fire (pile or understory burning) to dispose of activity fuels.
- No treatments have been performed at the East Grade project area since its land use zone change to “Recommended Wilderness” in 2014. Additionally, a large portion of Fry Creek project have not been treated due to the presence of a California Spotted Owl Protected Activity Center (PAC) and inability to locate the nests. Lastly, the Palomar Station project area is currently under contract and should have an initial treatment completed later this fall.

The program implementation *schedule* was initially estimated to take 5 years, but is taking closer to 10 years. This is due to funding, personnel availability, and environmental conditions. The Forest Service is currently collaborating with partners for state grant funding to help expedite implementation before wildfires pass through the area. Maintenance, however, would be carried out into the future, indefinitely under the program. Authorized fuelbreak maintenance and forest health treatments would continue into 2020-2021, as currently authorized and limited.

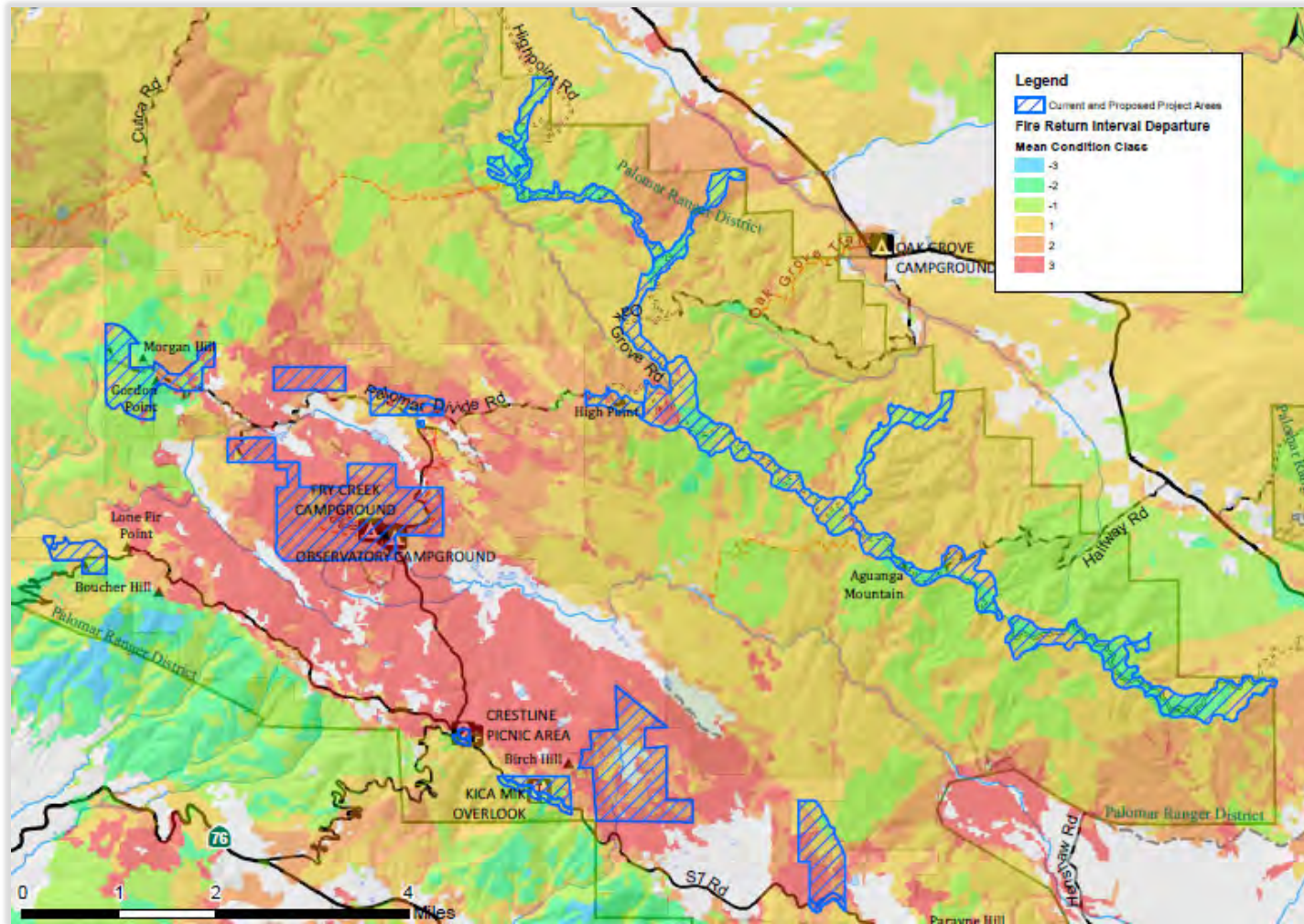
## **1.2 Purpose and Need**

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The overarching *purpose and need* in the 2013 EA (Section 1.3) remains valid for both the Ongoing Action and the proposed additions and changes (“Proposed Action”). Continued implementation of the program is necessary to reduce the potential for loss of life, property, and habitat from catastrophic wildfires in accordance with Cleveland National Forest’s (CNF) Land Management Plan (LMP), the 2001 Federal Wildland Fire Management Policy, and the 2014 National Cohesive Wildland Fire Management Strategy.

As to the Proposed Action, the *purpose* is to continue to conduct vegetation management on the Cleveland National Forest (CNF) at Palomar Mountain in a way that reduces the threat from a future wildfire, increases forest ecosystem diversity, restores forested lands post disturbance, and prolongs treatment effectiveness. These additions and changes are *needed* to effectively manage for forest health and to ensure fuel breaks are effective at protecting communities from wildfire. More specifically: (1) an additional 771 acres of vegetation in 5 new project areas need forest health and hazardous fuels reduction treatments; (2) existing forest health treatment methods unnecessarily limit treatment regarding uneven age management; (3) the 452 acres deforested by the 2007 Poomacha wildfire needs reforestation treatments; (4) the effectiveness of existing fuel breaks could be enhanced by revising the fuelbreak maintenance prescriptions to allow for use of herbicides when appropriate; and (5) the boundaries of the 249-acres East Grade project area need to be reduced due to the current Recommended Wilderness land use designation.

As to *additional vegetation treatments*, the current vegetation conditions in the proposed project areas would support a high intensity wildfire due to buildup of surface and ladder fuels in overly dense mixed conifer stands resulting from a lack of natural fire disturbance and thus are at risk of being impacted as fire return intervals in low to mid elevation chaparral shrub communities have increased in the Southern California region due to warmer, drier weather conditions and an increase in human caused wildfires (Figure 1 and Photos 1 to 2).



**Figure 1 –Fire Return Interval Departure (FRID) for all Project Areas (blue hashed polygons).**

*The FRID quantifies the difference between current and pre-settlement fire regimes. Negative numbers (cooler colors) denote areas that have burned more frequently and positive numbers (warmer colors) denote areas that have burned less frequently. The higher the number, negative or positive; the greater the deviation from pre-settlement fire regimes. Project areas have generally lacked fire disturbance while low elevation shrublands are experiencing increasing fire disturbance.*



**Photo 1 – Example of Existing Mixed-Conifer Stand**

*A mixed-conifer forested stand in the southwest portion of Jeff Valley below the community of Birch Hill. Stand is overly dense and surface fuels continue to build up as individual trees succumb to competition from neighboring trees, eventually die, and fall to the forest floor.*



**Photo 2 – Example of Existing Encroachment**

*With lack of natural fire, shade tolerant conifer species such as incense cedar and white fir thrive in low-light conditions, encroaching under California black oak trees, eventually overtopping, and killing them by reducing available sunlight to the oaks,*

As to the *uneven-age management limitation*, the current forest health treatment methods prohibit cutting live trees greater than 14 inches DBH, which has limited effectiveness of forest health treatments (Photo 3). While initial treatments have been successful in meeting fuels objectives, it has had a lesser effect in reducing stand density; this would require the removal of some individual trees greater than 14 inches in DBH. Additionally, employing a low diameter cap has had the unintended effect of creating even-age sized stands, resulting in decreased levels of forest diversity as measured through species composition and structure, which over time could lessen resilience to forest insects and disease. This type of forest structure does not benefit wildlife species such as the California spotted owl.



**Photo 3 – Effect of 14-inch Diameter Limit**

As to *reforestation*, areas heavily impacted by the 2007 Poomacha Wildfire at Boucher Hill, Morgan Hill and portions of Upper French Valley would be treated through a series of post-wildfire restoration treatments. The proposed suite of activities would be used to restore a small proportion of the overall forested lands impacted by the 2007 Poomacha fire and accelerate their transition back to a mixed-conifer forest type where natural recovery has not been successful (Photos 4 and 5). Inaction leaves the vegetation vulnerable to another high intensity wildfire in the future and potential loss of the mixed-conifer forest type. *Herbicides* may be needed to promote reforestation efforts (e.g., site preparation and release). It is anticipated that herbicides would mainly be needed at Morgan Hill and Birch Hill projects areas with lesser amounts, as needed, in other projects areas.



**Photo 4 – Morgan Hill**



**Photo 5 – Morgan Hill**

*(Left)* Example of current conditions in high severity fire patches on Morgan Hill. *(Right)* Residual mature trees have provided seed and allowed for low quantities of natural regeneration to establish where shrubs have not completely occupied the growing space. Reducing shrub cover would prepare sites for planting of native conifer and hardwoods while accelerating growth of existing natural regeneration and limiting potential for a future high intensity wildfire event.

As to *herbicide use* for fuelbreak maintenance, the Forest Service has successfully used herbicides for suppressing invasive plant populations (USFS 2014) and for hazardous fuels management at Lake Morena (USFS 2015), near the community of Alpine (USFS 2017), and along the South Main Divide (USFS 2018). Post-treatment monitoring confirmed that use of herbicides results in reduced growth of targeted species within treated zones, and prolonging treatment effectiveness (increased time between subsequent maintenance entries). Other herbicides as effective but with lesser potential effects do not exist on the market.

As to the *East Grade project area*, the 2013 EA and DN-FONSI analyzed and authorized forest health treatments, including the use of mechanized equipment.<sup>4</sup> Treatments in this project area began in the 1970s before the area was designated as the Barker Valley Inventoried Roadless Area and when it was subsequently re-designated as Recommended Wilderness by a 2014 LMP amendment.<sup>5</sup> Although not prohibited by the LMP,<sup>6</sup> this SEA does not seek to continue fuel-vegetation treatment in the portion of the East Grade project area that is Recommended Wilderness. Given the potential for catastrophic wildfires, the Forest Service may reassess its position in the future.

### **1.3 Location and Project Areas**

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The Forest Service proposes to make modifications to an ongoing action on Palomar Mountain, located on CNF's Palomar Ranger District in northeastern San Diego County, California. To-date, treatments have occurred on 3,054 acres over 9 project areas with an additional 1,133 acres proposed for treatment in 7 additional project areas on National Forest System (NFS) lands. More information on the project areas is provided in Tables 1 to 2 and Figure 2.

### **1.4 Decisions to Be Made**

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Based upon the information contained in this SEA, the responsible official will determine:

- Whether to implement the Proposed Action or continue the Ongoing Action;
- Whether mitigation and/or monitoring is required; and
- Whether the analysis presented in this EA supports a FONSI or requires further analysis in an Environmental Impact Statement (EIS).

### **1.5 Management Direction**

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The CNF is managed under the 2005 LMP (USFS 2005a), previously analyzed in a Final EIS for the Southern California National Forests (USFS 2005b). The LMP sets forth direction and guidance for forest management decisions and allocation of uses across forest landscapes in the form of overarching vision (e.g., goals and desired conditions), strategies and tactics (methods to achieve the vision), and design criteria (standards, guidelines, and laws). Overall, projects are developed to achieve consistency with the LMP per the National Forest Management Act.

The proposed action analyzed in the 2013 EA (see Section 1.4) responds to the purpose and need, which was developed based on the following goals, using the specified strategies, in addition to the desired conditions for montane mixed conifer, chaparral and Coulter pine vegetation types:<sup>7</sup>

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<sup>4</sup> USFS 2013 (EA, p. 1-8, 2-9, 3.2-3, and 3.2-5).

<sup>5</sup> USFS, 2014. LMP Amendment SEIS and ROD, available at: <https://www.fs.usda.gov/project/?project=35130>.

<sup>6</sup> The LMP requires that Recommended Wilderness be managed as if it were Wilderness; however, community protection vegetation treatments are allowed by exception (see LMP, Part 2, p. 2-3 and 10).

<sup>7</sup> 2013 EA, pp. 1-2 to 1-6.

- Goal 1.1 - Improve the ability of southern California communities to limit loss of life and property and recover from the high intensity wildland fires that are a natural part of this state's ecosystem.
  - Strategy Fire 2 – Direct Community Protection
  - Strategy Fire 3 – Fire Suppression Emphasis
  - Strategy Fire 4 – Firefighter and Public Safety
  - Strategy Fire 5 – Fuelbreaks and Indirect Community Protection
  
- Goal 6.2 - Provide ecological conditions to sustain viable populations of native and desired nonnative species.
  - Strategy FH 2 – Prevention of Fire Induced Type Conversion
  - Strategy FH 3 – Restoration of Forest Health
  - Strategy FH 4 – Insect and Disease Management
  - Strategy WAT 1 – Watershed Function
  - Strategy WL 1 - Threatened, Endangered, Proposed, Candidate, and Sensitive Species Management

Applicable resource-specific standards include some or all of those listed under: *Vegetation Management; Aesthetic Management Standards; Fish and Wildlife Standards; Soil, Water, Riparian, and Heritage Standards; Cultural and Historic Standards; Geographic Place Specific Standards* (Aguanga and Palomar Mountain); and *Other Design Criteria*.

Jeff Valley is a newly acquired property now part of the CNF, which included an extensive existing road system constructed prior to parcel conveyance to the Forest Service. The Forest Service can use these existing roads for limited administrative purposes before determining whether to adopt any of these as National Forest System roads.<sup>8</sup> Under the 2005 LMP, Jeff Valley adopts the adjacent land use zone unless changed through a LMP amendment.<sup>9</sup> Per the 2005 Forest Service geospatial data that informed the LMP, the Jeff Valley project area's land use zone is considered to be Developed Area Interface (DAI). This determination is only temporary. It has been made because picking any of the other adjacent land use zones (Back Country, Back Country Non-Motorized, and Recommended Wilderness) may exclude public use without an opportunity to comment. Treatment in Jeff Valley would move area toward desired conditions set forth in the LMP for Palomar Mountain Place, which has an emphasis to: *[i]mprove defensible space and community protection through the implementation of forest health projects that reduce stand density*.<sup>10</sup> Even in the case of Recommended Wilderness, the opposite land use zone extreme compared to DAI, vegetation treatments are allowed by exception.<sup>11</sup> The future disposition of Jeff Valley roads and its future land use zone would be determined with public input. The Forest Service plans to initiate the NEPA process for recently acquired lands in the next 1 to 2 years.

Forest Service resource specialists have developed project design features to ensure LMP consistency, compliance with other associated laws and regulations, and to avoid the potential for significant effects under NEPA.

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<sup>8</sup> 36 CFR § 212.51.

<sup>9</sup> LMP, Part 2, p. 5.

<sup>10</sup> LMP, Part 2, p. 47

<sup>11</sup> LMP, Part 2, pp. 2 and 10.

Therefore, the Ongoing Action and Proposed Action are consistent with the LMP and no amendment is required at this time.

## 1.6 Government-to-Government Consultation

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The Forest Service provided information to 25 Native American tribes and tribal-affiliated entities potentially affected by the program or located in the vicinity of the project areas in April 2019.

Three tribes submitted information as the Draft SEA was being prepared – *Viejas Band of Kumeyaay Indians*, *Campo Band of Mission Indians*, and *Pechanga Band of Luiseño Indians*. In response, the Forest Service incorporated **NATIVE-1** into the *Ongoing Action* and *Proposed Action*. Comments received by *Campo Band of Mission Indians* were addressed by providing explanatory information into the Draft SEA. The *Pechanga Band of Luiseño Indians* requested consultation on June 14, 2019 under NHPA, Section 106. **Note: consultation is ongoing; a final decision on this project would be subject to resolving concerns expressed by Native American tribes.**

Upon request, the Forest Service conducted a meeting on September 26, 2019 and field trip for the *Rincon Band of Luiseño Indians* on October 23, 2019. Information was provided to the tribe to inform their review of the Draft SEA and to determine potential opportunities for the tribe to help with project surveys.

The Forest Service would continue to coordinate and consult with the potentially affected tribes, as requested, in accordance with E.O. 13175 (*Consultation and Coordination with Indian Tribal Governments*), USDA Departmental Regulation 1350-002 (*Tribal Consultation, Coordination, and Collaboration*), and Forest Service Handbook 1509.13 (*Tribal Relations*). This would ensure tribal concerns are considered in accordance with the NHPA (e.g., traditional cultural properties), American Indian Religious Freedom Act, and E.O. 13007 (*Indian Sacred Sites*).

## 1.7 Public Involvement

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The proposal was listed in the CNF Schedule of Proposed Actions on April 1, 2019 and updated periodically. A new public scoping period was not provided because it is not required under NEPA for ongoing actions. Rather, a Draft SEA was made available for a 30-day public comment period (November 20 to December 20, 2020) following publication of a legal notice in the *San Diego Union-Tribune*. The Draft SEA was posted to the public facing project webpage;<sup>12</sup> potentially interested and affected parties known to the CNF were specifically notified of its availability; and adjacent property owners were provided hard copy mailings. Substantive comments on the Draft SEA were received from two tribes – *Rincon Band of Luiseño Indians* and *Viejas Band of Kumeyaay Indians*. In response, the Forest Service revised **NATIVE-1** and added **NATIVE-2** (see Section 2.3). Continued coordination and consultation would occur with potentially affected tribes.

## 1.8 Agencies and Persons Consulted

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### 1.8.1 Forest Service IDT

Forest Service IDT conducted internal scoping for the proposed action and conducted site visits to facilitate the preparation of the Draft SEA from April to November 2019. The Final SEA was prepared from November 2019 to March 2020. The following individuals were involved in the development of the Draft and Final SEA:<sup>13</sup>

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<sup>12</sup> See U.S. Forest Service, Cleveland National Forest, Projects, Palomar Mountain Vegetation Treatment Program Supplemental EA, at: <https://www.fs.usda.gov/project/?project=55777> (under “analysis” tab).

<sup>13</sup> For ease of reading, references to IDT specialist reports are not included because the relevant information has been integrated into this Final SEA as a standalone document. Copies of reports are in the project record.

- Andrew Weinhart Forester/Vegetation Management Planner
- Stephen Fillmore Fuels Officer
- Tim Gray Implementer, District Fuels Battalion
- Dana Barre Implementer, District Fuels Technician
- Chris Brenzel Implementer, Fire Engine Captain
- Emily Fudge Hydrologist
- Karin Klemic Archaeologist, Heritage & Tribal Program Manager
- Jeff Wells Wildlife Biologist
- Kirsten Winter Wildlife Biologist/Botanist
- Andrea Nick Air Quality Specialist
- Lee Hamm Lands and Recreation Officer
- Linda Serret Forest Planner
- Amy L. Reid District Ranger, Responsible Official

### 1.8.2 Authorizations, Consultations and Permits

The Forest Service IDT determined that the following consultations/authorizations are required to implement the proposed action:

- **ESA, Section 7.** From 2016 to 2020, the Forest Service has consulted with the U.S. Fish and Wildlife Service (USFWS) on the Ongoing Action. From 2019 to 2020, the Forest Service reinitiated consultation for the Proposed Action – modifications to the ongoing action. The Forest re-initiated consultation for the Ongoing Action (Aguanga and High Point fuelbreaks) and the Proposed Action (Jeff Valley) because Quino checkerspot butterfly sightings have been documented on these fuelbreaks and Jeff Valley is occupied by the Laguna Mountains skipper and is potential habitat for San Bernardino bluegrass. The USFWS issued non-jeopardy biological opinions for the Ongoing Action (#FWS-OR/SD/WRIV-13B0077-13F0198; #FWS-SDD-16B0161-16F0277) and the Proposed Action (#FWS-SD-16B0161-16F0277-R002) on June 17, 2016, November 19, 2019 and March 6, 2020, respectively. Incidental take is authorized for Quino checkerspot and Laguna Mountains skipper. To ensure compliance with ESA, project design features **CM-3 to CM-10, ITS-1, RMP-1 and TC-1** are incorporated into the Ongoing Action and/or Proposed Action.
- **NHPA, Section 106.** The Forest archeologist determined that the Ongoing Action and Proposed Action are within the scope of the Regional Programmatic Agreement (PA) and the PA's *Hazardous Fuels Protocol for Non-Intensive Inventory Strategies for Hazardous Fuels and Vegetation Reduction Projects* (USFS et al., 2018). There would be no adverse effects to historic properties with adherence to project design features **HER-1 to HER-5** and **NATIVE-1 to NATIVE-2**. These project design features are incorporated into the Ongoing Action and Proposed Action to avoid adverse effects to historic properties and tribal resources within the scope of NHPA. Because the program would be implemented in accordance with the Regional PA, no consultation with the SHPO is required.
- **Clean Air Act (CAA).** A smoke management plan (SMP) would be submitted to the San Diego Air Pollution Control District (SDAPCD) via the Prescribed Fire Information Reporting System (<https://ssl.arb.ca.gov/pfirs/>) to obtain burn permits on a project area basis. The Forest Service would conduct smoke monitoring to ensure SMP compliance.

## 1.8 Scope of Analysis

The 2013 EA analyzed potential effects to the following resources: *Scenic Resources; Recreation; Fire and Fuels Management; Wildlife; Vegetation; Cultural, Archaeological, and Heritage Resources; Noxious/Invasive Weeds; Air Quality; Migratory Birds; Management Indicator Species; and Soil and Watershed Resources.*<sup>14</sup>

For this SEA, the Forest Service determined that the potential effects from proposed herbicide use and vegetation reduction were the issues holding the most potential for significant effect. Based on this, further analysis was conducted for *Air Quality, Human Health and Safety, Plants, Terrestrial Wildlife, and Soil-Water Resources.*<sup>15</sup> Other resources not included for detailed or additional analyses, beyond the 2013 EA, are briefly discussed in Section 3.7. In contrast to the 2012 EA, *Cultural-Heritage Resources* was not included for detailed analysis to protect the integrity of potential archeological sites and because effects to historic properties would be avoided. *Fire and Fuels* is not included because it provides the evidence for the program's purpose and need.

## 2.0 ALTERNATIVES

For purposes of this SEA, the *No Action* represents continued implementation of the 2013 EA's Alternative 2, which will be referred to as the *Ongoing Action* in this SEA, to avoid confusion. The *Proposed Action* is focused on the modifications to the Ongoing Action. Given the overlap and close proximity of treatments, there may not be a substantial difference in potential effects between the alternatives and both meet the purpose and need. Due to the site-specific issues being evaluated in this SEA, there are no additional action alternatives. Potential alternatives are limited to mitigation (e.g., methods, timing, project design features).<sup>16</sup>

## 2.1 Ongoing Action

The ongoing action is continued vegetation management on 3,054 acres in 9 project areas on Palomar Mountain as explained and shown in Section 2.1, Table 1, and Figure 2.

**Table 1 - Project Areas**

Project Area	Legal Land Description	Acres
<b>Fuelbreak Maintenance Treatment</b>		
Aguanga Ridge (Main Fuelbreak)	T9S, R1E, S11-14, 18, 24-27, 30-31.	1,095
Highpoint	T9S, R1E, S11, PB44, 13.	203
Cottonwood	T9S, R1E, S13, 24-25; T9S, R2E, S18.	190
Observatory	T9S, R1E, S25, 28.	74
Butterfield (Secondary Fuelbreaks)	T9S, R2E, S28-29, 32.	125
<b>Forest Health Treatment</b>		
Birch Hill	T9S, R1E, S14.	77
East Grade	T9S, R2E, S20.	248
Palomar Station	T9S, R1E, S27-28.	108
Fry Creek	T9S, R1E, S29-30, 32-34; T10S, R1E, S4-5.	934

<sup>14</sup> Some topics provide the evidence for the purpose and need rather than being a resource to be affected (e.g., fire/fuels and vegetation).

<sup>15</sup> Some vegetation types require analysis due to their uniqueness and important to the ecosystem (e.g., chaparral).

<sup>16</sup> For example, alternatives to herbicides may include controlled grazing using goats. This option was analyzed in the 2013 EA and carried forward as a potential options in this SEA under the Ongoing Action and Proposed Action.

## 2.2 Proposed Action (Ongoing Action Modified)

The Proposed Action involves 7 main additions and changes to the Ongoing Action, as summarized below. Although the Proposed Action would continue some aspects of the Ongoing Action, the information contained in Section 2.1 is kept separate for purposes of the NEPA analysis. Tables and figures are integrated into the discussion below for ease of comprehension.

- (1) **Conduct additional vegetation management over 1,133 acres in 7 new project areas (Table 2 and Figure 2), as explained in Section 2.1 and Table 2, but with the additions and changes discussed herein, and as shown in Figure 2.**

**Table 2 – Project Areas**

Project Area	Legal Land Description	Acres
Forest Health		
Jeff Valley	T10S, R1E, S12-14.	567
Upper French Valley	T9S, R1E, S28-29	117
Crestline	T10S, R1E, S15.	7
New Fuelbreak Construction & Maintenance		
Kica Mik	T10S, R1E, S14.	33
Junction	T10S, R1E, S15.	7
Post-Wildfire Reforestation		
Boucher Hill	T10S, R1W, S1-2.	92
Morgan Hill	T9S, R1E, S19-20, 28-30.	310

- (2) **Reduce the East Grade project area to 18 acres as shown in Figure 2.**
- The portion of the project area that may be treated is located along the roadside, outside the Recommended Wilderness.
- (3) **Modify forest health treatments (remove limitations, add flexibility, and restore meadows) as summarized below.**
- Remove the limitation against cutting trees larger than 14 inches DBH;<sup>17</sup>
  - Allow for use of uneven-age forest management practices (e.g., individual tree and group selections);
  - Allow for inter-planting of native conifer and hardwood trees when natural recruitment does not occur. To ensure seedling success, post-wildfire reforestation treatments would be implemented.
  - Mechanized equipment options would be expanded to include metal-tracked and rubber-tired logging equipment such as feller bunchers, skidders, skid steers, and whole tree chippers.
  - Meadows within the project areas would be enhanced by removing all encroaching conifer trees. These trees would be removed by manual (chainsaws to cut or girdle) means, and/or by use of prescribed fire.

*These are in addition to the project design features listed in Section 2.4.*

- (4) **Modify fuelbreak treatment to prolong effectiveness (add herbicide use and discontinue the use of goat grazing).**

<sup>17</sup> This does not mean all trees greater than 14 inches DBH would be cut, but that if needed, trees this size and greater can be cut to improve forest health.

- Herbicides, containing Imazapyr, Triclopyr and Fluazifop-p-butyl parent ingredients, would be applied manually using a backpack sprayer and foliar hand wand. Imazapyr or Triclopyr would be used to target undesirable shrub species within the foot print of the fuelbreak. Triclopyr would solely be used when in close proximity to known sensitive plant species. Fluazifop-p-butyl would be used to aid with forest restoration. Project design features **HERB-1 to HERB-20** would be followed during implementation.
- Goat grazing as a fuelbreak maintenance activity would be discontinued under this SEA. This is due to cost of treatment (compared to alternative treatments such as herbicide) and the logistics of grazing goats in a large fuelbreak setting while having to minimize impacts to natural and cultural resources.

**(5) Reforest the Boucher Hill and Morgan Hill project areas by implementing the plan explained in Table 3 (includes use of herbicide).**

**Table 3 – Reforestation Plan**

<b>Activities</b>	<b>Site Prep. (Before Planting)</b>	<b>Reforestation (During Planting)</b>	<b>Release (After Planting – up to 7 years)</b>
<b>Removal of competing vegetation by manual or mechanical means</b> <i>Competing vegetation may be cut by hand, mechanized equipment, masticated, and/or pulled out with excavator.</i>	Yes	Yes	Yes
<b>Removal of existing dead and down woody debris</b>	Yes	No	Yes
<b>Targeted use of herbicide to manage competing vegetation</b> <i>Triclopyr used for woody shrubs and Fluazifop-p-butyl for grasses, forbs, and herbaceous cover; both would be applied manually.</i>	Yes	No	Yes
<b>Use of prescribed fire to dispose of competing vegetation</b>	Yes	No	Yes
<b>Removal of fire weakened dead trees deemed hazardous</b> <i>Dead trees, regardless of size, may be cut when determined hazardous to forest service personnel and contractors performing treatments.</i>	Yes	Yes	Yes
<b>Creation of planting site through removal of grasses and forbs down to mineral soil on a 24-inch square and creating a hole 4 inches in diameter by 18 inches in depth per tree</b> <i>Tree per acre may vary by site specific conditions but range from 150 to 300 individuals per acre.</i>	No	Yes	No
<b>Planting of native trees</b>	No	Yes	No

**(6) Adopt some existing road segments into the Forest Transportation System and conduct road maintenance in Fry Creek Project Area as explained in Table 4 and Figure 3.**

Maintenance activities may include vegetative brushing, hazard tree abatement, surface blading, installation and maintenance of drainage features, and gate installation. Activities may occur annually dependent on use and environmental conditions. Obliteration activities may include removing drainage features, ripping/tilling of the roadbed, re-contouring road surface, and applying vegetative cover or native seed.

**Table 4 – Fry Creek Project Area’s Existing Roads**

Road #	Length (miles)	Proposed Status	Proposed Use	Proposed Activities
9S10B	0.18	Level II - System Road	Administrative	Maintenance
9S10C	0.21	Level II - System Road	Administrative	Maintenance
9S14	0.15	Level II - System Road	Administrative	Maintenance
9S14A	0.86	Level II - System Road	Administrative	Maintenance
9S14B	0.16	Non-System Road	None	Obliteration
9S14C	0.3	Level II - System Road	Administrative	Maintenance
9S14D	0.62	Level II - System Road	Administrative	Maintenance
UND – 1	0.27	Non-System Road	None	Obliteration

**(7) Administrative use existing roads in the Jeff Valley Project Area.**

There are 9 existing roads in the Jeff Valley project area (Table 5). Seven of these roads (#JV1 – JV5; #JV7, #JV8) would be used on a limited administrative basis (36 CFR §212.51) to complete the initial phase of vegetation treatments (see Figure 4). Road #JV6 and #JV9 would not be used.

The initial phase of vegetation treatments would include mechanical and prescribed fire treatments and conclude with an initial entry understory prescribed fire. Some maintenance of existing roads may be needed to avoid any increased effects above existing conditions. A temporary road (less than ½ mile) could be required, if use of existing roads near and/or through meadows (Road #JV9) is not allowed due to water quality or hydrology concerns.

After the initial phase of treatments is completed, administrative road use would be limited to Road # JV1 until final disposition of roads and the area is determined in a future NEPA document. Barriers, such as natural logs or rocks, would be erected after the first understory prescribed fire to prevent unauthorized use of this road pending the future NEPA document.

**Table 5 – Jeff Valley Project Area’s Existing Roads**

Road ID #	Length (miles)	Proposed Status	Proposed Use	Proposed Activities
JV1	0.25	Temporary	Administrative	Maintenance
JV2	0.72	Temporary	Administrative	Maintenance
JV3	0.53	Temporary	Administrative	Maintenance
JV4	0.06	Temporary	Administrative	Maintenance
JV5	0.03	Temporary	Administrative	Maintenance
JV6	0.03	Non-use	Administrative	Non-use/None
JV7	0.05	Temporary	Administrative	Maintenance
JV8	0.26	Temporary	Administrative	Maintenance
JV9	0.25	Non-use	Administrative	Non-use/None

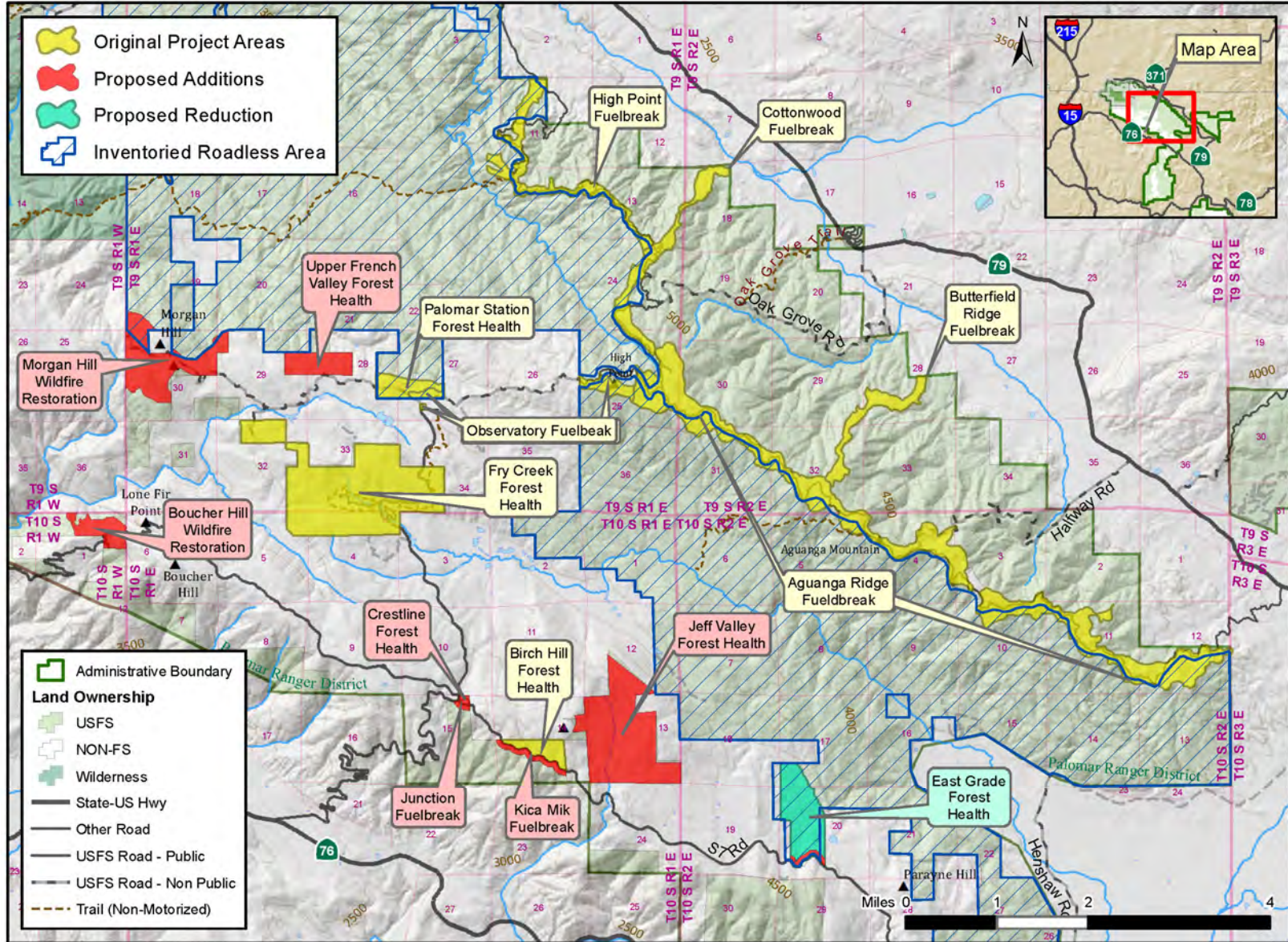
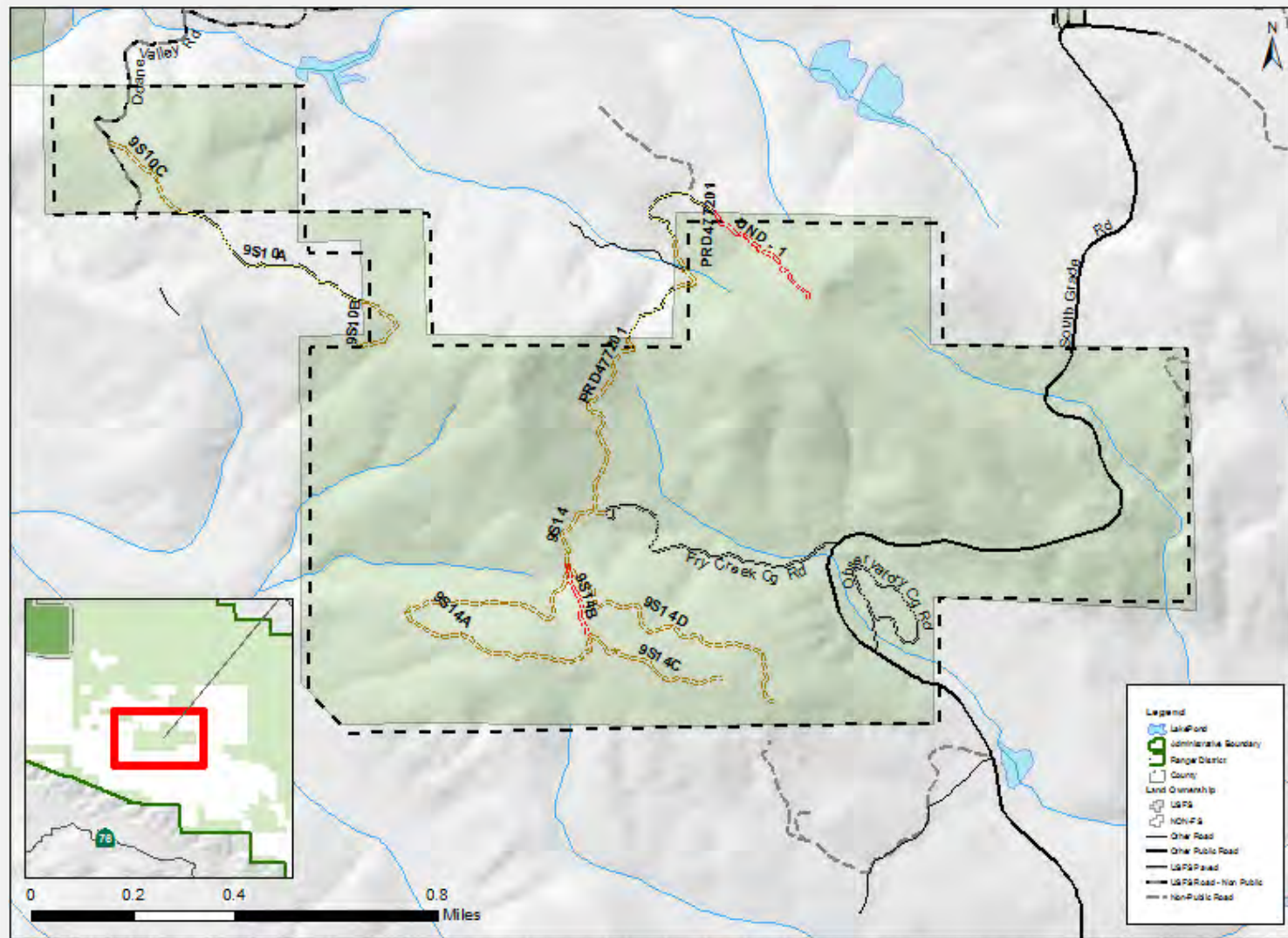
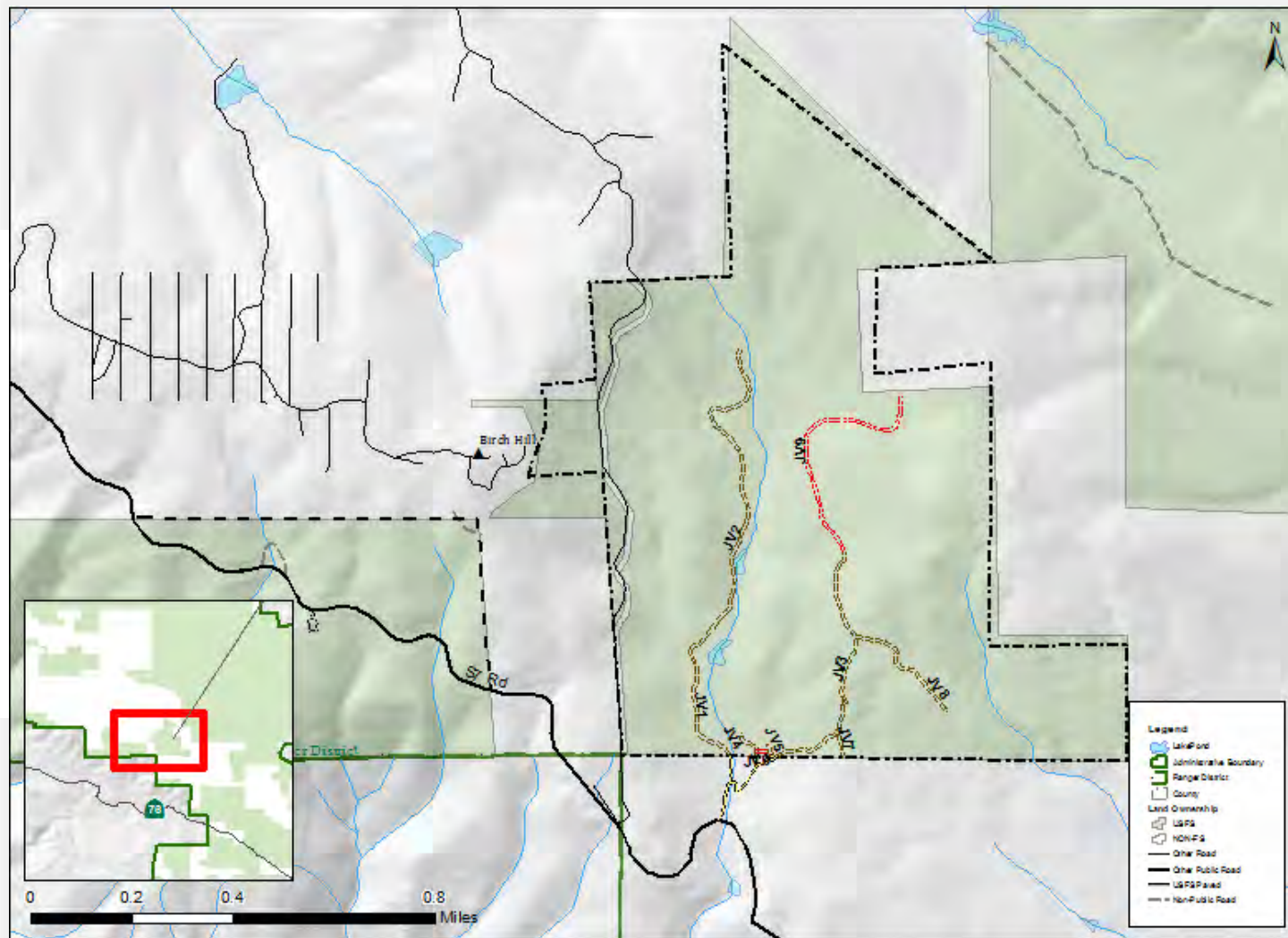


Figure 2 – Ongoing Action vs. Proposed Action



Note: brown = proposed addition, would be Level 2 roads; red = road proposed to be abandoned and obliterated; Roads 9S10A and PRD477201 are entirely or partly off the CNF and not be analyzed in this SEA.

**Figure 3 – Fry Creek “Undetermined” Existing Roads**



Note: brown = road proposed for administrative use; red = sections of road proposed for non-use.

**Figure 4 – Jeff Valley “Undetermined” Existing Roads**

## 2.3 Project Design Features

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The project design features listed below have been carried forward from the 2013 EA, updated to ensure compliance with current requirements, and incorporated into both the Ongoing and Proposed Action except for **HERB-1 to HERB-20**, which is specific to the Proposed Action. **SILVI-1 to SILVI-13** represent the general requirements for the program, even though not listed in the 2013 EA, and incorporate water quality limitations and requirements. Original project design feature **RM-1** (*Implementation of Forest Standard S56 (Livestock Grazing Utilization Standards)*) for use of goats is not carried forward in this SEA because it is not relevant to fuel reduction activities and the use of goats has been discontinued as a maintenance practice.

### Forestry

- SILVI-1** Maximum size of openings created through group selections would range from ¼ acre to 3 acres in size.
- SILVI-2** Design treatments to retain existing fire resilient tree species, e.g. Coulter and Jeffrey pine or dominant historical species underrepresented in current stand, e.g. big cone Douglas-fir, California black oak, and canyon live oak; and create favorable conditions for natural recruitment of these species in the future.
- SILVI-3** Where California spotted owl habitat coincides with proposed treatment areas, **BIO-7** would guide silvicultural prescriptions and stand treatments. Deviations from the strategy may occur through formal written approval by the Forest Supervisor. Additionally, future developments and publications guiding silvicultural prescriptions compatibility with California Spotted Owl may be adapted for use (e.g., *Draft California Spotted Owl Conservation Strategy*<sup>18</sup>).
- SILVI-4** Within forested ecosystems, and to the extent practicable, forest thinning and the associated piling of green slash would not occur from February to June to limit brood material and possible increases to populations of California five-spined bark beetle, *Ips paraconfusus*.
- SILVI-5** Maximum allowable stump height of 8 inches as measured from the uphill side of the stump or 1/3<sup>rd</sup> the diameter at breast height (DBH) for trees greater than 24 inches in DBH.
- SILVI-6** Treat all freshly cut live or recently dead conifer stumps with a registered fungicide (e.g. Sporax™ or Cellu-treat™) to prevent the establishment of annosus root disease. All applicators would be properly trained and wearing PPE required by label instructions. Application amounts, locations, and dates would be reported to the Forest Pesticide Use Coordinator at the end of each month. Fungicide would not be applied closer than 15 feet from surface water.
- SILVI-7** Ground-based mechanized equipment would operate on slopes up to 35 percent, and on short steep pitches up to 50 percent (LMP Standard 2). Ground-based mechanized equipment may operate on steep slopes when supported by site and operation specific analysis. As a default, no mechanical equipment would be used within the inner zone of the RCA. Equipment may reach in from the outer zone of the RCA. To the extent practical, mechanical equipment treatments would be implemented on the contour of sloping ground to avoid or minimize water concentration and subsequent accelerated erosion.
- SILVI-8** Landings would be between ½ to 1 acre in size and located outside RCAs to the extent practicable. The exception to this is areas that have been previously disturbed and that have been approved by a watershed specialist. Potential landing locations are displayed on the proposed action map. Landings would be rehabilitated at project completion. Landings would

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<sup>18</sup> [https://www.fws.gov/sacramento/es\\_species/Accounts/Birds/ca\\_spotted\\_owl/](https://www.fws.gov/sacramento/es_species/Accounts/Birds/ca_spotted_owl/)

be evaluated for compaction and runoff potential at project completion by a watershed specialist. Rehabilitation of landings would include groundcover requirements of 50% and may require ripping or chunking. (BMP Veg-6).

- SILVI-9** Main skid trails/access routes would not be located within RCAs but may cross perpendicularly through RCAs and channels. Number of crossings would be kept to a minimum. Crossings, if necessary, would be at designated locations found to be the most stable and strategic to limit impacts to water and soil resources. Main skid trails/access routes would be evaluated for compaction and runoff potential after project completion. If necessary, main skid trails/access routes would be recontoured, ripped, and waterbarred to disperse concentrated runoff. At a minimum, main skid trails/access routes would be disguised and blocked to discourage OHV use and have a minimum groundcover requirement of 50%.
- SILVI-10** No mechanical treatment within the boundary of the Jeff Valley meadow; however, mechanical equipment would be used within the entire RCA except within 8 meters of a channel (in or near the edge of the meadow). Within the inner zone of the RCA, low-pressure tracked, mechanical ground equipment may be utilized. All riparian hardwoods would be retained. Number of equipment passes would be minimized to prevent detrimental compaction. Sharp turning of equipment would be avoided. Main skid trails within the inner zone would be avoided. Skid trails within the RCA may be identified by the contractor but would be reviewed by a watershed specialist prior to use, if needed. Approved routes and skid trails would be flagged for use.
- SILVI-11** A temporary road may be necessary to treat units in Jeff Valley to avoid use of the “JV-9” segment of existing road on the eastern edge of the meadow (figure 4). JV-9 would not be used due to possible adverse impacts to the meadow. Once temporary road locations are identified, they would be reviewed by a watershed specialist before approval by a line officer. Temporary roads would be constructed in a way to prevent erosion and to control stormwater. Temporary roads would be blocked and decommissioned within one year of construction. Number of crossings would be kept to a minimum. Crossings, if necessary, would be at designated locations found to be the most stable and strategic to limit impacts to water and soil resources. Temporary road mileage would not exceed ½ mile.
- SILVI-12** In reforestation units, use site-preparation equipment that produces irregular surfaces but still maintains soil horizons.
- SILVI-13** To avoid excess compaction and soil displacement from mechanical equipment, use of mechanical equipment is limited to lower moisture levels when risk of compaction, rutting, and erosion is reduced. Operations would be shut down when soil conditions are too wet. No over the snow operations with mechanical equipment would be conducted with this project.

## **Fuel Reduction**

### **FUELS-1** Hand and Mechanical Piling:

- a) For units to be mechanically piled, unit boundaries, sensitive locations, and exclusion areas of units would be identified on maps and flagged or similarly identified in the field.
- b) Piles would be constructed by hand, by tracked, or rubber-tired machinery, or a combination there in; dependent on individual site conditions, i.e. slope, soil type, soil moisture, density of cut material, and geographical position on the landscape. Mechanical piling would employ low ground pressure equipment (< 13 p.s.i). Equipment with lesser p.s.i may be needed for work in meadows. On a case-by-case basis, ground pressure limitations may be waived when approved by a Forest Service Watershed Specialist. Leave topsoil in place and avoid moving soil into piles (BMP Veg-8).

- c) No minimum or maximum pile size is recommended, rather pile size shall be limited to environmental conditions created after tree and shrub cutting activities are completed; i.e. presence, distribution, and size of residual tree canopy openings, gaps created, or existing natural gaps and density of activity generated fuels to dispose of, as well as, allowing for safe and efficient burning operations that minimizes scorch to residual trees and shrubs.
- d) When possible, limit construction of piles to less than 15 percent of the total area treated. Piles may be constructed on up to 30 percent of the treatment area, on a case-by-case basis, when approved by a Forest Service Watershed Specialist.
- e) All piles, whether constructed by hand or machine, shall be located at least 25 feet away from the outer edge of all stream channels, regardless of classification; i.e. perennial, intermittent, ephemeral, swales, or other geographic land features that may channel water into a higher order channel. Tractor piling would not be allowed within the inner half of RCAs or within 25 feet from ephemeral channels.
- f) Construct piles with a mix of small, medium, and large diameter wood to limit effects of soil heating during pile burning operations, ideally piles would contain less than forty percent of large diameter material, i.e. material greater than 10 inches in diameter.
- g) See **SILVI-1 to SILVI-13** for requirements related to: soil conditions during mechanical equipment operations; management of main skid trails/access routes for mechanical equipment; and mechanical equipment operations on steep slopes.

**FUELS-2** Direct prescribed burn ignition would not occur in riparian conservation areas. Fires would be allowed to back into these RCAs in order to minimize risk of excessive loss of ground cover.

To prevent excessive soil heating and detrimental effects to soil productivity, adequate soil moisture should be present during burning activities. Monitoring of burns across the CNF have indicated that soil productivity has not been significantly impacted by prescribed burning. Monitoring would continue and should significant impacts arise, corrective action would be taken through adaptive management.

**FUELS-3** Constructed fire lines would be rehabilitated following implementation. Rehabilitation includes activities such as constructing waterbars, pulling back and spreading out berms, and brushing/spreading slash. Water bar spacing is described in Table 6. In addition, handlines located within 50 feet of stream channels would have a minimum of 60% groundcover. Groundcover (slash, woody debris, rocks) would be used to prevent erosion and disguise the fire lines from use as trails and OHV routes.

## Herbicides

- HERB-1** Herbicide would be mixed with a methylated seed oil surfactant and a marking dye. Herbicide would be mixed to label specifications for low volume foliar application using backpack sprayers.
- HERB-2** Herbicides would be applied using hand sprayers, backpack sprayers only. No aerial application of herbicides would occur. All herbicide application would be conducted and/or supervised by a licensed applicator registered with the State of California.
- HERB-3** Herbicide applications on perennial species would occur in the late summer/early fall when plants are translocating nutrients from the leaves to the root systems. This increases the likelihood of initial success and would result in reduced need for follow up treatment. This season also avoids critical breeding seasons for many wildlife species and flowering seasons for many native plant species. *Note: additional coordination between the Forest Service wildlife biologist and Forest Service pest manager is required to ensure compliance with the Endangered Species Act (ESA).*

- HERB-4** The Herbicide Transportation, Handling, and Emergency Spill response Plan and spill kit would be on-site when herbicide treatment occurs. The Plan would include reporting procedures, project safety planning, methods of clean-up of accidental spills, and information including a spill kit contents and location as noted in Forest Service Manual (FSM) 2150, Pesticide-Use Management and Coordination Handbook.
- HERB-5** Equipment used for transportation, storage, or application of herbicides would be maintained in a leak-proof condition.
- HERB-6** Herbicide containers would be secured and prevented from tipping during transport.
- HERB-7** To reduce the potential for spills, impervious material, such as a bucket or plastic, would be placed beneath mixing areas in such a manner as to contain any spills associated with mixing/refilling.
- HERB-8** Immediate control, containment, and cleanup of fluids and herbicides due to spills or equipment failure (broken hose, punctured tank, etc.) would be implemented. All contaminated materials would be disposed of promptly and properly to prevent contamination of the site. All hazardous spills would be reported immediately to the Forest hazardous spill coordinator.
- HERB-9** Application of herbicides would follow all local, state, and federal laws and regulations as they apply to pesticides and all label language for the herbicide would be followed.
- HERB-10** Herbicide usage would be limited to the minimum amount required to be effective.
- HERB-11** Unless prior approval is obtained from a Forest Service hydrologist or biologist; mixing and loading of herbicide(s) would take place a minimum of 150 feet from any body of water or stream channel. Herbicides would be colored with biodegradable dye to facilitate visual control of application.
- HERB-12** To avoid drift during application, herbicides would not be applied when wind velocities are greater than 5 miles per hour.
- HERB-13** No herbicide application if precipitation is occurring or imminent within 24 hours.
- HERB-14** Herbicide spray equipment would not be washed or rinsed within 150 feet of any body of water or stream channel. All herbicide containers and rinse water would be disposed of in a manner that would not cause contamination of waters.
- HERB-15** There would be no application of herbicides to surface waters or within 10 feet of streams.
- HERB-16** Herbicide treatments would not occur within a 100-foot buffer of sensitive plant species occurrences. Exceptions may be made if the treatment is monitored by a Botanist. Treatments near TEPCS plant species would not occur during the blooming period for that plant.
- HERB-17** No imazapyr treatments would occur within twice the “dripline” (distance from edge of canopy to trunk) of any oak tree.
- HERB-18** Fluazifop-p-butyl would not be used within 100 feet of surface water.
- HERB-19** Herbicide treatments at High Point and Aguanga Fuel breaks would occur after July 1 and before February 28 to help avoid impacts to Quino checkerspot butterfly and its host plants or its habitat. *Note: additional coordination between the Forest Service wildlife biologist and Forest Service pest manager is required to ensure compliance with the ESA.*
- HERB-20** The Forest would, annually, send a notification of the planned herbicide treatment schedule to all local Tribal Points of Contact and any Native Practitioners identified as gathering resources from within project areas that could be treated with herbicides in that year.

## Heritage Resources

To ensure no adverse effect to historic properties, the measures listed below represent the minimum requirements for project implementation. Some measures require follow-up coordination with the Forest

Service Heritage Program Manager (HPM) and further discussion with Tribes. These protection measures would be refined based on the existing conditions/risk to historic properties at the time of implementation. Tribal monitors, if available, may accompany Forest archaeologists/fire personnel, as appropriate. All protection measures (e.g., flagging) would be removed from the landscape no more than 3-months after completion of project activities in the vicinity of the resource. Phased activities that require personnel to return to the same location over the course of multiple years may have protection measures removed in between treatments or protection measures may remain in place, as appropriate. District personnel would provide sufficient notification (minimum 40 calendar days) to Forest Archaeologists to ensure protection measures can be refreshed prior to treatment, as necessary.

**HER-1. Known Sites. (1) At-risk historic properties** identified within the project area would be temporarily flagged for avoidance by a qualified archaeologist to include a buffer zone of approximately 10 meters around the outside of the boundary of each site prior to work in designated areas. **(2) Ground disturbing activities** conducted in the vicinity of areas to be flagged & avoided may also be periodically monitored by a qualified archaeologist during project implementation in order to ensure there are no inadvertent effects to historic properties and to enhance the effectiveness of protection measures. The results of any monitoring inspections shall be documented in cultural resources reports and submitted to the HPM. These reports would be shared with the Tribes listed in **NATIVE-1**.

**HER-2. Fuel Reduction Activities.** Under specific circumstances and in coordination with forest personnel or Tribal monitors (as appropriate) the HPM may authorize certain hazardous fuels treatments within site boundaries as long as appropriate on-site historic protection measures are applied. HPM approval for treatments within Tribal cultural sites may require additional consultation and would be determined on a case by case basis (see also **NATIVE-1**).

These measures may include the following:

- (a)** Fire crews may monitor sites to provide protection as needed.
- (b)** Fire lines or breaks may be constructed off sites to protect at risk historic properties.
- (c)** Vegetation may be removed, and fire lines or breaks may be constructed within sites using hand tools, so long as ground disturbance is minimized and features are avoided, as specified by the HPM.
- (d)** Fire shelter fabric or other protective materials or equipment (e.g., sprinkler systems) may be utilized to protect at risk historic properties.
- (e)** Fire retardant foam and other wetting agents may be utilized to protect at risk historic properties and in the construction and use of fire lines. Fire retardant foam or other wetting agents that may contain colorants should not be used on features or boulder outcrops containing cultural features, especially rock marking, as it may permanently damage the resources.
- (f)** Surface fuels (e.g., stumps or partially buried logs) on at risk historic properties may be covered with dirt, fire shelter fabric, foam or other wetting agents, or other protective materials to prevent fire from burning into subsurface components and to reduce the duration of heating underneath or near heavy fuels.
- (g)** Trees which may effect at risk historic properties should they fall on site features and smolder can be directionally felled away from properties prior to ignition, or prevented from burning by wrapping in fire shelter fabric or treating with fire retardant or wetting agents.
- (h)** Vegetation to be burned shall not be piled within the boundaries of historic properties unless the location (e.g., a previously disturbed area) has been specifically approved by the Forest's HPM.

(i) Mechanically treated (crushed/cut) brush or downed woody material may be removed from historic properties by hand, through the use of off-site equipment, or by rubber-tired equipment approved by the HPM. Ground disturbance shall be minimized to the extent practicable during such removals.

(j) Woody material may be chipped within the boundaries of historic properties so long as the staging of chipping equipment on-site does not affect historic properties.

(k) The Forest's HPM shall approve the use of tracked equipment to remove brush or woody material from within specifically identified areas of site boundaries under prescribed measures designed to prevent or minimize effects. Vegetative or other protective padding may be used in conjunction with the HPM's authorization of certain equipment types within site boundaries.

*Note: implementing this PDF requires advance coordination and approval from the HPM.*

**HER-3. Prescribed Fire.** HPMs or qualified Heritage Program staff shall determine whether fire, prescribed fire, or mechanical equipment treatments within site boundaries shall be monitored, and how such monitoring shall occur. Mechanized equipment shall not be used within Tribal cultural resource sites without additional coordination with the Tribes listed in **NATIVE-1.**

**HER-4. Post-Implementation Requirements.** (1) Survey of treatment areas would be conducted within at least a year of implementation and if visibility conditions have improved. Tribes would also be notified of the opportunity to participate in surveys. (2) "Deferred surveys" would likely be required.

**HER-5. General Requirements.** (1) Should any previously unrecorded cultural resources be encountered during implementation of this project, all work should immediately cease in that area and a Forest Archaeologist be notified immediately. Work may resume after approval by a Forest Archaeologist; provided any recommended Standard Protection Measures are implemented. Should any cultural resources become damaged in unanticipated ways by activities proposed in this project; the steps described in the Regional PA for inadvertent effects (Stipulation 7.10) would be followed. (2) Should the project boundaries or activities be expanded beyond the current area of potential effects (APE), Section 106 compliance for this project would be deemed incomplete until additional cultural resource review is completed. (3) The Forest Archaeologist(s) would be kept informed of the status of various stages of the project, so that subsequent field work can proceed in a timely fashion. Monitoring of the area may occur after the project has been completed. This work would be documented in amendments to this report, as appropriate.

## **Air Quality**

**AIR-1** Various smoke reduction techniques may be employed to reduce emissions of smoke from a prescribed burn. The techniques used for prescribed fire include the following:

a) Burning under conditions that reduce the biomass that is consumed while achieving burn objectives. This can be accomplished by burning at high fuel and duff moisture levels, limiting burning of large stumps and coarse wood, and burning concentrations of fuel.

b) Constructing and preparing hand piles so that they would burn with a minimum of smoke. Techniques include covering piles to keep them dry and construction methods to limit soil incorporation into the piles.

c) Burning during favorable weather conditions when smoke is transported away from sensitive locations. Spring burning has advantages of higher fuel and ground moisture, atmospheric instability, and good transport winds. Fall and winter burning can restrict emissions and smoke to the ground level if burning takes place under the inversion layer.

d) Handpile burning above fall or winter inversion layers can direct smoke away from sensitive locations.

e) Avoidance of impacts. Ignitions would be slowed or stopped when meteorological conditions change to cause intrusions of smoke into sensitive areas. This may also include burning on low visitor use days in the spring and avoiding burning on high use weekends. Spot forecasts of weather in the project area would be used to ensure favorable “within prescription” weather conditions for the burn and for smoke transport.

f) Planning and providing for implementation of contingency actions to be taken if smoke impacts occur or meteorological conditions change or go out of prescription.

**AIR-2** A smoke management plan would be submitted to the local air quality district to obtain applicable permits. Daily smoke monitoring would occur and compliance to permissive burn days would be followed.

## Hydrology, Soils, and Aquatic Habitats

To limit effects to soil, water quality, and aquatic habitats, the following requirements were derived from National Core BMPs (USFS 2012) and R5 Soil and Water Conservation Handbook (R5 FSH 2509.22) (USFS 2011a):

**HSA-1** Large Organic Matter: Protect existing Coarse Woody Debris by having ground-based equipment avoid larger diameter logs as much as practical. In areas identified as forest health treatments, six down logs per acre would be retained (LMP Standard 14). Fuel break units are exempt from retaining down logs.

**HSA-2** Ground cover:

- Forest Restoration Treatments: At least 50% cover would be retained as fine organic matter (less than 3-inch material) across all treatment areas (unless indicated differently by other site-specific design features). RCAs within East Grade and Fry Creek forest health treatment units require 60% ground cover due to high soil erodibility.
- Fuelbreak Treatments: Fuel break treatments have a goal of less than 40% crown cover (LMP). Soil cover should be maintained to support soil stability and to reduce the spread and abundance of nonnative plant species while still achieving fuel reduction goals. Adaptive management would be used where excessive erosion is observed.

**HSA-3** Riparian Conservation Area (RCA) Delineation and Management. RCAs would be established to protect aquatic habitats in the project area. Appendix E of the LMP (Part 3) describes the buffer widths for RCAs of most hydrologic features. In addition to the buffers listed in Table 7 and Appendix E, buffer widths for ephemeral channels is 25 feet. A watershed specialist may reduce the width of the buffer of an ephemeral channel based on site specific characteristics. Both the unnamed perennial channel in the larger Jeff Valley unit and the meadows in Jeff Valley have a riparian conservation buffer (from the high-water mark or meadow edge) of 100 m. If additional seasonally flowing channels (or springs or other aquatic habitats) are identified during project layout, they would be protected with RCAs of 30m from the feature. RCAs would be clearly delineated. Contracts, design plans, and other necessary project documentation would specify buffer layout, maintenance, and operating requirements (BMP Veg-3). Inner zone distances are the inner half of the applicable RCA width (example of inner zone of perennial channel: zone located 50 meters from channel edge). The outer zone is the outer half of the applicable RCA width.

- HSA-4** Within RCAs of Forest Restoration or Forest Health treatment areas, retain snags and downed logs unless they are identified as a threat to life, property, or sustainability of the RCA. Vegetation reduction within the riparian conservation areas would be limited primarily to ground and ladder fuels. Leave all riparian hardwood trees and shrubs intact and undisturbed. Retain all downed logs located in stream channels and vegetation contributing to channel stability, unless they are identified as a safety hazard to personnel during project implementation. Vegetation considered contributing to stream channel habitat and that should be retained are defined as vegetation providing canopy to the edge of the channel.
- HSA-5.** Staging areas, parking, and equipment refueling areas would be located outside RCAs to the extent practicable. Exceptions can be made by a watershed specialist to allow use of previously disturbed areas. Contractors shall have a spill prevention, containment, and counter measures plan and spill kit if oil or oil product fuel used by contractors exceeds 1,320 gallons in containers of 55 gallons or greater.
- HSA-6.** Existing routes added to the Forest Service road system would have drainage control structures installed to minimize impacts from road drainage. Examples of structures may include drivable waterbars, dips, leadout ditches, over-side drains, armored cutslopes and swales, and outsloping. Crossings would be evaluated for stability and erosion. If found to be at risk of diversion or significant erosion, best management practices (such as installation of dips, armored spillways, etc) would be implemented to address the impacts.
- HSA-7.** Existing routes in Jeff Valley that are planned for use would have drainage control structures installed where necessary. Segments identified in Table 5 and Figure 4 as “Non-Use” would not be used. Examples of drainage control structures may include drivable waterbars, dips, leadout ditches, over-side drains, armored cutslopes and swales, and outsloping based on site specific needs. At the end of the initial phase, a barrier would be placed at the end of Road #JV1 and all other road segments would be blocked from use until a future decision is made.
- HSA-8.** Roads identified for obliteration in the Fry Creek Project Area (Table 4 and Figures 3) would be decommissioned and blocked. At a minimum, decommissioned roads would be disguised and blocked to discourage OHV use and have a minimum groundcover requirement of 50%. Groundcover may include utilizing slash, woody debris, rocks, etc. Decommissioned road segments within the RCA would have 60% groundcover. Decommissioning activities may include ripping, chunking, recontouring, pulling in of a berm, or adding waterbars. Any stream crossings would be reshaped and road drainage down approaches would be disconnected from the channel with waterbars or other method.
- HSA-9** Activities would be monitored for adverse effects to soil (compaction, permanent reduction in organic ground cover, rill and gully formation), and operations would be adjusted to minimize or mitigate detrimental soil effects. Use suitable mitigation or restoration on areas in RCA that show signs of unacceptable erosion. (BMPs Veg-2 and Veg-3).

**Table 6 - Water Bar Installation: Recommended Minimum Interval Guidelines**

Fireline Gradient (% slope)	Distance Between Water-Bars	
	(feet)	(chains)
0 to 5	no water-bars needed	no water-bars needed
6 to 15	200	3
16 to 30	100	1.5
31 to 49	75	1
> 50	50	0.5

**Table 7 – RCA Delineation**

Treatment Area	Protected Feature	RCA Width
Fry Creek	Fry Creek and seasonally flowing and two seasonally flowing streams tributary to Fry Creek	100 m along Fry Creek high water mark and 30 m on either side of high water mark of seasonal streams
East Grade	1 seasonally flowing channel tributary to WF San Luis Rey streams	30 m on either side of high water mark of channel.
Birch Hill	2 seasonally flowing channels tributary to Cedar Creek	30 m on either side of high water mark of channel.
Aguanga Fuelbreak	Seasonally flowing channel tributary to Rattlesnake Creek; seasonally flowing headwaters of Kohler Creek	30 m on either side of high water mark of channel.

## Native American Resources

- NATIVE-1** Notification. In accordance with the R5 PA (Appendix H, Stipulation 7.2) Indian tribes and Native American groups shall be consulted regarding Standard Protection Measures used to protect historic properties of interest to them. The Forest Service would notify both the Viejas Band of Kumeyaay Indians and Rincon Band of Luiseño Indians at least 30 days prior to implementation of vegetation management activities in the proposed project areas, for the life of the program to afford Tribes sufficient time to designate a Native American monitor for ground disturbing activities, if desired. *Note: Current contact information for the designated Tribal Point of Contact (POC) would be maintained by the Forest Service HPM. This information would be provided to the project implementers by the HPM, as appropriate. The Tribes would ensure that any changes to their designated POC are reported to the HPM in a timely manner.*
- NATIVE-2** Should any previously unrecorded cultural resources be encountered during implementation of this project; all work would immediately cease in that area and a Forest Archaeologist would be notified immediately. Work may resume after approval by a Forest Archaeologist; provided any recommended Standard Protection Measures are implemented. Should any cultural resources become damaged in unanticipated ways by activities proposed in this project; the steps described in the Regional PA for inadvertent effects (Stipulation 7.10) would be followed, including notification and coordination with potentially affected Tribes, as appropriate.

## Plants and Wildlife

### Plants (TES)

- BIO-1** Pre-treatment site-specific surveys would be conducted as needed to avoid impacts to TES species. TES plant species populations would be flagged for avoidance. If TES plant species are found, treatment monitoring would be conducted.
- BIO-2** A buffer area of non-treatment of 50 ft. for TES plant species would be delineated. Exceptions may be made by the Forest Service botanist. Treatments near TES plant species would not occur during the blooming period for that plant.

### Weed Prevention

- BIO-3** Priority invasive plant infestation areas identified before or during project implementation, within the treatment units, staging areas, or along travel routes near the treatment units, would be manually or mechanically treated or “flagged and avoided” in order to avoid spreading of invasive species as a result of the project activities.

**BIO-4** In areas identified as containing population of high priority invasive plants, chipped and masticated vegetation would be left on site and utilized to reduce soil erosion and to inhibit or reduce germination and establishment of these plants.

### **Forest Service Sensitive Species**

**BIO-5** Snag and Woody Debris. (1) In areas outside of Wildland/Urban Interface (WUI) Defense Zones and fuelbreaks, retain soft snags and acorn storage trees unless they are a safety hazard, fire threat, or impediment operability. (2) Retain 10 to 15 tons per acre of coarse woody debris across the prescription unit within non-fuelbreak or WUI areas.

**BIO-6** General Wildlife and Habitat Diversity. (1) During fuelbreak treatment and treatments in forest health areas, retain and protect the following species: Ponderosa, Jeffrey, and Coulter pines; California Black Oak; Bigcone Douglas fir. Examples of such protection measures include clearing of fuel concentrations around the base of trees and avoiding direct lighting of prescribed fire adjacent to the base of trees. Retain all large live oak stands. (2) In forest health treatments, emphasize retention of clumps of mature chaparral vegetation where this retention does not compromise fuels management objectives. (3) Avoid and/or minimize vegetation reduction (particularly canopy cover) within and adjacent to all perennial and intermittent streams, springs and seeps. (4) Provide for wildlife cover through retention of existing vegetation clumps up to 10% (groups-gaps) of the project or prescription area. These would be identified during prescription implementation and based upon site characteristics. (5) Implement variable age class thinning for stand treatments with hardwood and conifer habitats. (6) Maintain a 20-foot screening buffer of vegetation around all existing wildlife drinker/guzzler structures. (7) When conducting pile burning and/or prescribed fire: avoid locating piles on or adjacent to large rock outcroppings; avoid locating piles near large downed logs or snags; retain vegetation clumps growing within rock outcroppings; avoid thinning/cutting or burning woodrat nest sites or vegetation clumps, buffer 10 feet from nests.

**BIO-7** California Spotted Owl. The Ongoing Action and Proposed Action would integrate the following requirements for protection and management of CSO and their habitat:

- Within all California spotted owl PACS (see Figure 7) and suitable conifer/hardwood forested habitat follow current design features described in the *2004 Conservation Strategy for the California Spotted Owl on the National Forests of Southern California* (Loe and Beyers 2004), which may include the following:
  - Implement a limited operating period (LOP) for all vegetation management activities within 0.25 miles of active spotted owl nest and/or roosting sites (Feb. 1 – Aug. 15).
  - Maintain maximum canopy cover within existing spotted owl PACS and suitable spotted owl nest and/or roosting habitat (canopy cover  $\geq$  70%).
  - Within existing spotted owl PACS and suitable spotted owl nest and/or roosting habitat retain all large downed logs and large snags ( $\geq$  20 ft/basal area). Implement a 24" dbh limit on live tree harvest. Snag retention should be in order of oak (*Quercus*) followed by conifer species.

*Note: project implementers should coordinate with the Forest Service wildlife biologist to ensure all appropriate requirements are implemented.*

### **Migratory Bird Treay Act (MBTA) & Responsibilities of Federal Agencies to Protect Migratory Birds (E.O. 13186)**

**BIO-8** To the extent possible, minimize vegetation treatments during the primary breeding season, typically March 15 to July 15 of any given year.

## **ESA-Section 7 Requirements**

### **Vegetation Treatments:**

**BIO-9** The Forest would complete additional surveys of the project area prior to start of treatments to improve the mapping of Laguna Mountains Skipper, San Bernardino Bluegrass, and their potential Habitat and would work with USFWS on any additional protection measures that may be needed for newly discovered habitat or populations.

### **Jeff Valley Meadows:**

**BIO-10** Initial treatment with prescribed fire would target the west side of the meadow where the Cleveland Horkelia is overgrown by grasses, with monitoring to see if the Cleveland Horkelia populations increase after treatment.

**BIO-11** Treatments may also include prescribed burning adjacent to the Cleveland Horkelia populations on the east and south sides of the meadow to see if populations expand.

### **General Conservation Measures:**

**CM-1** During vegetation management activities, litter/ground cover would be maintained as much as feasible to reduce the spread and abundance of nonnative plant species. For forest treatments, at least 50 percent cover would be retained as fine organic matter (less than 3-inch material) across all treatment areas (unless indicated differently by other site-specific design features). For fuel break maintenance, soil cover should be maintained to support soil stability and to reduce the spread and abundance of nonnative plant species while still achieving fuel reduction goals.

**CM-2** Mechanical equipment used in fuel break maintenance (e.g., chippers, tractors, masticators) would be thoroughly washed prior to moving on site to avoid the introduction of nonnative plant species.

### **Quino Checkerspot Butterfly:**

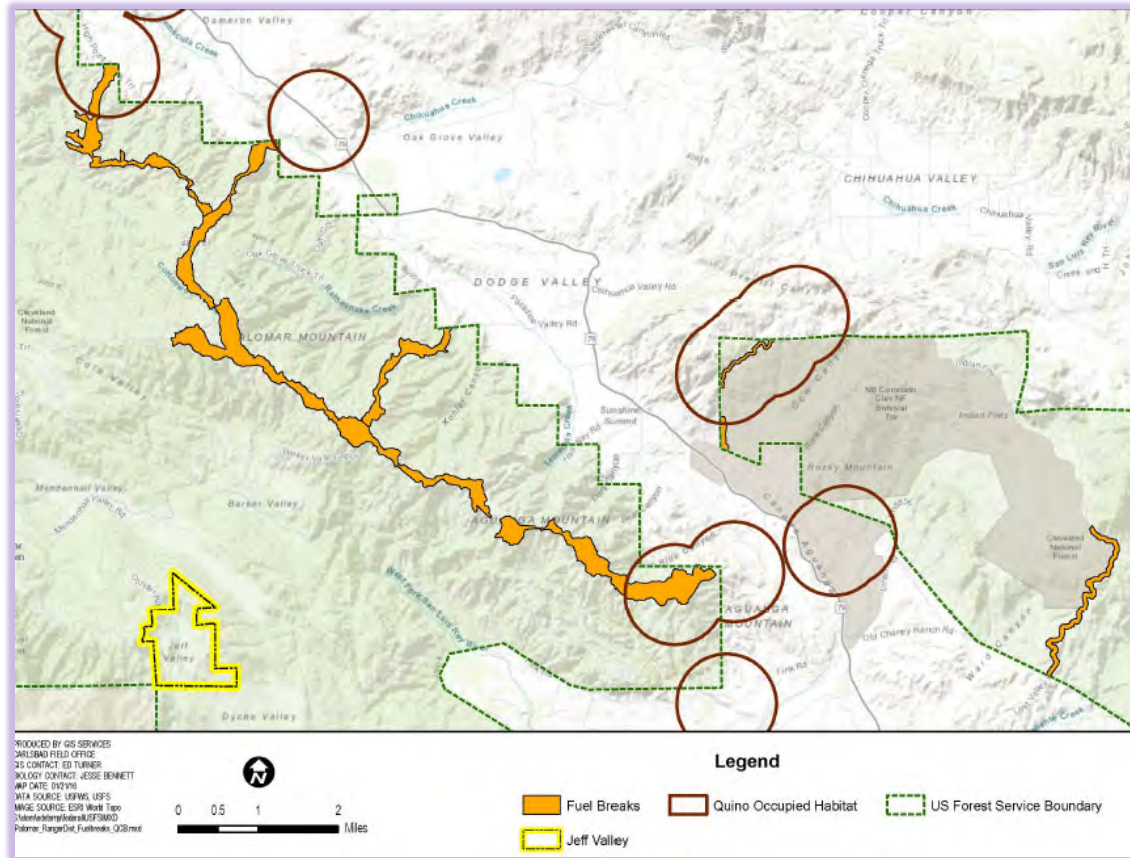
**CM-3** If fuel break maintenance occurs between March 1 and June 30, all work areas below 5,500 feet elevation would be surveyed for Quino host plants including dwarf plantain (*Plantago erecta*), woolly plantain (*Plantago patagonica*), owl's clover (*Castilleja exserta*), and Stiffbranch bird's beak (*Cordylanthus rigidus*). Host plant areas would be flagged and avoided during fuel break establishment and/or maintenance from March 1 to June 30.

**CM-4** No mechanical fuel break maintenance would occur at Quino host plant locations.

**CM-5** All current and historic Quino locations, including a 0.6 mile buffer, would be avoided from March 1 to June 30. No mechanical treatments would occur within these areas. Only manual fuels treatments and broadcast burning would occur within these areas between July 1 and February 28.

**CM-6** Herbicide treatments at High Point and Aguanga fuel breaks would occur after July 1 and before February 28 to help avoid impacts to Quino and its host plants or habitat.

**Note: additional coordination between the Forest Service wildlife biologist generally (see Figure 5 for general locations of Quino and host plants) and with the Forest Service pest manager to ensure ESA compliance re: HERB-3 and HERB-19.**



**Figure 5 – Quino Occupied Habitat**

Laguna Mountains Skipper:

- CM-7** Cleveland’s horkelia (*Horkelia clevelandii*) would be flagged and avoided during prescribed burning and use of equipment, except for plants that grow on roads.
- CM-8** There would be a minimum of a 100-foot buffer between Cleveland’s horkelia (*Horkelia clevelandii*) and areas treated with herbicide. In addition, herbicide use in Jeff Valley would be limited to artificial reforestation treatments outside of the meadows. **Note: additional coordination between the Forest Service wildlife biologist and Forest Service pest manager is required to ensure ESA compliance re: HERB-3 and HERB-19.**
- CM-9** Additional surveys for Laguna Mountains skipper would be completed prior to start of treatments in meadow habitat.
- CM-10** The Cleveland National Forest would work with the Carlsbad Fish and Wildlife Office (CFWO) to develop a monitoring plan to track the effects of treatments on Laguna Mountains skipper habitat at Jeff Valley. This plan would be subject to review and approval by the CFWO and would be in place prior to start of work at Jeff Valley meadows.

Monitoring and Reporting Requirements:

- ITS-1** To monitor the impact of incidental take, the Cleveland National Forest must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].  
Harm due to loss of host and nectar plants and death and injury of Quino larvae within up to 1,290 acres of Quino occupied habitat identified for fuel break maintenance in this biological opinion. In addition, death and injury of Laguna Mountains skipper: (a) larvae and eggs

within up to 67 acres of Laguna Mountains skipper occupied habitat; and (b) adults, eggs, and larvae within 1.9 miles of road in Jeff Valley over the next 5 years. If these impacts are exceeded or occur in a manner inconsistent with this biological opinion, it would prompt reinitiation of formal consultation in accordance with 50 CFR § 402.16.

**RPM-1** The Cleveland National Forest would conduct monitoring for potential impacts to Quino and Laguna Mountains skipper and report impacts to Carlsbad Fish and Wildlife Office.

**TC-1** Within 2 days following project implementation for a given year, the site would be visited to ensure that project activities did not occur outside the project area and host plants were avoided, as appropriate. If project activities occurred outside the project area or host plants were affected by project activities for Quino from March 1-June 30 or Laguna Mountains skipper, it would be reported to the CFWO via email within 1 week.

*Note: (1) All requirements are listed here per the ESA Section consultation documents. There is some redundancy due to the nature of the listings (species and location specific). (2) These measures trump any inconsistent measures listed in this SEA. (3) Project implementers should work with Forest biologist to ensure compliance.*

### **Land Lines**

**LL-1** Prior to initiating fuel treatments adjacent to private lands, property lines would be confirmed using Forest Service geospatial lands/survey data and flagged to avoid inadvertent trespass.

### **Recreation**

**REC-1** As needed, prepare and implement Traffic Safety and Control Plans prior to commencing project operations. The Plan would provide for public safety on Forest Service controlled roads and trails open to public travel.

**REC-2** Developed campgrounds, roads and trails open to the public would be kept open or only closed for short durations. Project activities would minimize conflicts with public use on weekends and holidays.

**REC-3** To the extent practicable, prescribed fire would be conducted during the low use recreation seasons. (This is typically outside the period from Memorial Day thru Labor Day weekend.) Use of heavy equipment and chain saws within a 0.25 mile of developed recreation sites and private land facilities would be restricted Monday through Friday and after 7AM.

**REC-4** Retain residual trees and brush in developed recreation sites where it provides important screening between units. Chipping is the preferred method of activity fuel disposal within developed sites. Prescribed fire would not be permitted within 150 feet developed recreation designated boundaries.

### **Scenery**

**SCEN-1** Where topography and vegetation conditions allow, fuelbreaks would be maintained in a non-linear pattern leaving pockets of retained vegetation and scalloped or feather edges.

**SCEN-2** Treatment of unnaturally appearing soil disturbance: Large berms (> 6 inches in height) created by mechanical treatments within developed recreation sites

**SCEN-3** Road actions: where project activities could increase unauthorized OHV use, barriers and signing would be installed. If possible, untreated vegetation would be left to minimize access.

### 3.0 ENVIRONMENTAL CONSEQUENCES

Potential effects (*indirect, direct, and cumulative*) of the Ongoing Action and the Proposed Action are integrated and consolidated in the analyses below. To the extent Forest Service resource specialists identified potential indirect effects, they will be expressly discussed. Otherwise, all effects may be considered direct effects. The projects considered for potential cumulative effects are listed in Section 3.6. The effects of past actions may be integrated into the Affect Environment sections or called out specifically by Forest Service resource specialists. *Note: cumulative effects are based on project planning documents, not confirmed-actual effects.*

#### 3.1 – Air Quality

##### 3.1.1 Affected Environment (Existing Conditions)

The project areas are located within the San Diego Air Basin, which is in non-attainment for PM10 and PM 2.5. Due to the non-attainment designation the *de minimis* threshold for PM10 is 100 tons/project/year. *De minimis* levels for PM<sub>2</sub> have not been determined. The airshed is also in nonattainment for Ozone. The *de minimis* level for ozone is 50 tons of volatile organic compounds (VOC), or nitrogen oxides (NOX). Some of the project area is also located near the Aqua Tibia Wilderness Class-1 Airshed. For more information, see Section 3.8.2 in 2013 EA.

##### 3.1.2 Ongoing Action

###### Direct and Indirect Effects

No treatments would occur beyond actions previously authorized in the 2013 EA. While air quality would not directly change beyond previous analysis, air quality could be indirectly affected by occurrence of a large wildfire. Treating vegetation reduces the risk of ignition and spread of wildfires thus no action increases risk and indirectly emissions (e.g., water vapor, ozone, CO<sub>2</sub>, nitrous oxide, methane) from potential wildfires (see e.g., Table 8 to 9 below). In addition, research indicates that wildfire emissions are widely underestimated and may have greater air quality effects than previously understood (Lui et al. 2017).

**Table 8 – Illustration of CO<sub>2</sub> Emissions from Forest Fires vs. Prescribed Burns**

Year	CO <sub>2</sub> emitted from Wildfires in the Conterminous 48 States (MMT yr <sup>-1</sup> )	CO <sub>2</sub> emitted from Wildfires in Alaska (MMTyr <sup>-1</sup> )	CO <sub>2</sub> emitted from Prescribed Fires (MMTyr <sup>-1</sup> )	Total CO <sub>2</sub> emitted (MMTyr <sup>-1</sup> )
1990	22.7	19.5	0.2	42.4
2005	43.5	80.1	1.3	124.9
2011	81.3	3.6	6.0	90.9
2012	138.0	2.7	3.0	143.6
2013	68.0	22.3	5.5	95.7
2014	85.3	4.9	6.1	96.3
2015 <sup>b</sup>	85.3	4.9	6.1	96.3

Source: USEPA 2017 at 6-28.

**Table 9 – Illustration of Other Emissions from Forest Fires (MMT CO<sub>2</sub> Eq.)**

Gas	1990	2005	2011	2012	2013	2014	2015 <sup>b</sup>
CH <sub>4</sub>	3.2	9.4	6.8	10.8	7.2	7.3	7.3
N <sub>2</sub> O	2.1	6.2	4.5	7.1	4.7	4.8	4.8
<b>Total</b>	<b>5.3</b>	<b>15.6</b>	<b>11.3</b>	<b>17.9</b>	<b>11.9</b>	<b>12.1</b>	<b>12.1</b>

Note: methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) are 25 and 298 times more harmful to the environment than carbon dioxide (CO<sub>2</sub>), respectively. Source: USEPA 2017 at pp. ES-3 (global warming potentials) and 6-35.

### **Cumulative Effects**

Under the Ongoing Action, no treatments would occur beyond actions previously authorized in the 2013 EA. Areas untreated to prevent or hinder growth of wildfires may lead to increased acreage burned and emissions within the airshed. In addition, unlike planned vegetation treatments implemented during days with good dispersion, wildfires may occur during periods of poor air quality conditions.

#### **3.1.3 Proposed Action**

For the Proposed Action, an additional 771 acres would be treated using broadcast burning methods and an additional 452 acres of brush to be treated through pile burning. Herbicide would be used intermittently to limit vegetation regrowth in addition to mechanical thinning.

Several assumptions were used in this analysis:

- The current pace of treatment is expected to remain. Annual pace of treatment has been about 370 acres a year.
- Emissions are reported for full combustion of vegetation within the planning area. Implementation would be less than 100% combustion, resulting in lower emissions than what is reported in this analysis.
- Full Implementation would occur over at least 4 years. Any additional years to conduct implementation would result in further reduced annual emissions.

### **Direct and Indirect Effects**

The prescribed burning would have a potential short-term effect on air quality through the burning of biomass and utilization of machinery. However, preventing wildfire growth through fire treatments have positive effects on air quality. Thinning can reduce these emissions by removing the woody biomass from the forest and prevent crown fires (Hurteau and North 2009). Wildfires have higher rates of biomass consumption than prescribed fire and a greater potential to expose populations to smoke (Navarro et al. 2018). In addition, wildfire emissions have been underestimated, and impacts are greater than previously indicated (Lui et al. 2017).

While prescribed fire would result in short-term carbon emissions, models indicate that the temporary loss is recovered within 8 years (faster for ground-level fuels) and has an additional benefit of reducing the risk of crown fires which release more carbon emissions than (Vaillant et al. 2013). Research indicates that forested ecosystems sequester carbon at higher rates following wildfires if the stand was thinned prior to the presence of wildfire (Hurteau et al 2008).

The model<sup>19</sup> indicates that the Proposed Action would result in minor amounts of criteria pollutants such as Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>), Carbon Monoxide (CO), Nitrogen

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<sup>19</sup> Emissions from the prescribed fire activities were modelled using the Bluesky Playground web model (USDA 2019). Machinery emissions were generated using assumptions from a similar project (Alpine Community Defense Project) on the CNF and are reported with the vegetation treatment emissions. The Bluesky Playground model was run with conservative assumptions such as: complete fire-consumption of vegetation and that fire was the sole tool used to treat vegetation. Not all vegetative matter would be burned by project design and the natural variability in combustion amounts with open burning. The results therefore represent the highest possible emissions from fire treatments to characterize maximum potential air quality effects.

Oxides (NO<sub>x</sub>), Sulfur Oxides (SO<sub>x</sub>) and Volatile Organic Carbons (VOCs). In addition, the greenhouse gas Carbon Dioxide (CO<sub>2</sub>) is also reported. Table 10 assumes full implementation from equipment usage, pile burning, and broadcast burning of vegetation. In reality, implementation would occur over several years, resulting in lower annualized emissions, as shown on Table 11. Annualized emissions more accurately characterize the project's impact to air quality. Annualized emissions would be lower if implementation take more than 4 years.

Because all emissions for each pollutant are under De Minimis thresholds, the implementation of the Proposed Action would not produce emissions that jeopardize the attainment under the Clean Air Act. In addition, actual emissions are expected to be lower than the model results indicate due to both herbicide treatments and maintenance status of some areas. Finally, implementation would only occur during times when a burn authorization is granted per Rule 101 Burning Control of the San Diego County Air Pollution Control District (SDAPCD 2002). The Forest Service would submit burn plans to the SDAPCD in advance of planned burns and implement project design features **AIR-1 to AIR-2**.

**Table 10 – Proposed Action Emissions**

	<b>Alternative 2 Implementation Emissions (Reported in Tons).</b>							
<b>Pollutant</b>	<b>PM</b>	<b>PM 10</b>	<b>PM<sub>2.5</sub></b>	<b>CO</b>	<b>CO<sub>2</sub></b>	<b>NO<sub>x</sub></b>	<b>SO<sub>x</sub></b>	<b>VOCs</b>
<b>Total Emissions</b>	34.68	53.21	45.67	383.64	9499.94	5.86	0.02	62.98

**Table 11 – Proposed Action Annualized Emissions vs. De Minimis thresholds**

<b>Implementation Emissions vs De Minimis+</b>							
<b>Pollutant</b>	<b>PM 10</b>	<b>PM<sub>2.5</sub></b>	<b>CO</b>	<b>CO<sub>2</sub></b>	<b>NO<sub>x</sub>*</b>	<b>SO<sub>x</sub></b>	<b>VOCs*</b>
<b>Annual Emissions</b>	13.30	11.42	95.91	2374.99	1.46	0.01	15.75
<b>De Minimus Threshold (EPA 2017)</b>	70	70	100	N/A	100	100	100
<b>Exceedance</b>	No	No	No	N/A	No	No	No

Notes: assumes 4 year implementation; \* = Moderate Nonattainment Diminis Threshold for areas outside an ozone transport region (EPA 2015)

### **Cumulative Effects**

Past, present, and reasonably foreseeable activities were reviewed to determine cumulative effects to air quality. Wildfires have occurred periodically in the past and are likely to occur in the future. The potential air quality impacts from wildfire can be lessened through reducing the amount of available material to burn such as the activities proposed by the Palomar Mountain Vegetation. Cumulative affects to the airshed are managed on a day to day basis through San Diego Air Pollution Control District's Smoke Management Program (SDCAPCD 2002).

### **3.1.4 Conclusion**

Effects to air quality are expected to be minimal. Implementation would be conducted during periods of favorable dispersion and approval by the San Diego Air Pollution Control District.

Project work activities would occur over multiple years, further diminishing short-term impacts. In the long-term, treating vegetation would reduce the risk of catastrophic wildfires which produce considerably more emissions and air quality impacts.

This project meets conformity by adhering to the California's Title 17, approved by the Environmental Protection Agency (EPA), and the San Diego County Air Pollution Control District (SDCAPCD 2002) Smoke Management Program by obtaining a burn authorization prior to implementation activities.

## **3.2 – Human Health and Safety (Herbicides and Fungicide) \_\_\_\_\_**

### **3.2.1 Herbicide Risk Assessments (Toxicity Information)**

#### **General Information**

Environmental and human health consequences of using pesticides have been reported and disclosed during the chemical registration process for each chemical. The Forest Service has supplemented this registration information with a series of risk assessments for each of the pesticides most commonly used by the Forest Service. These documents reviewed available research and information on herbicides and then applied this information to conditions that would likely occur during pesticide applications in Forest Service settings (e.g., application methods, rates, exposure pathways).

The risk assessments help rectify the often-contradictory information about pesticides that can be found online and help make potential impacts of pesticide use in Forest Service projects more predictable. These risk assessment, in concert with registration and label instructions, form the basis for the analysis of effects for all Forest Service activities that include the use of pesticides.

The risk assessments contain worksheets for modeling exposure scenarios and thresholds of concern for each of these chemicals at different application rates and application methods. These worksheets are based on real world application scenarios and rates that are commonly used in Forest Service programs. The worksheets ultimately determine a “hazard quotient” (HQ) for various exposure routes. The HQ is basically the expected exposure divided by the exposure determined to cause detrimental effects. Therefore, a HQ of one indicates an exposure scenario where the subject may receive a dose equal to the highest does determined to have no observable health effect (NOEL's). HQ values exceeding 1 indicate that design criteria to mitigate the risk should be considered.

The risk assessments also rely on the GLEAMS model to make predictions about how much of the herbicides or their degradates may enter surface waters. GLEAMS modeling is an agricultural standard model to determine the effects of runoff after pesticide applications. The Risk Assessments try to predict how much herbicide would be introduced to surface water as a result of a modeled scenario where a 10-acre block of land is treated with herbicide adjacent and draining into a small stream or pond. This scenario is analyzed for a variety of soil conditions and rainfall rates. This scenario represents much greater and more concentrated application rates than are called for in this project.

This SEA is based on the following risk assessments: Imazapyr (SERA 2011); Triclopyr (SERA 2016a); fluazifop-p-butyl (SERA 2014); and borax (SERA 2016). For ease of reading comprehension, only some internal citations are integrated into this SEA from the risk assessments. Section 3.1.2 includes information relevant to multiple resources because it serves

as a foundational section for other sections of this SEA. Section 3.1.4 relies upon human-based studies (if available), otherwise, mammal and/or terrestrial mammal.

### **Triclopyr (Purpose, Application Rate, and General Effects)**

*Triclopyr* is a dicot (broadleaf) specific herbicide that is usually used to treat woody vegetation. Triclopyr does not harm monocot species such as grasses, onions, lilies and yuccas. It is not active in the soil and so if drift is avoided, effects to non-target species are easily minimized.

The average triclopyr application rate is 1 lb. a.i./acre for Forest Service activities nationwide (SERA 2016). On the CNF, application rates are typically 1.5 lbs active ingredient/acre (5 gallons Garlon 3a/acre). *This is the rate recently used on the CNF for the Anderson Truck Trail fuel break. For purposes of this SEA, this would be the application rate analyzed.*

For the foliar applications proposed for this project (use of hand wand and backback sprayers), the amine salt form of triclopyr (e.g., Garlon 3a) or the choline salt form (e.g., Vastlan).

Known properties and effects:

- Triclopyr amine and choline quickly break down to triclopyr acid in the environment.
- Triclopyr acid degrades completely in the environment to carbon dioxide and water.
- Toxicity to terrestrial animals is considered low and most likely through direct absorption or ingestion of sprayed plant material. At the modeled application rate of 2lbs/acre, the risk assessment worksheets show that consumption of vegetation by small birds and mammals surpass the level of concern.
- Triclopyr is considered potentially toxic to fish and other aquatic organisms through direct exposure or run-off. However, the major intermediary metabolite of triclopyr is TCP, which is slightly more toxic to mammals and fish than triclopyr itself.
- Both triclopyr and TCP photo degrade rapidly and are not detectable on sprayed plant material or the soil surface within days of spraying. Triclopyr is rapidly broken down by sunlight in surface waters and has a half-life in these conditions of less than one day. TCP has a half-life ranging from approximately 4-8 days in these conditions.
- Triclopyr binds to clay and organic matter in the soil and is broken down by soil microbes. It has a half-life in soil of 46 days. The metabolite TCP is more mobile in soils and has a half-life of 90 days. Neither of these compounds shows indications of accumulating in the environment nor bioaccumulation.

### **Imazapyr (Purpose, Application Rate, and General Effects)**

*Imazapyr* is a non-selective broad-spectrum herbicide used to treat a wide variety of species and can even be used in aquatic settings although not part of the proposed action. Tradenames include Habitat, Stalker or Chopper. It is a slow acting but highly effective herbicide. Application rates generally range from .03 – 1.5 lbs a.i./acre. Application rates by the Forest Service nationwide average 0.3 lbs. active ingredient/acre and can approach 1 lb. active ingredient/acre in certain situations. It is generally applied in targeted foliar applications but can be used in cut surface application and is often mixed with other herbicides.

Known properties and effects:

- Imazapyr is considered practically non-toxic to humans, mammals, fish, birds, amphibians and invertebrates.
- Imazapyr is relatively stable and mobile in the environment:
  - It remains active in the soil and can have impacts to non-target terrestrial plants.
  - It breaks down slowly in soil due to microbial degradation with a half-life of one to five months (Tu 2001).
  - It can act as a pre-emergent and can prevent revegetation of treatment sites in short terms at higher application rates.
  - It does not bind to soil or organic matter, so it is relatively mobile and has the potential to leach through soils into groundwater or surface waters.
    - In surface waters, Imazapyr breaks down fairly rapidly through photohydrolysis with a half-life of 1 to 2 days (US-EPA 2007).

### **Fluazifop-p-butyl (Purpose, Application Rate, and General Effects)**

Fluazifop-p-butyl (e.g., Fusilade II) is a selective postemergence herbicide used for control of most annual and perennial grass weeds. It inhibits lipid synthesis in grasses and some other monocots. It has essentially no activity on broadleaf (dicot) species and can be sprayed overtop of many crops (including monocots in the lily and onion families).

Fluazifop-p-butyl would be used to control non-native annual grasses in specific locations in order to help with reforestation efforts in portions of the project area. This is because non-native annual grasses can outcompete young tree seedlings for light, water, and nutrients. Control of non-native grasses occurs during the spring growing season. Application rates would range between 0.047 lbs/ai/acre to 0.375 lbs/ai/acre (Tu 2001). It would be applied via targeted foliar applications to grass weeds in restoration sites for coastal sage scrub vegetation and where non-native annual grasses affecting habitat for threatened and endangered broadleaf plant species.

Known properties and effects:

- Is of relatively low toxicity to humans, but can be an irritant (eye, skin, respiratory passages, and skin sensitizer), and is toxic if inhaled;
- Is of low toxicity to birds and mammals;
- Is toxic to fish and aquatic invertebrates;
- Binds strongly with soil particles and is rendered inactive in the soil; and
- Has a very low potential of moving off-site and contaminating ground or surface waters.
- Breaks down by microbial metabolism and has a half-life in soils of 1 to 2 weeks.

### **Borate Salts – Sporax and Cellu-treat**

Sporax and Cellu-treat are commercial formulations of a borate salt that is applied as a powder (Sporax) or liquid solution (Cellu-treat) as a thin film to stumps of cut live or recently dead conifers to prevent the spread of heterobasidian root disease, which is known to occur in relatively high concentrations in the vicinity of the project area. Borate salts are a form of boron, a naturally occurring mineral, and are primarily converted to boric acid in the environment. Boron (as boric acid) is an essential nutrient to plants, and as such humans are exposed daily to through their diets.

Sporax is no longer commercially available but may be used if a contractor has remaining inventory. Cellu-Treat allows for more even application at lower rates and is safer for applicators. Application rates for cellu-treat is generally around .5 lbs of formulation per acre. Use rates in this project are not expected to exceed this rate in any case. Cellu-Treat does not require the use of an adjuvant or spreader, but Hi-Light Blue dye would be used to track stumps that have been treated.

Known properties and effects:

- Is of very low toxicity to birds and mammals but can cause moderate to severe eye irritation if directly exposed.
- Is has low toxicity to fish and aquatic invertebrates;
- Is already naturally present in soils.

### **Surfactants, Dyes, Inerts (Purpose, Application Method/Rate, and General Effects)**

All these herbicides require the use of a non-ionic surfactant mixed with the herbicide before use. This program would use modified seed oil type surfactants. Trade formulations include Hasten, Competitor, JLB Oil Plus, and Cide-Kick. These types of surfactants are being used due to their favorable environmental profile; they are considered to have very low toxicity (EPA category IV) and some of the main ingredients are registered food additives (Bakke 2007). No petroleum or petrochemical-based surfactants would be used. A dye would be added to the mixture to help ensure adequate herbicide coverage and to avoid double-spraying. Dyes also make accidental spills easier to detect and track (Tu 2001). Hi-Light blue is the most likely dye to be used.

Based on available information (SERA 1997), Hi-Light Blue is not known to be toxic, but there is some uncertainty in properties and effects due to the ingredients being considered proprietary. Despite this uncertainty, none of the ingredients are listed as hazardous by SARA and the dye contains no toxic chemicals under section 313 of Title III and 40 CFR 372. The dye used in Hi-Light Blue is commonly used in toilet bowl cleaners and as a colorant for lakes and ponds (Hren 1997). Blue dyes used as vegetation markers usually contain Acid Blue 9.

Potential properties and effects for Acid Blue 9:

- Very low vapor pressure suggests that evaporation is negligible.
- Removal in water occurs through volatilization, abiotic degradation and biodegradation. Volatilization is expected to be negligible.
- Does not biodegrade fast. It may undergo photo-oxidation in natural water exposed to sunlight. Half-lives of 1-13 days are possible (these half-lives apply only to conditions of full sunlight at the water's surface). One reported experimental hydroxyl radical constant in water (Anbar and Neta, 1967) corresponds to a half-life of about 230 days of sunlight.

(SERA 1997). Despite these uncertainties with the exact properties of Hi-Light Blue, it is considered non-toxic to humans.<sup>20</sup>

### **3.2.2 Affected Environment (Existing Conditions)**

Two groups of people might be affected by this project: workers who are performing fuels treatment activities and members of the general public. Contractors would most likely perform fuel treatment activities for the Forest Service. Herbicide application would occur under the

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<sup>20</sup> See Material Safety Data Sheet - [https://www.rrsi.com/wp-content/uploads/Hi-Light\\_Blue\\_MSDS1.pdf](https://www.rrsi.com/wp-content/uploads/Hi-Light_Blue_MSDS1.pdf).

supervision of a licensed pesticide applicator. Members of the general public who might be affected by project-related activities include recreationists and residents adjacent to fuel treatment activities. These groups or individuals would likely be in the project areas on a short-term basis. The time frames could vary from several hours to extended amounts of time in areas near treatment sites for the adjacent landowners.

### **3.2.3 Ongoing Action**

#### **Direct and Indirect Effects, and Cumulative Effects**

There would be no effect to human health and safety under the Ongoing Action because herbicides would not be used in the project areas. Potential effects to human health and safety from herbicides was not analyzed in the 2013 EA.

### **3.2.4 Proposed Action**

#### **General Information and Assumptions**

The criteria for significance of impact in relation to human health and safety from herbicide use are discussed in detail in the risk assessments for the herbicide being proposed. The risk assessment uses widely accepted levels of exposure, both chronic and acute, to toxic chemicals that are deemed to present a human health risk. As is customary in human health risk assessments, these assumptions are highly conservative and represent exposures generally 100 times less than exposures that produced detectable negative effects in lab settings. The risk assessment then develops exposure scenarios for workers and for the general public to determine if it is possible that a person may be exposed to a level of herbicide presenting a health risk.

The routes of exposure analyzed for workers included contact with herbicides through application spray activities and through accidental exposure (spills on bare skin, contaminated gloves etc.) For the general public, routes of exposure analyzed by the risk assessment included a direct spray on a child, exposure to contaminated vegetation, ingestion of contaminated crops, ingestion of contaminated water or fish, or swimming in contaminated water. Exposure scenarios for the public represent very conservative assumptions that assume exposures much greater than is likely. Therefore, when even under these exposure scenarios, there appears to be negligible or no risk of significant exposure, actual potential exposure risks to the public can be deemed at an acceptable level.

For example, in the case of chronic exposures to triclopyr, chronic reference doses (RfD's) have been established by the Environmental Protection Agency (EPA). A dose of 0.05 mg/kg of body weight/day has been determined to be the chronic reference dose, or RfD, for triclopyr. This means that a person could receive a dose of 0.05 mg/kg/day throughout every day of his or her life without suffering adverse health effects. Short-term or acute excursions above the chronic RfD can occur without any known adverse health effects. Due to the limited time frames of this project, acute exposure scenarios are more likely.

The risk assessment also looked at "inerts" and adjuvants that are found in common herbicide formulations and tank mixes to determine if they may cause human health and safety risks at the use levels being proposed. Considering this and the information presented above (modified seed oil surfactants, and Hi-Light Blue Dye), the analyses below focus on the main herbicides and fungicide proposed for use as they hold the most potential for significant effects. Modified seed oil surfactants, and Hi-Light Blue Dye use would be incidental to the herbicides. Modified seed

oil surfactants have low toxicity and the ingredients in Hi-Light Blue dye are known to be non-toxic.

### **Direct and Indirect Effects**

Exposure to herbicide ingredients and their metabolites is the primary concern for human health and safety. Exposure to herbicide would mainly be a concern for workers in the project area applying the chemicals and members of public hiking in recently treated areas. This project would occur adjacent to private residences. Exposure of the general public to herbicides would likely only result from exposure to vegetation that has been recently sprayed. Most treatment areas are not heavily trafficked by members of the public.

**Triclopyr.** Triclopyr is considered moderately toxic to humans. TCP, its main intermediate metabolite is slightly more toxic than triclopyr. Routes of exposure for triclopyr include ingestion and absorption through the skin. For chronic exposure, a dose of 0.05 mg/kg of body weight/day has been determined by the Environmental Protection Agency (EPA) to be the chronic reference dose, or RfD, for triclopyr. For triclopyr, the acute RfD is the same as the chronic dose, .05/mg/kg of body weight/day for women (.1/mg/kg for men) and for TCP, the value is 0.025 mg/kg/day. Due to the limited time frames of this project, and the environmental degradation of triclopyr, acute exposure scenarios are more likely.

For the general public, the risk assessment for triclopyr concludes that at broadcast application rates of 1.5 lbs. per acre there are no plausible scenarios for exposure to triclopyr that would cause negative effects in the general public (SERA 2016). Consumption of sprayed vegetation or contaminated fruit, or consumption of water immediately after an accidental spill due result in exposures that exceed levels of concern, but these scenarios are considered implausible. For TCP, GLEAMS modeling that no hazardous exposure to TCP would occur as a result of this project, even under very conservative assumptions of a child consuming 1 liter of water per day from a treated creek.

Under typical exposure conditions for workers there would be no means of reaching a hazardous level of acute exposure to triclopyr (SERA 2016). However, in the case of workers, safety measures need to be in place for workers applying triclopyr for more than three weeks in a row to avoid potentially dangerous chronic levels of exposure (SERA 2016). These safety measures include wearing long sleeve shirts and protective gloves and washing hands and clothing after each work day. These safety procedures are required by state and local laws and would be used in this project. Using these safety procedures, workers would not be exposed to potentially hazardous acute or chronic exposures to triclopyr.

**Imazapyr.** At maximum application rates of 1.5 lbs a.i/ acre delivered with targeted backpack foliar applications, only one exposure scenario leads to a dose above the level of concern. This is for a child accidentally drinking water into which a spill occurred. As with other herbicides, this exposure scenario is deemed implausible. Exposure to workers and the general public is below the level of concern in all other situations.

Imazapyr is considered practically non-toxic to mammals. An RfD of 2.5 mg/kg/day is used to characterize the risks of both short-term (acute) and longer-term (chronic) exposures and is the basis of determining the level of concern. This is a very conservative estimate because studies to date have found low and essentially undetectable acute and chronic (short or longer-term) systemic toxicity of this compound. At proposed maximum application rates only one exposure

scenario leads to a dose above the level of concern, that is for an individual directly consuming contaminated vegetation. This exposure scenario is not deemed realistic for this proposal. Exposure to workers and the general public is below the level of concern in other situations.

**Fluazifop-p-butyl.** Fluazifop-P-butyl has low acute toxicity (EPA acute Toxicity Category III) by the oral, dermal and inhalation routes, is mildly irritating (EPA Toxicity Category IV) to the eye and skin. Toxic effects are primarily seen in the kidney and liver (US-EPA 2005).

The Forest Service Risk Assessment determined that at application rates used in this project there is no non-accidental exposure scenario where humans (general public or workers) would be exposed at levels considered hazardous. (SERA 2014).

Studies have shown fluazifop-p-butyl to be “slightly to practically nontoxic” to mammals and birds that ingest it and only “slightly” toxic to animal skin and eyes (SERA 2014). Studies have shown fluazifop to be practically non-toxic to birds. Oral LD50 levels of fluazifop-p-butyl were > 4,000 mg/kg for male rats, >3,500 mg/kg for mallard ducks, and >4,659 mg/kg for bobwhite quail. Fluazifop has shown low-toxicity to bees. No exposure scenarios crossed into hazard quotients of concern except the most conservative estimates for small mammals eating contaminated vegetation. This exposure scenario is unlikely due to the proposed action only treating small reforestation areas around seedlings (SERA 2014).

Fluazifop-p-butyl may be highly to moderately toxic to fish, but only slightly toxic to other aquatic species, such as invertebrates. The reported 96-hour LC50 values for the technical product in fish species are 0.53 mg/L in bluegill sunfish and 1.37 mg/L in rainbow trout, indicating very high to high toxicity. The 48-hour LC50 in *Daphnia magna* (an aquatic invertebrate) is reported as greater than 10 mg/L, indicating only slight toxicity. Due to the potential to impact fish, this project would not utilize Fluazifop within 100 feet of surface waters. Because fluazifop-p-butyl binds so strongly to soils, this buffer distance would prevent any introduction of the herbicide to surface waters.

Fluazifop-p-butyl is of low persistence in moist soil environments, with a reported half-life in these conditions of less than 1 week. Fluazifop-p-butyl breaks down rapidly in moist soils to the fluazifop acid, which is also of low persistence. Fluazifop-p-butyl and fluazifop-p are both reported to be of low mobility in soils and not to present appreciable risks for groundwater contamination.

**Borate Salts (Sporax and Cellu-treat).** Borate salts dissolve into borate acid in the environment, the natural state for the element boron in soils. This element is naturally occurring, and humans receive small doses daily through the diet. The primary human health concern with these products is possible severe eye irritation. Applicators are required to receive proper training, carry eye wash and wear protective eye gear. Cellu-Treat has a much lower potential for acute eye irritation and damage compared to Sporax.

The Risk Assessment does not identify any potential human or wildlife exposures at the proposed application rates that even approach levels of concern for toxicity (SERA 2016b).

### **Cumulative Effects**

Cumulative impacts to human health from herbicide exposure could come from exposure to herbicides on Forest Service land and also from almost identical herbicide use projects on adjacent city/county/private owned lands. On National Forest System lands, and on adjacent lands managed by other jurisdictions, these herbicide products are used for the removal of

invasive plant species. Also, over the counter herbicide products can contain some of these active ingredients (e.g., triclopyr in Brush B Gone). The direct effects section analyzes longer term exposures to herbicides than workers on the project would be exposed to. Members of the public may be exposed to herbicides on National Forest Service lands and on adjacent lands. These potential exposures (both acute and chronic) are within the scenarios used to analyze the direct effects of this project since these scenarios analyze based on application rates per acre over large project areas.

While this analysis did not research total annual herbicide use in San Diego County, it is important to realize that the total amount of herbicide used by these projects (both on Forest Service and on lands treated by adjacent jurisdictions) would be undoubtedly a tiny fraction of total herbicide used in the counties. All proposed herbicides are available by permit to qualified applicators and also used extensively in commercial and agricultural applications. These uses, occurring nationwide, have not led to identifiable risks to human health from the herbicides being proposed. Therefore, it is unlikely this project and similar projects would have a cumulative effect that would lead to significant effects on human health.

### **3.2.5 Conclusion**

The potential effects of the Proposed Action may result in potential adverse effects to Human Health and Safety whereas this risk does not exist under the Ongoing Action. However, the actual potential exposure risks to the public from the Proposed Action can be deemed to be at an acceptable level - negligible or no risk of significant exposure. The Proposed Action was developed to avoid and minimize potential effects to human health and safety and ensure compliance with applicable state and local laws by integrating requirements into the Proposed Action as project design features (**HERB-1 to HERB-19**). Lastly, there are no potential significant cumulative effects that warrant further analysis or additional project design features.

Based on the foregoing, the Proposed Action would comply with state and federal requirements for herbicide application.

## **3.3 Plants**

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### **3.3.1 Herbicide Risk Assessments (Toxicity Information)**

Relevant known properties and effects of the herbicides as to plants (non-target plants and soil), proposed for use under the Proposed Action, are listed in Section 3.1.1.

### **3.3.2 Affected Environment**

Same general information as Section 3.5.4 of the 2013 EA with updated information below.

**Endangered Species.** The Jeff Valley project area includes approximately 30 acres of potential habitat for the endangered San Bernardino Bluegrass (*Poa atropurpurea*) (see Figure 6 below; consolidated with terrestrial wildlife).

**Regional Foresters Sensitive Plant Species.** Thirteen Regional Forester's Sensitive List plant species have the potential to occur in the project areas (see Table 12). Of these, eight species are known to occur within the project areas: San Diego Milk-vetch (*Astragalus oocarpus*); Payson's Jewelflower (*Caulanthus simulans*); Cuyamaca Larkspur (*Delphinium hesperium ssp. cuyamacae*); Orcutt's Linanthus; Hall's Monardella (*Monardella macrantha hallii*); San Felipe

Monardella (*Monardella nana leptosiphon*); Southern Skullcap (*Scutellaria bolanderi austromontana*); and San Bernardino Aster (*Symphotrichum bernardinus*).

Potential habitat for five species is present in the project areas - Orcutt’s Brodiaea (*Brodiaea orcutti*); Mesa Horkelia (*Horkelia cuneata puberula*); Cuyamaca Meadowfoam (*Limnanthes alba parishii*); Laguna Linanthus (*Linanthus orcuttii*); and Velvety False Lupine (*Thermopsis californica var. semota*).

**Table 12 – Potential and Known Plant Species Occurrences**

Species Name	Fuel Break Project Area	Forest Health Project Areas
San Diego Milkvetch	P	K
Orcutt's Brodiaea (Orcutt’s Clusterlily)	P	P
Payson’s Jewelflower	K	P
Cuyamaca Larkspur	K	P
Mesa Horkelia	P	P
Cuyamaca Meadowfoam (Parish’s Meadowfoam)	P	P
Laguna Linanthus	P	K
Hall’s Monardella	K	K
San Felipe Monardella (Yellow Mountainbalm)	K	P
Southern Skullcap	P	P
Southern Jewelflower	P	P
San Bernardino Aster	P	K
Velvety False-lupine	P	P

Notes: K= known to occur; P = potential to occur.

### 3.3.3 Ongoing Action and Proposed Action

#### Direct and Indirect Effects

**Summary.** Overall, potential effects from vegetation management are expected to be the same for the Ongoing Action and Proposed Action even though the scope of the Proposed Action is greater. Under the Ongoing Action, there are 1687 acres of fuel breaks and 1387 acres of forest health treatments. The Proposed Action adds 40 acres of fuelbreaks, for a total of 1,727 acres, and adds 1,093 acres of forest health treatments, while subtracting 230 acres of forest health treatments from the East Grade area, for a total of 2,250 acres.

The Proposed Action also has added the use of herbicides, which would be applied manually using a backpack sprayer and foliar hand wand. Imazapyr or Triclopyr would be used to target undesirable shrub species within the footprint of the fuelbreak. Triclopyr would solely be used when in close proximity to known sensitive plant species and there would be a 100-foot buffer between herbicide treatment areas and sensitive plant occurrences.

There are eight sensitive plant species with known occurrences within the project area, these are San Diego Milk-vetch, Payson’s Jewelflower, Cuyamaca Larkspur, Orcutt’s Linanthus, Hall’s Monardella, San Felipe Monardella, Southern Skullcap, and San Bernardino Aster. All of these occurrences would either be avoided during treatments or would have focused monitoring of treatment effects. Preliminary observations have indicated that these species are resilient to fire.

There are five sensitive plant species with the potential to occur in project areas. These are Orcutt’s Brodiaea, Mesa Horkelia, Cuyamaca Meadowfoam, Southern Jewelflower, and Velvety

False Lupine. These species also appear to be resilient to fire. There would be monitoring and post-treatment surveys of fuels treatments to look for these species.

***Fuelbreaks.*** Implementation would maintain type-conversion the fuel break areas to a more open shrubland or grassland, affecting up to 1727 acres. Keeley (2004) wrote that:

“Any fuel reduction treatment, for example fuel breaks, that is directed at removing woody plant cover has the potential for increasing alien plants. Fuel breaks are particularly problematical because they are typically long roadway like manipulations, and like roads, which are known to act as conduits for alien dispersal (Gelbard and Belnap 2003), fuelbreaks too can act as corridors of alien propagules, conducting them deep into otherwise undisturbed wildlands. Fuelbreaks by themselves probably have limited direct impact on invasion of adjacent closed canopy chaparral shrublands. However, reduced fuel loads result in lower fire intensity on fuel breaks and thus greater alien seedbank survival during fire. Thus, in the early postfire years, when these developing shrublands are the most vulnerable, those sites adjacent to fuel breaks are subject to an unnaturally high rain of alien propagules.”

In two fuelbreaks studied by Keeley, the abundance of weeds in the fuelbreaks was 3 to 5 times higher than the weed abundance in undisturbed chaparral (Keeley 2004). The abundance of weedy species would vary by habitat type, soil type, and proximity to weed sources.

The net effect of the proposed fuels treatments would be that the potential habitat for sensitive plant species is likely to become less suitable and the effect would be permanent. Any sensitive plants that may occur within the proposed treatment areas could be damaged or destroyed during the project work. The project areas where additional acreage is added, pursuant to the current Supplemental EA, would incrementally add to these effects.

Indirect effects may include sensitive plants experiencing increased competition from weeds, or increased erosion within the fuel break area. This would make the habitat less suitable for sensitive plant species and the effects are expected to be permanent. Within the fuel breaks, it is anticipated there could be a shift from existing vegetation, dominantly chaparral, to annual grasslands with scattered shrub species or trees. If this occurs, this could result in a long term adverse effect to suitable habitat resulting from the alteration of successional pathways. There would also be intensified indirect effects from soil disturbance, heating of soils and invasive plant species due to the intensity with which the fuel break would be treated. The project areas where additional acreage is added, pursuant to the current Supplemental EA, would incrementally add to these effects.

***Forest Health Treatments.*** Direct effects to sensitive species include trampling, crushing and burning of unknown occurrences of individual plants and an indirect effect due to habitat degradation from nonnative invasive species. Most of the sensitive species require a disturbance cycle to germinate their seed banks. Nonnative invasive annual grasses also benefit from disturbance, generally increasing in abundance and distribution. The project design features were developed to reduce the risk of direct impacts to sensitive plants and to minimize the impacts from nonnative invasive annual grasses, while providing the opportunity for some potentially beneficial disturbance. All proposed treatment types have the potential to benefit species in previously untreated areas by creating openings.

The greatest adverse effect would be the indirect effect of suitable habitat degradation from soil disturbance and increases in nonnative invasive annual grasses. With all project design features in place, these effects are expected to be minor.

### **Cumulative Effects**

Potential future actions that could result in cumulative effects within the project area include road work and maintenance on National Forest System lands, grazing, recreation use, and expanding development on private property. Another future threat to consider is climate change that would result in hotter conditions, causing increased occurrence of drought and range shifts in species in the project area. With increased temperature and drought associated with warming, there is an increased risk of fire with the potential for type conversion if the fire regime is disrupted and fires occur more frequently than the native vegetation can withstand. The full extent of the impacts from climate change remains to be seen, however the creation and maintenance of fuel breaks would likely reduce the risk of catastrophic fire, protecting these species in the near future. The project areas where additional acreage is added, pursuant to the current Supplemental EA, would incrementally add to these effects.

### **3.3.4 Conclusion**

The Ongoing Action and Proposed Action would comply with the ESA, LMP, and Forest Service policy (FSM 2600, *Wildlife, Fish, and Sensitive Plant Habitat Management*) for threatened and endangered species and Regional Forester's sensitive plant species. Project design features **BIO-1 to BIO-11, CM-1 to CM-10, ITS-1, RMP-1 and TC-1** are incorporated into the Ongoing Action and/or Proposed Action to avoid and minimize effects on species.

**Endangered Species.** The Ongoing Action and Proposed Action may affect and is likely to adversely affect San Bernardino Bluegrass over the short-term as treatments are applied. The long-term effect is expected to be beneficial, as the fuels work would reduce the encroachment of trees into the meadow habitat that is preferred by San Bernardino Bluegrass.

**Fuel Breaks.** Eight Regional Forester's plant species are known to occur within the project areas, these are *San Diego Milk-vetch, Payson's Jewelflower, Cuyamaca Larkspur, Orcutt's Linanthus, Hall's Monardella, San Felipe Monardella, Southern Skullcap, and San Bernardino Aster*. Potential habitat is present for five species - *Orcutt's Brodiaea, Mesa Horkelia, Cuyamaca Meadowfoam, Laguna Linanthus, and Velvety False Lupine*. Creation and maintenance of fuel breaks is expected to permanently alter the vegetation communities and is expected to increase the abundance of weeds in the project area. The project includes treatment of 1,727 acres of fuel breaks. Fuels treatments would make the potential habitat less suitable for sensitive plant species. Due to the presence of known sensitive plant species and the potential habitat for sensitive plant species in the project area, the resilience of these species to fire, and the reduction of quality of the potential habitat in the project area, it is my determination that implementation of the fuel breaks may affect individuals, but is not expected to result in a trend toward federal listing nor a loss of viability for these species.

**Forest Health Treatments.** Eight Regional Forester's plant species are known to occur within the project areas, these are *San Diego Milk-vetch, Payson's Jewelflower, Cuyamaca Larkspur, Orcutt's Linanthus, Hall's Monardella, San Felipe Monardella, Southern Skullcap, and San Bernardino Aster*. Potential habitat is present for five species - *Orcutt's Brodiaea, Mesa Horkelia, Cuyamaca Meadowfoam, Laguna Linanthus, and Velvety False Lupine*. The project

includes treatment of 2,250 acres for forest health purposes. These treatments may alter the habitat in both beneficial ways, by increasing openings, and detrimental ways by possibly increasing the abundance of weeds. Due to the presence of known sensitive plant species and the potential habitat for sensitive plant species in the project area, the resilience of these species to fire, and the expected changes to habitat in the project area, is my determination that implementation of the forest health treatments may affect individuals, but is not expected to result in a trend toward federal listing nor a loss of viability for these species.

### **3.4 Soil and Water Resources (Riparian Conservation Areas, Water Quality, and Aquatic Habitat)**

#### **3.4.1 Herbicide Risk Assessments (Toxicity Information)**

Relevant known properties and effects of the herbicides as to soil and water, proposed for use under the Proposed Action, are listed in Section 3.1.1.

#### **3.4.2 Affected Environment**

**Watershed Resources.** See Section 3.11 and 3.11.2.3 of the 2013 EA for information on watershed resources and beneficial uses relevant to the Ongoing Action – Fry Creek, Palomar Station, Birch Hill, East Grade, Aguanga Ridge, High Point, Butterfield, Observatory, and Cottonwood units. The new treatment units for the Proposed Action are within those same watersheds and have similar physical characteristics.

**Beneficial Uses, Municipal Waters, and 303(d) listings.** As mentioned, all units are within the same watersheds as treatment units in the 2013 EA. Downstream beneficial uses are the same as analyzed in the original 2013 EA. Municipal waters are located downstream of the project area. Review of the 2014-2016 303d list confirms that none of the waters within the project area are listed as impaired. The closest 303d listed water is a tributary of Temecula Creek, located more than 1,000 feet downstream. Most of the project units are located several miles upstream of other listed waters.

**Floodplains and Wetlands.** Jeff Valley meadow is located at the headwaters of the watershed. Although the meadow may become saturated at certain times of the year; severe erosion in the main channel has altered the natural drainage. Soils throughout most of the meadow lack hydric soil characteristics. The meadow is not considered a floodplain or a wetland but is considered a riparian feature.

**Riparian Conservation Areas (RCA).** The RCA as defined in the 2013 EA is still applicable to the project area in proposed action. Additions to the RCA layer for the Jeff Valley project area have been determined by the Forest Service hydrologist and are provided in Table 13. (The current layer obtained from the National Hydrologic Database maintained by the United States Geologic Survey did not have these features mapped.)

**Table 13 – RCA Information for New Treatment Units**

<b>Treatment Area</b>	<b>Protected Feature</b>	<b>RCA width</b>
Jeff Valley	Cedar Creek, and unnamed perennial channel.	100 meters on either side of the channel
Jeff Valley	Meadows	100 meters from meadow edge (defined by riparian vegetation)

### **3.4.3 Ongoing Action**

#### **Direct, Indirect and Cumulative Effects**

The “no action” alternative would continue to be implemented and effects would be the same as those discussed in the 2013 EA. There would be no beneficial effects to soil and water resource, as under the Proposed Action, for road decommissioning.

### **3.4.4 Proposed Action**

#### **Parameters of Analysis**

Design Features and Applicable BMPs are listed in the SEA as “project design features” in this SEA. Potential impacts from vegetation and fuel treatments in units Kica Mik, Crestline, Junction, and Upper French Valley would have similar temporal, localized impacts to soil and water resources as treatments in the Fry Creek, Palomar Station, Birch Hill, East Grade, Aguanga Ridge, High Point, Butterfield, Observatory, and Cottonwood units. Potential effects are similar to effects from the Ongoing Action, with the exception of herbicides. Most activity areas are on ridge tops that are not well dissected by stream channels, so in addition to low risk of increased erosion at the site of treatments, most treated areas have low potential to deliver sediment. The four units total 163 acres and are spread over three watersheds. As determined in the 2013 EA, implementation of best management practices and design features during forest health and fuel break treatments would prevent significant impacts to soil and water resources. BMPs are measures designed to reduce the risk of adverse impacts to soils and beneficial uses of water. The rest of this analysis will focus on new activities such as herbicide use, reforestation, meadow enhancement, and use of roads all of which were not analyzed in the 2013 EA. **HSA-1 to HSA-11** are carried forward and updated from the 2013 EA to ensure water quality is protected.

#### **Direct, Indirect and Cumulative Effects**

***Soil Productivity.*** Direct effects to soil condition and productivity could result from project activities. The primary risks to soil condition and productivity would be from removal of ground cover, surface disturbance, and compaction from mechanical equipment and roads. Reforestation activities include multiple entries and actions over time.

If adequate ground cover were not retained following treatment, then accelerated erosion could occur on exposed soil surfaces. Many of the soils are coarser grained, causing them to be less likely to be compacted but more likely to have less soil cohesion and more susceptible to erosion. Ground cover requirements would provide surface roughness and prevent erosion.

Compaction (and reduction in porosity) could result from mechanized equipment used during treatments, especially when soils are wet. If soils were compacted (with resulting loss of soil strength, structure and porosity), runoff at the site scale would be increased, and soil productivity could be reduced. Meadows are groundwater systems that can be heavily impacted by compaction. Exclusion of mechanical equipment within the meadow boundary and non-use of old roads within the meadow would help reduce impacts to meadow soils. Risk of compaction in the project units is also low due to the lack of fine textured soils. Additional design features requiring dry soil conditions and efforts to minimize passes on skid trails would further prevent detrimental compaction.

Roads proposed for use during implementation are existing routes, although several of the road segments in Jeff Valley are overgrown and have thick ground cover. Evaluation of soil profiles

indicated that soils within the road prism are compacted. During field visits, dead vegetation within the road prism was a stark contrast to living vegetation up and downhill of the road. Based on the observed differences in vegetation and soil compaction, it appears that soil productivity within the road prism has been negatively impacted despite being overgrown. To avoid further impacts to soils in the meadow, road segment JV9 would not be used. A temporary road would be constructed upslope away from the meadow edge. Construction of a temporary road would negatively impact upland soils; however, wet season use limitations, installation of drainage control structures, decommissioning post-implementation, and closure within a year of construction would reduce long-term impacts.

The risk of potential negative impacts to soils from project treatments is rated as low because of the project design features and best management practices intended to protect the soil resource.

**Wetlands and Floodplains.** As no floodplains or wetlands are in the project area, there would be no direct or indirect impacts to these resources. Floodplains are located downstream of the project in all project area watersheds. Jeff Valley meadow is not a floodplain although it may become saturated. Risk of adverse cumulative effects to floodplains from the proposed action is very low. Although there would be activities within the RCA, the proposed action would not alter the existing connectivity of stream discharge to the floodplain of the meadow or other channels. No mapped wetlands occur in or adjacent to the proposed action. Although Jeff Valley is a meadow system, there is a lack of hydric soils and it is not characterized as a wetland. Additionally, activities would not result in adverse impacts to the meadow due to implementation of BMPs that would prevent long-term impacts.

**Watershed Resources.** The greatest concern for detrimental effects of the project to water quality and beneficial uses are increases in erosion and sediment delivery from roads, ground disturbance, removal of ground cover, and treatments within the RCA. With the addition of herbicide treatment, impacts to water quality from chemical contamination are also considered. Sediment delivery to channels can negatively impact beneficial uses. Overall, because of the project design features and inclusion of best management practices, the risk of increased sediment production from project activities is rated as low.

- **Roads.** Roads have been found to be the primary source of accelerated erosion in wildland watersheds. Studies and inventories of erosion sources from throughout the western United States and California (Gucinski et al. 2001) have consistently found that roads, and in particular road crossings, are the primary source of accelerated erosion. This is particularly true when roads are poorly designed and/or poorly located.

The proposed project would add 2.32 miles of existing road to the forest service system, allowing installation of drainage control structures to reduce erosion and improve drainage as well as allow access for treatments. Currently, these unauthorized routes lack drainage control structures and maintenance. There are no mainstream channel crossings on the 2.32 miles of road being added to the system.

The proposed action includes 0.43 mile in Fry Creek that would be obliterated, reducing road impacts and restoring habitat.

The use of the existing roads within Jeff Valley (1.9 miles of road) has the potential to result in negative impacts to soil and water resources because they are located in the RCA (inner zone of the RCA, adjacent to Cedar Creek, or in the meadow boundary). A long-

term plan for these roads would be determined in a future NEPA project. Use of these roads would require clearing of downed trees and existing vegetation as most of the road prism is currently overgrown. Roads to be used would have drainage control structures installed to prevent erosion and concentrated runoff to channels and the meadow.

Temporary roads and skid trails would be used during project implementation and have potential to increase erosion. Implementation of best management practices and design features would minimize long-term impacts to soil and water resources.

- **Ground Disturbance and Removal of Ground Cover:** Ground disturbance and removal of ground cover can result in increased erosion and sediment delivery. Design features and best management practices stating ground cover requirements and limiting ground disturbance would minimize risk of detrimental impacts.
- **Meadow Enhancement Treatments within the RCA:** Use of equipment near stream channels and riparian areas increases the risk of sediment delivery. Design features and best management practices would minimize the risk of detrimental impacts. Use of low-pressure, tracked ground equipment, preventing sharp turning in the RCA, and following soil moisture limitations would prevent compaction and soil displacement, which can lead to erosion and sediment delivery. It is possible that treatments in the inner zone of the RCA would result in a short-term increase in soil disturbance and sediment production. However, because the meadow is a vegetated, depositional area with permeable soils, potential for sediment transport and delivery to Cedar Creek is low.

Implementation of best management practices in road management would minimize erosion and sediment delivery. Increased erosion from reforestation treatment areas is expected to be low. Meadow enhancement may result in a short-term increase in sediment but would have a long-term benefit to meadow health. Therefore, increases in sediment delivery from project treatment areas and to downstream channels are also expected to be low. Although fuel manipulation and prescribed fire are proposed within some RCAs, site specific prescriptions and protections in RCAs would reduce sediment delivery potential.

- **Chemical Contamination:** Water quality could be at risk from chemical contamination from herbicide use and equipment staging and refueling operations. Risk assessment data indicates that both Triclopyr and Imazapyr does not strongly bind to soils (can be mobilized), but they both break down rapidly in the environment, including in water (if an accident occurs). As a result, additional project design features **HERB-1 to HERB-20** were developed and integrated into the Proposed Action to control chemical use, transport, and staging in the project areas. For example, herbicides application would not occur during precipitation, herbicide equipment would not be washed or staged in or near waterbodies, and herbicides would not be applied within 10 feet of streams and RCAs. These measures and precautions are intended to minimize potential effects to water quality and/or ensure effects are within acceptable levels.

A review of the risk assessment data for Triclopyr and Imazapyr and the beneficial uses of the project area streams found potential effects could result to beneficial uses: Domestic and Municipal Water Supply and Ground Water Recharge and Freshwater Replenishment. Data for Domestic and Municipal Water Supply indicates potential adverse effects (HQ greater than 2) from using Triclopyr where there was accidental

acute exposure to a child through water consumption. This scenario assumes immediate consumption of untreated contaminated water after spill, which would be avoided by implementing **HERB-1 to HERB-20**. Data for Ground Water Recharge and Freshwater Replenishment indicates no effects on quantity of water available for ground water recharge or freshwater replenishment, but that it could temporarily affect the chemical water quality of surface and ground water from spills, leaching, and runoff. Although Triclopyr breaks down readily in both groundwater and surface water and is not expected to contaminate groundwater or surface waters, Triclopyr may adversely affect (HQ greater than 2) species sensitive to the herbicide by contaminated runoff. This scenario assumes application directly followed by a runoff producing storm. **HERB-1 to HERB-20** would avoid or minimize the potential for the herbicide to make contact with water and affect any non-targeted species.

**Water Quality.** No 303d listed waters are within the project area; however, Temecula Creek is a 303d listed perennial stream located downstream from the proposed action. Temecula Creek is listed as impaired for Chlorpyrifos, Copper, Indicator Bacteria, phosphorous, total dissolved solids, and toxicity. While one unit is located about 1,000 feet from the channel, most of the project is located several miles from Temecula Creek. The implementation of the proposed action does not have the potential to further impair this listed water nor contribute significantly to the listing.

### **Cumulative Effects**

Cumulative effects are analyzed at the 6<sup>th</sup> field HUC and consider the effects of this proposed action, past, ongoing, and reasonably foreseeable future projects. Considering all these actions, this project is not expected to change current estimated Cumulative Watershed Effects.

Forest Service Invasive Weed Treatment: The FS annually treats 100-150 acres/year for invasive weed eradication. Treatments may or may not occur within the project area subwatersheds. Areas selected for treatment change temporally and spatially across the Cleveland National Forest from year to year. Potential impacts include impacts from vegetation removal and herbicide use (see Invasive Weed EA for details). Impacts from invasive weed treatment are considered temporary and negligible because of the method of application, design features, and best management practices integrated into implementation.

California Vegetation Treatment Program (VTP): State of California treats 250,000 acres across the state of California annually. This project could occur within the same watersheds as the proposed action but only within private inholdings or on adjacent state land. Although unlikely, the greatest potential for cumulative effects would require all state lands and inholdings in the same watershed to be treated along with the proposed action in a single year. This has the greatest potential to increase sediment delivery and water yield. Even in this scenario, it is unlikely that the total area of disturbance would exceed 20% of the 6<sup>th</sup> field HUC watershed, therefore cumulative watershed impacts would not be significant (Bosch and Hewlett, 1982). Secondly, the total number of acres treated by this project is spread across the entire state. A concentration of work within a single watershed occurring within the same timeframe as the proposed action is very unlikely.

In 2011, the FS used the Watershed Condition Framework to evaluate the condition of watersheds across the agency. A rating of Functioning, Functioning at Risk, and Impaired Function was assigned to all 6<sup>th</sup> field HUC watersheds. Ratings were based on several different

characteristics. Of the watersheds within the project area, only West Fork San Luis Rey River is rated as Functioning at Risk. All other watersheds are rated as Functioning. The proposed action would not change these ratings.

### **3.4.5 Clean Water Act (CWA) Permitting**

#### **Ongoing Action**

CWA Sections 402(l)(3) and 404 (f)(1)(A) exempts silvicultural work, which includes prescribed fire and thinning, from the requirement to obtain a National Pollutant Discharge and Elimination System (NPDES) permit or dredge and fill permit (USEPA 2019). No CWA permits are required for additional reasons. *First*, no CWA Section 402 NPDES permit for construction activities is required because the area of soil disturbed would be less than 1 acre and thus outside the scope of the Construction General Permit (SWRCB 2009). Vegetation is being cut, but not being uprooted. *Second*, no CWA Section 404 permit is required because the proposed action would not be in or affect Waters of the U.S. and use of all applicable BMPs (e.g., RCA buffers). *Lastly*, no CWA Section 401 water quality certification from the San Diego Regional Water Quality Control Board (SDRWQCB) is required because no 402 or 404 permit is required.

No State of California waste discharge report, or conditional waiver of the requirement for low threat discharges (SDRWQCB 2014) is required pursuant to California Water Code 13260(a)(1) and SDRWQCB Order No. R9-2014-0041 because the proposed action would not affect “waters of the State” for the same reasons Waters of the U.S. would not be affected.

Non-point source pollution would be minimized by **HSA-1 to HSA-11**, which would ensure the proposed action is consistent with the CNF LMP and CWA, Section 319. These measures would also minimize potential effects to adjacent and downstream wetlands and floodplains consistent with E.O. 11990 (Protection of Wetlands) and E.O. 11988 (Floodplain Management).

#### **Proposed Action**

CWA permits, a State of California waste discharge report, and/or a conditional waiver of the state requirement are not required for the Proposed Action for the same reasons discussed under the Ongoing Action. In addition, no CWA Section 402 NPDES permit is required for the application of herbicides. Although the herbicides contain the active ingredient regulated by the NPDES General Permit for Pesticides, the proposed action would not result in herbicides being used in or near navigable waters (Waters of the U.S.) and thus outside the scope of the General Permit (SWRCB 2011). Non-point source pollution would be minimized by implementing the same project design features.

### **3.4.6 Conclusion**

Based on the analyses above, the Ongoing Action and Proposed Action would be implemented in accordance with the CWA, E.O. 11990, E.O. 11988, and ensure municipal watersheds are not adversely affected. No federal or state CWA permits are required.

Watershed management goals for this project (maintenance of water quality and watershed condition) would be met. The proposed project action complies with the standards and guidelines described in the Forest Service Manual, National Best Management Practices (2012), Region 5 Soil Quality Analysis Standards (1995), and Cleveland National Forest – Land Management Plan (2005). The proposed project action would not detrimentally degrade

watershed resources beyond above stated guidelines due to characteristics of the landscape involved and area of the proposed project.

Management requirements designed to protect water quality and watershed condition are derived National Best Management Practices for Water Quality Management on National Forest System Lands (USDA 2012), and Riparian Conservation Objectives (RCOs) (USDA 2005). Riparian resources within Riparian Conservation Areas (RCAs) would be protected through compliance with the Riparian Conservation Objectives and Standards in the LMP and implementation of applicable BMPs. All relevant Forest Service Best Managements Practices would be followed.

## **3.5 Terrestrial Wildlife**

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### **3.5.1 Herbicide Risk Assessments (Toxicity Information)**

Relevant known properties and effects of the herbicides as to terrestrial wildlife, proposed for use under the Proposed Action, are listed in Section 3.1.1.

### **3.5.2 Affected Environment**

Same as Section 3.4.1 and 3.10.2 in the 2013 EA with updated information provided below.

Present vegetation conditions within much of the project areas are the result of both human actions and natural events (Table 14). Three primary factors have significantly influenced current vegetation conditions within the area – over 80 years of aggressive fire suppression, inadequate forestry management over the past 40 years, and long-term drought conditions.

**Regional Foresters Sensitive Species.** The Ongoing Action and Proposed Action would occur in areas where 12 Regional Foresters sensitive species are known to occur as listed and explained in Table 15. Within the *Palomar Mountain Vegetation Management Project* area there are six historically documented spotted owl territories (PACS) including one (Fry Creek) which is within the proposed treatment area and 5 others that are partially within proposed treatment areas (Figure 7). Total PAC acreage within these treatment units is approximately 372 acres with an additional 1,016 acres of potentially suitable closed canopy forest, woodland or riparian habitat (Table 16). Spotted owl survey efforts on Palomar Mountain have varied widely over the past 40+ years. Intensive survey and monitoring work was conducted in the 1980's and 1990's due to the attention being focused on this species and its conservation concerns. Since then survey efforts have occurred on an irregular basis and primarily focused on individual project area management needs. At Fry Creek the last detections of spotted owls were in 2011 and 2013. Surveys at Fry Creek, Upper French Valley, East Grade and Jeff Valley in 2018 and 2019 failed to detect any owls. While suitable spotted owl habitat still exist within the Palomar Mountain area, a significant amount is no longer suitable for occupation due to both natural and human caused factors.

**Endangered Species.** The Ongoing Action and Proposed Action would occur in areas where 2 federally listed endangered species are known to occur as listed and explained in Table 15.

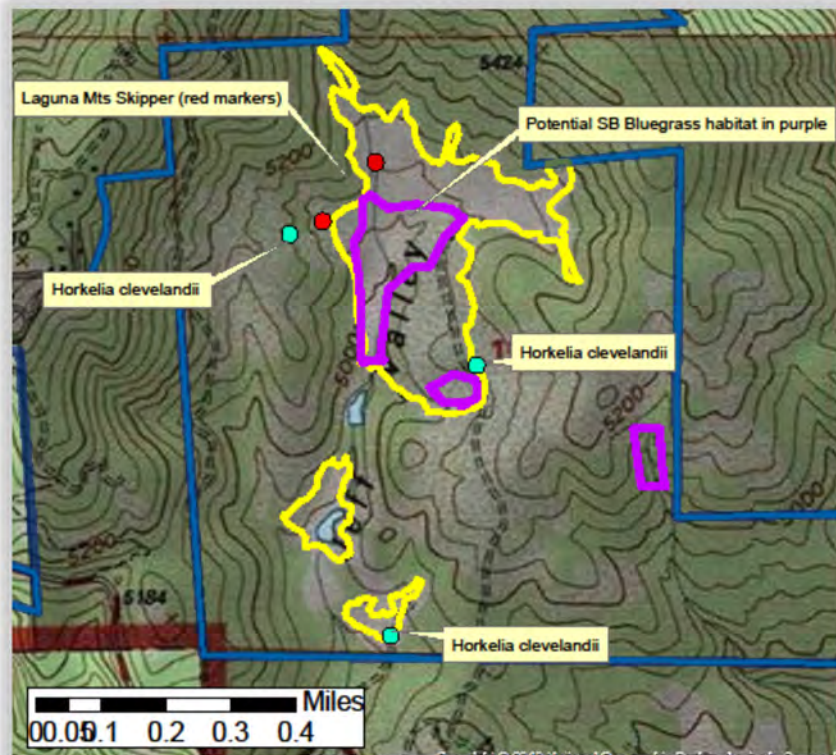
New information indicates that project areas overlap with occupied and designated critical habitat for threatened and endangered species:

- The High Point and Aguanga Ridge fuel breaks include approximately 50 acres of occupied habitat and 2 acres of designated critical habitat for quino checkerspot.

- The Jeff Valley area includes approximately 30 acres of occupied habitat for Laguna Mountains skipper. There is no designated critical habitat for Laguna Mountains skipper that would be affected by the proposed project.

**Table 14 – Existing Vegetation Condition (Acreage Estimates)**

Project Area / ID	Project Type	Mixed Conifer / Hardwood	Mixed Hardwood	Mixed Chaparral / Scrub Oak	Pine Plantation	Montane Meadow	Riparian	Total Acres
<i>Aguanga</i> existing	Fuelbreak			1095				1095
<i>High Point</i> existing	Fuelbreak			203				203
<i>Cottonwood</i> existing	Fuelbreak			190				190
<i>Observatory</i> existing	Fuelbreak		20	54				74
<i>Butterfield</i> existing	Fuelbreak			125				125
<i>Birch Hill</i> existing	WUI / Forest Health		14	58	5			77
<i>East Grade</i> existing	WUI / Forest Health	18						18
<i>Fry Creek</i> existing	WUI / Forest Health	377	247	268	18	16	8	934
<i>Palomar Sta.</i> existing	WUI / Forest Health	96	12					108
<i>Jeff Valley</i> new	WUI / Forest Health	168	188	150		56	5	567
<i>Upper French Vly.</i> new	Forest Health	107		10				117
<i>Crestline</i> new	WUI / Forest Health	7						7
<i>Kica Mik</i> new	Fuelbreak / WUI		6	27				33
<i>Junction</i> new	Fuelbreak / WUI		1.5	5.5				7
<i>Boucher Hill</i> new	Reforestation / Forest Health	92						92
<i>Morgan Hill</i> new	Reforestation / Forest Health	245		65				310
<b>Total Acres per General Vegetation Type</b>		<b>1110</b>	<b>488.5</b>	<b>2250.5</b>	<b>23</b>	<b>72</b>	<b>13</b>	<b>3957</b>



**Figure 6 – Species and Habitat in Jeff Valley Project Area**

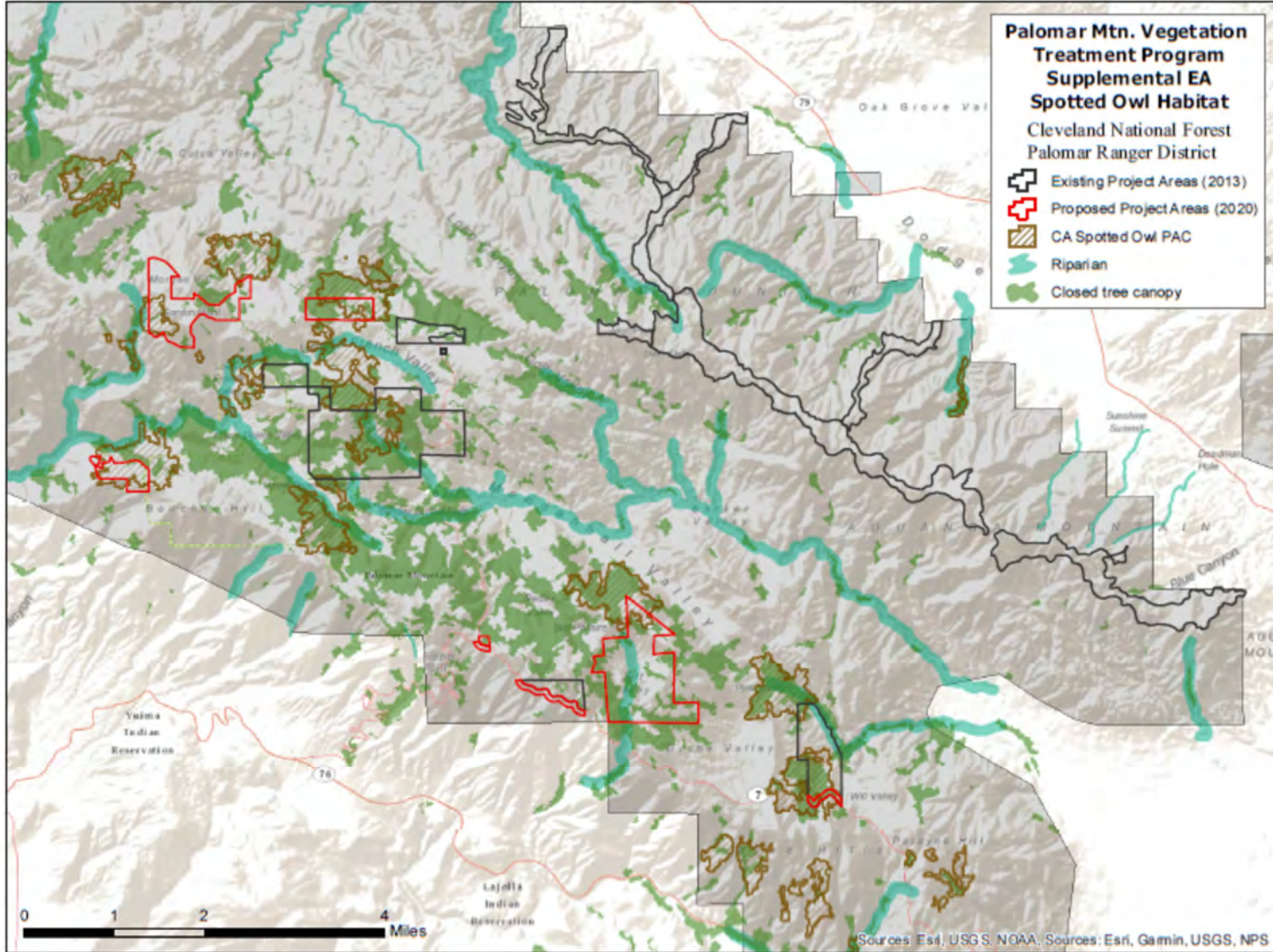
**Table 15 – Wildlife Species in the Project Areas**

Common Name Scientific Name	Status	Presence of Suitable Habitat Within the Site	Presence of Species Within the Site	Potentially Affected by Project?	Viability Threat?	Comments
<b>Birds</b>						
California Spotted Owl <i>Strix occidentalis occidentalis</i>	FSS	Y	Y	Y	N	Suitable nesting habitat exists within dense canopy riparian areas near project work areas. PAC near Fry Creek area. LOP will also protect occupied areas.
<b>Invertebrates</b>						
Laguna Mt. Skipper <i>Pyrgus ruralis</i>	FE	Y	P	Y	N	Suitable habitat present within areas of the project. Incomplete surveys of
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	FE	Y	O	Y	N	Suitable habitat present within areas of the project. Suitable habitat will be treated manually only and under a limited operating period.
<b>Amphibians</b>						
Large-blotched Salamander <i>Ensatina eschscholtzi klauberi</i>	FSS	Y	Y	Y	N	Suitable habitat present
<b>Reptiles</b>						
California Legless Lizard <i>Anniel pulchra pulchra</i>	FSS	Y	Y	Y	N	Marginal habitat is present in the project area. Retention of downed woody material and scattered shrubs would minimize impacts.
Southwestern Pond Turtle <i>Clemmys marmorata pallida</i>	FSS	Y	P	Y	N	No suitable breeding habitat present except for portion of East Grade Other project area well above riparian zones
San Diego Ringnecked Snake <i>Diadophis punctatus similis</i>	FSS	Y	Y	Y	N	Limited habitat within project area and limited mechanical impacts.
San Diego Mtn. Kingsnake <i>Lampropeltis zonata pulchra</i>	FSS	Y	O	Y	N	Limited suitable habitat present in area adjacent impact zone. Mitigation should avoid impacts to the species.

Coastal Rosy Boa <i>Lichanura trivirgata roseofusca</i>	FSS	Y	O	Y	N	Marginal suitable habitat is present adjacent to the project area. Too dry except near springs/creeks. May occur on hillsides within project.
San Diego Horned Lizard <i>Phrynosoma coronatum blainvillii</i>	FSS	Y	Y	Y	N	Suitable habitat.
Two-Striped Garter Snake <i>Thamnophis hammondi</i>	FSS	Y	P	Y	N	Suitable habitat in limited portions of project area. Riparian zones to be avoided except for possible backing prescribed burning.
<b>Mammals</b>						
Pallid Bat <i>Antrozous pallidus</i>	FSS	Y	P	Y	N	Primarily potential visitor within project area. Operations only during day should avoid impacts to foraging bats.
Townsend's Big-Eared Bat <i>Corynorhinus townsendii</i>	FSS	Y	P	Y	N	Potential suitable habitat not present. Mainly uses caves/mines.
Western Red Bat <i>Lasiurus blossevillii</i>	FSS	Y Marginal	P	Y	N	Marginal habitat present adjacent to work site. Operations during day and riparian protection would minimize impacts to foraging or hibernating individuals.
<b>Federal Status:</b>			P = Potential			
FE Federally Listed Endangered			Y = Yes			
FSS Forest Service Sensitive			N = No			

**Table 16 - Spotted Owl PAC and Suitable Habitat Acres within the Proposed Project**

Project Area ID	Closed Canopy Forest / Woodland / Riparian	Spotted Owl PAC
Boucher Hill Wildfire Restoration	4.6	68.2
Crestline Forest Health	4.7	0
East Grade Forest Health	14.1	16.4
Jeff Valley Forest Health	268.6	34.0
Kica Mik Fuelbreak	0.1	0
Morgan Hill Wildfire Restoration	36.2	51.4
Upper French Valley Forest Health	66.8	49.7
Aguanga Ridge Fuelbreak	15.2	0
Birch Hill Forest Health	13.1	0
Cottonwood Fuelbreak	4.1	0
Fry Creek Forest Health	551.2	152.4
Observatory Fuelbreak	8.0	0
Palomar Station Forest Health	29.6	0
<b>Total</b>	<b>1016.3</b>	<b>372.1</b>



**Figure 7- Spotted Owl PACS Project Areas**

### 3.5.3 Ongoing Action and Proposed Action

#### **Direct and Indirect Effects**

The Ongoing Action and Proposed Action may result in adverse effects to 12 Regional Foresters sensitive species and 2 federally listed endangered species to the same or similar extent as discussed in the 2013 EA. To the extent new information is available or there is a slight deviation with the Proposed Action, it is summarized below.

**Regional Foresters Sensitive Species.** Same as Section 3.4.4 and 3.10.3 in the 2013 EA except that some species are no longer referred to as Management Indicator Species. In addition, the following new information is proposed for potential effects of the Proposed Action:

- *California Spotted Owl.* Potential direct effects to this species are minimal and include disturbance of individuals present within or adjacent to the treatment areas. Possible indirect effects include habitat alterations during vegetation treatment activities, particularly within the Fry Creek and Jeff Valley units which contain the largest amount of suitable habitat. However, these should be mitigated due to presence/absence surveys continuing in 2020; adherence to the management guidelines outlined in the 2004 conservation strategy; Cleveland National Forest LRMP; and project specific design features. Indirect effects to this species within the remaining four treatment units are unlikely due to the limited suitable habitat present and that two of the units were impacted by the 2007 Witch/Poomacha Fire. Positive indirect effects to this species from the proposed project include the removal of excessive downed fuels and overstocked encroaching conifers that are a significant fire threat to remaining suitable habitat and future spotted owl occupation within the area. These treatments will also improve overall habitat conditions by promoting both greater understory plant diversity and preferred overstory tree species including oak and bigcone Douglas fir which in turn will improve conditions for spotted owl prey species.
- *Pallid bat, Townsend's Big-eared Bat, and Western Red Bat.* While all three of these species may utilize the project area for nocturnal foraging, no suitable rock outcroppings, caves, or mines for roosting, maternity or hibernation sites are within the project areas. No direct indirect, or cumulative effects are expected to this species from the proposed project.
- *San Diego Ringneck Snake and Silvery Legless Lizard.* Potential direct effects to these species include the loss and/or disturbance to a limited number of individuals during vegetation treatment activities. Direct effects to both these species should be minimal due to their fossorial nature spending a majority of the time underground or cover and that sub-soil disturbance is not proposed for project treatments. Indirect impacts to these species include the short-term loss of surface cover and habitat from vegetation treatment activities
- *Coastal Rosy Boa, Red-diamond Rattlesnake, and San Diego Horned Lizard.* Potential direct effects to these species include the loss and/or disturbance to a limited number of individuals during vegetation treatment activities. Direct effects to both these species should be minimal due to their ability to move away from treatment activities and that a majority of fuelbreak treatments are manual. Indirect impacts to these species include the short-term loss of surface cover and habitat from vegetation treatment activities.

Project design features from the 2013 EA are carried forward and updated in this SEA.

**Endangered Species.** Same as Section 3.4.3 in the 2013 EA.

The potential effects of the Ongoing Action and Proposed Action could damage habitat or destroy individual quino checkerspots and Laguna Mountains skippers. Direct impacts could occur from mechanical work, hand crew work, or prescribed fire within habitat for these species. The Ongoing Action and Proposed Action is expected to avoid or minimize direct impacts on quino checkerspot, Laguna Mountains skipper, and designated critical habitat for quino checkerspot with implementation of project design features **CM-3 to CM-10, ITS-1, RMP-1 and TC-1**. The project work may have indirect effects such as increased erosion or changes in vegetation structure.

Project design features from the 2013 EA are carried forward and updated in this SEA.

### **Cumulative Effects**

The wildlife cumulative effects analysis area for the *Palomar Mountain Vegetation Treatment Program* is approximately 56,500 acres encompassing the greater Palomar and Aguanga Mountain Ranges. This area is generally bordered on the north by the Forest boundary paralleling Highway 79; the west by Pauma Indian Reservation; the south by La Jolla Indian Reservation and Highway 76 and to the east by the Forest boundary and Henshaw Valley (see Figure 2). The analysis area is portions of three 5<sup>th</sup> field watersheds including Upper Temecula, Headwaters San Luis Rey and Middle San Luis Rey totaling 347,963 acres (Table 17).

Overall cumulative effects to wildlife from the potential effects of the Ongoing Action and/or the Proposed Action in combination with other projects are expected to be minimal due to the relatively small size of the individual project areas, their treatment prescriptions and percentage of affected habitat types within the cumulative effects area (Table 18). As to the California spotted owl, potential cumulative effects likely minimal. Of the 20 known spotted owl territories (PACS) within the cumulative effects analysis area there is only one PAC within a treatment unit and five with minimal overlap with treatment units. Future proposed projects within the cumulative effects analysis area include the California Vegetation Treatment Program (VTP). This proposed vegetation management program involves federal, state, private, and tribal lands and could affect several additional spotted owl PACS within the Palomar Mountain area. Impacts to spotted owls from this proposed project are unknown at this time. Potential effects of relevant projects are summarized below.

**Valley Center Community Plan Update:** Update of community plan which may increase future development. Analysis is not underway. Valley Center is outside of the Santa Ysabel Watershed and is not adjacent to the Cleveland National Forest. Potential cumulative effects from this action are unknown and unrelated to the proposed project.

**California VTP:** Proposed statewide fuels reduction program on non-federal lands of up to 500,000 acres per-year. Analysis is underway. Potential cumulative effects from this action are unknown. There are no identified treatment areas adjacent to the Cleveland National Forest currently.

**San Diego Gas and Electric Project - Segments TL682 and TL626:** Upgrade of powerline infrastructure. No cumulative effects from this project. Minimal habitat impacts, short term duration and work is occurring within existing alignments.

Invasive Weed Treatments Cleveland National Forest: Non-native weed control efforts on Forest lands. Cumulative effects include additional acreage treated with herbicide. Effects likely negligible due to herbicide types being used and mitigation measures. This project entails specific targeted species and locations with minimal acreage treated annually throughout the Cleveland national Forest.

U.S. Navy Remote Training Site Warner Springs: Military remote training activities on approximately 6,430 acres of Cleveland national Forest land on the Palomar Ranger District. Negligible cumulative effects anticipated. Training activities do not include ground disturbing activities. Mitigation measures under this Special Use Permit include limited herbicide use to remove non-native tamarisk within drainage areas.

**Table 17 – Project Acreage within Watershed Areas**

Project Name	Project Acres	Watershed Name	Watershed Size (ac.)	Total Within Watershed	% of Watershed
Aguanga	547	Upper Temecula	104,906	547	1.1
High Point	203			203	
Cottonwood	190			190	
Butterfield	125			125	
Palomar Station	108			108	
Aguanga	548	Headwaters San Luis Rey	133,061	548	1.14
Observatory	74			74	
East Grade	18			18	
Fry Creek	874			874	
Crestline	7			7	
Birch Hill	77	Middle San Luis Rey	109,996	77	1.14
Fry Creek	60			60	
Jeff Valley	567			567	
Upper French Valley	117			117	
Kica Mik	33			33	
Junction	7			7	
Boucher Hill	92			92	
Morgan Hill	310	310			

**Table 18 – Acreage and Percentage of General Habitat Types Treated within Cumulative Effects Area**

General Habitat Type	Project Area Acres	Cumulative Effects Habitat Area Acres	Percentage of Area
Mixed Conifer/Mixed Hardwood	1,600	15,000	11%
Montane Meadow/Grassland	72	1,800	4%
Mixed Chaparral / Scrub Oak	2,250	39,700	6%

### 3.5.4 Conclusions

The Ongoing Action and Proposed Action would be implemented in accordance with the ESA, the LMP, and Forest Service policy (FSM 2600, *Wildlife, Fish, and Sensitive Plant Habitat Management*). Required determinations are provided below. Project design features **BIO-1 to BIO-11, CM-1 to CM-10, ITS-1, RMP-1 and TC-1** are incorporated into the Ongoing Action and/or Proposed Action to avoid and minimize effects on species.

**Endangered Species.** Potential effects from the Ongoing Action and Proposed Action (fuelbreak and forest health treatments) may affect, and is likely to adversely affect *Quino Checkerspot*

*Butterfly, Laguna Mountains Skipper* and their designated critical habitat over the short-term as treatments are applied. The long-term effect is expected to be beneficial, as the fuels work will help to maintain more open habitat conditions for Quino Checkerspot and will reduce the encroachment of trees into the meadow habitat that is preferred by Laguna Mountains Skipper.

**Regional Foresters Sensitive Species.** Potential effects from the Ongoing Action and Proposed Action (fuelbreak and forest health treatments) may affect individuals but is not likely to result in a trend toward federal listing for the *California Spotted Owl*. Impacts to this species may include short term disturbance to individuals from project activities and vegetation treatments. Impacts to this species will be minimized by agency management guidelines and project design and conservation measures. These same activities may affect individuals but is not likely to result in a trend toward federal listing for the *San Diego ringneck snake, silvery legless lizard, coastal rosy boa, Red-diamond rattlesnake* and *San Diego horned lizard*. Impacts to these species may include the loss of a limited number of individuals from vegetation treatment activities. Short term disturbance to these species may also occur from habitat disturbance during project activities. These same activities would have no effect on the *pallid bat, western red bat* and *Townsend’s big-eared bat*. These species occur within the project area on a limited basis and the proposed project would not adversely affect suitable habitat.

### 3.6 Cumulative Effects Projects

The potentially relevant federal and non-federal projects to be considered for cumulative effects are listed in Table 19 and depicted on Figure 8. These projects include past, present and reasonably foreseeable future actions (RFFA) in the vicinity of the project areas and CNF’s Palomar Ranger District. Analyses are integrated into Section 3.0 (Environmental Consequences) if relevant to the resource and to the extent information is available.

**Table 19 – CEA Projects**

Project Title	Status	Relevant Details
<b>Non-Federal Projects</b>		
California Vegetation Treatment Program (VTP) (CalFire 2019a)	<b>RFFA – analysis underway</b>	<u>Proposed Action.</u> 500,000 acres of fuel reduction per year on non-federal lands by prescribed burning, mechanical and manual methods, prescribed herbivory (use of livestock), and use of herbicides. Up to 25,000 acres of prescribed burning and 20,000 acres of other treatment activities statewide in first year, reaching 250,000 acres per year in 2024. <u>Duration.</u> Indefinite. <u>Relevancy.</u> May be implemented adjacent to or on the PRD (inholdings).
San Diego Gas and Electric Project - Segments TL682 and TL626 (CPUC 2016)	<b>Present – project underway</b>	<u>Proposed Action.</u> Replacement of existing 69 kV power lines and 12 kV distribution circuits located within and outside of the CNF. O&M and Wildfire Mitigation Plans under development. <u>Duration.</u> Project completion in next 2 years. <u>Relevancy.</u> TL682 and TL626 traverse the PRD.
<b>Federal Projects</b>		
BLM’s Salvatore Fuels Reduction Permit	<b>Present– analysis completed, assume project underway</b>	<u>Proposed Action.</u> 1.3 acres of hazardous fuel reduction on BLM-managed lands abutting private property. Up to 12 acres could be treated. <u>Duration.</u> 3 years. <u>Relevancy.</u> Within same air district.

Project Title	Status	Relevant Details
(BLM 2019)		
Invasive Weed Management on the Cleveland National Forest (USFS 2014)	<b>Past/Present/RFFA</b> –ongoing	<u>Proposed Action.</u> 100-150 acres treated per year to control and/or eradicate priority invasive species (tamarisk, giant reed, and yellow starthistle) using mechanical and chemical methods (except aerial spraying). <u>Duration.</u> Treatments anticipated for 10 to 20 years. <u>Relevancy.</u> On PRD and using same herbicides.
Forest Service’s Palomar Community Defense Zone (CDZ) and Fuelbreak Project (USFS 2010)	<b>Past/Present/RFFA</b> – ongoing (SEA underway)	<u>Ongoing Action.</u> Vegetation management activities on 702 acres. To-date, 424 acres have been treated. <u>Proposed Action.</u> Vegetation management activities on an additional 851 acres. <u>Duration.</u> Indefinite. <u>Relevancy.</u> On PRD, similar work, and herbicide use.
U.S. Navy Remote Training Site Warner Springs (U.S. Navy 2010, 2016)	<b>Past/Present/RFFA</b> – ongoing	<u>Proposed action.</u> 6,430 acres used for training on the PRD. Other activities: vegetation treatment (herbicides subject to USFS approval), fuelbreak construction, implementing fire prevention measures, and restoring burned sites. <u>Duration.</u> Indefinite. <u>Potential Effects.</u> On PRD, similar work, and may require use of herbicides in future.

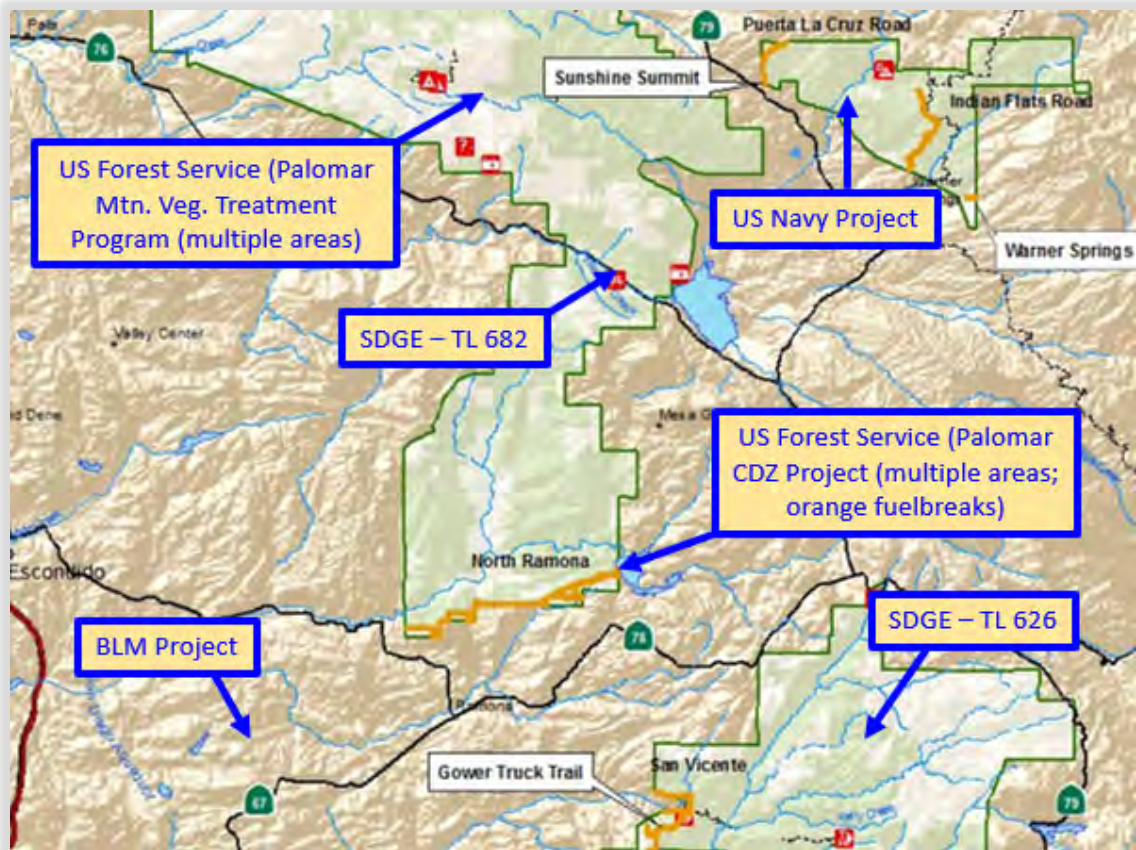


Figure 8 – CEA Projects

### 3.7 Other Resources Considered and Findings

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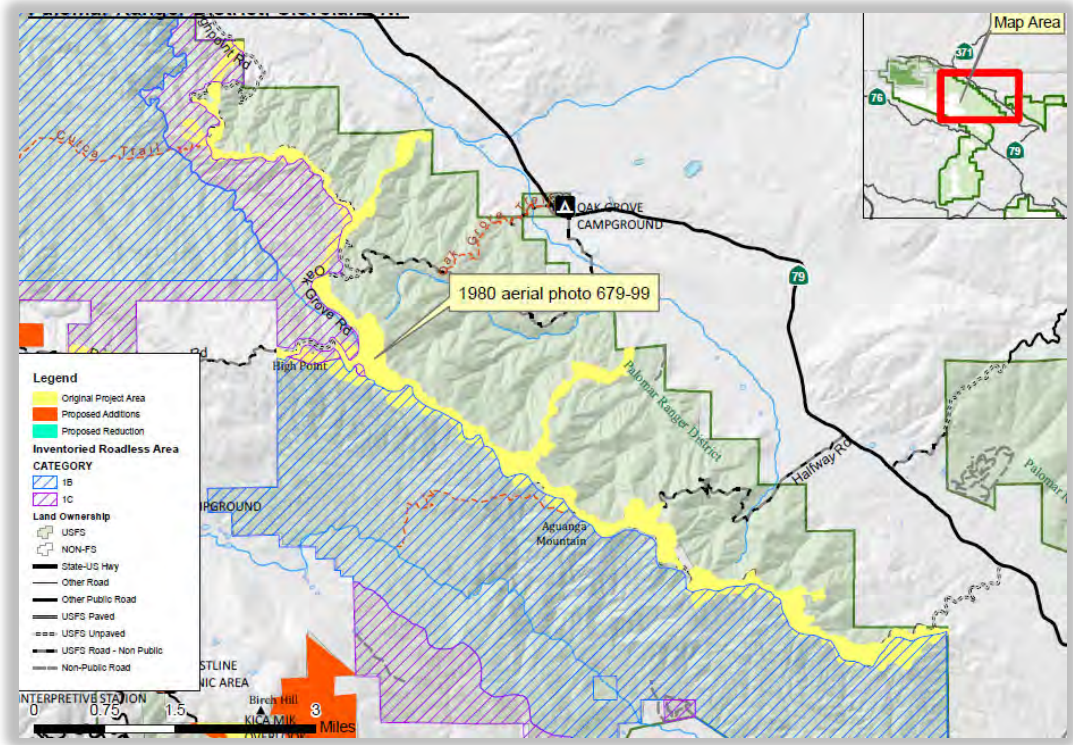
**Cultural/Heritage Resources.** There are historic and prehistoric sites within the project areas. Known and unknown sites of importance to Native American tribes exist within the project area. To protect the integrity of these sites, no further information is disclosed in this SEA. At a minimum, the Ongoing Action and Proposed Action would adhere to project design features **HER-1 to HER-5** and **NATIVE-1 to NATIVE-2**. These measures would ensure no adverse effects to historic properties and have been updated since the 2013 EA. Additional requirements may be imposed as a result of future-continued coordination and consultation with potentially affected Native American tribes, as discussed in Section 1.6. *Note: due to the ongoing nature of these discussions, this Final SEA may be revised to confirm Native American project design features before a decision is signed by the Line Officer.* Based on the foregoing, the Ongoing Action and Proposed Action would be implemented in accordance with the NHPA per the terms of the Regional Programmatic Agreement and its *Hazardous Fuels Protocol for Non-Intensive Inventory Strategies for Hazardous Fuels and Vegetation Reduction Projects*.

**Inventoried Roadless Areas.** The *Palomar Mountain Vegetation Treatment Program* has the potential to affect 693 acres of the Cutca Valley and Barker Valley IRAs:

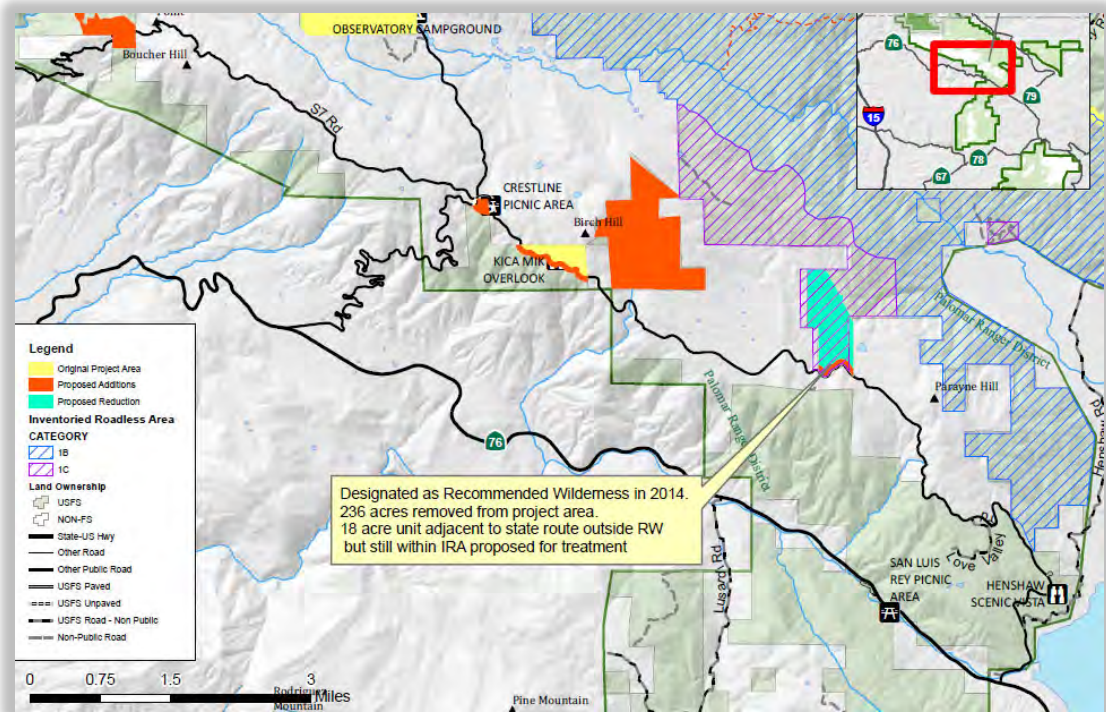
- The *Ongoing Action* would affect 273 acres of the Cutca Valley IRA and 351 acres of the Barker Valley IRA (entire project not yet implemented as initially authorized).
- The *Proposed Action* would affect an additional 53 and 16 acres in the Cutca and Barker Valley IRAs, respectively.

Historic aerial photographs and NEPA documents show and confirm that portions of these IRAs were treated before the areas were designated as IRAs, including the portion of the Barker Valley IRA containing the East Grade project area (e.g., East Grade Vegetation Management Project EA (1985)) and a 1991 Decision Memo) (see Figure 9 to 11).

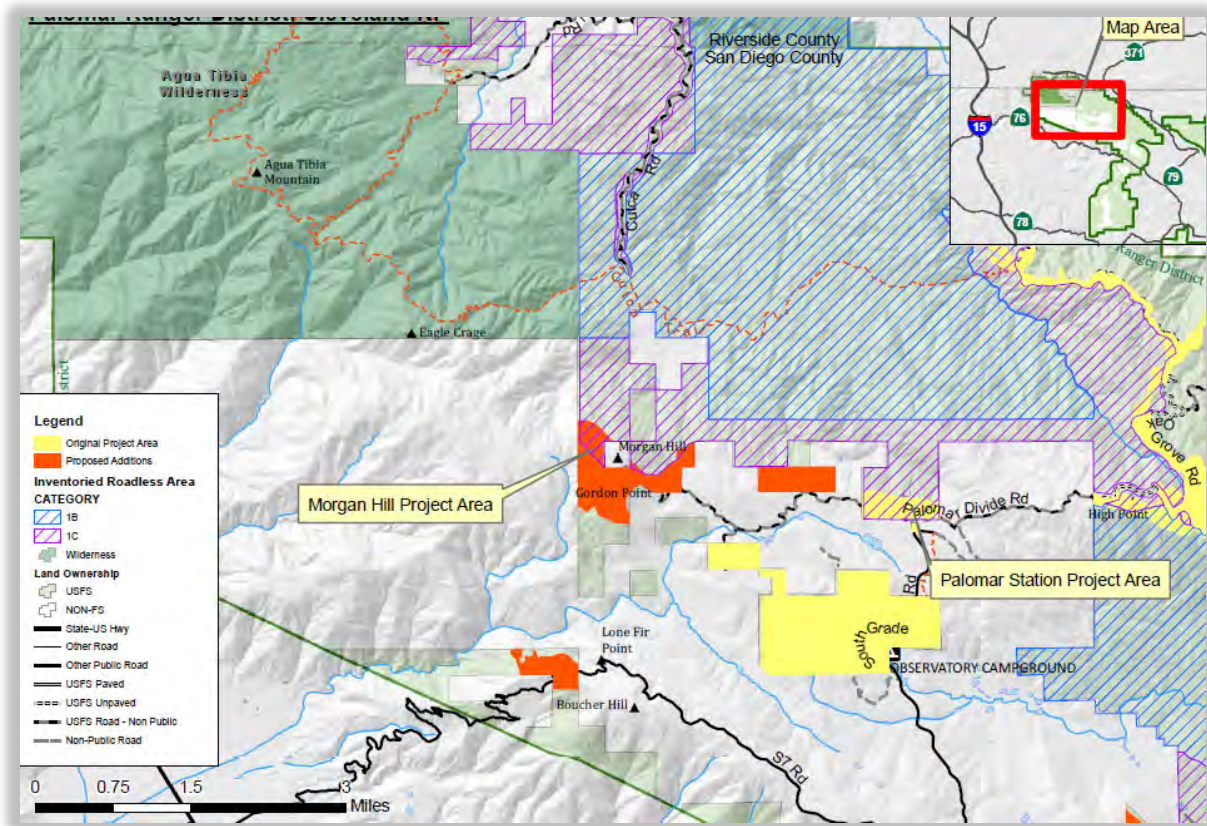
The Forest Service has determined that Ongoing Action and Proposed Action in Cutca Valley and Barker Valley IRAs complies with the 2001 Roadless Area Conservation Rule (RACR) (USFS 2020). The program involves cutting small diameter timber to “[m]aintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period.” 36 CFR § 294.13(b)(1)(ii).



**Figure 9 – Showing Area Treated Before IRAs Designated (Main Fuel Break)**



**Figure 10 – Showing Area Treated Before IRAs Designated (East Grade Project Area)**



**Figure 11 – Showing Area Treated Before IRAs Designated (Remaining Areas)**

**Land Use.** Private property may border or be an in-holding with project areas. Affects to private property would be avoided by implementing project design feature **LL-1**.

**MBTA and E.O. 13186.** The general bird nesting season in San Diego County is late February to mid-July. The 2013 EA did not identify any measurable adverse or beneficial effect to migratory birds and did not recommend any project design features, mitigation, or monitoring.<sup>21</sup> Despite this and the position of the Department of the Interior (incidental take does not violate the MBTA) (USDOI 2017), **BIO-8** is integrated into the Proposed Action to ensure LMP consistency. Some of the other wildlife project design features could be coordinate with and/or make **BIO-8** redundant, but that determination would be left to the Forest Service wildlife biologists during implementation. Based on the foregoing, the Ongoing Action and Proposed Action *without* mitigation and monitoring.

**Recreation.** See Section 3.2 in the 2013 EA. Project design features **REC-1 to REC-5** are carried forward into this SEA.

**Scenery.** See Section 3.1 in the 2013 EA. Project design features **SCEN-1 to SCEN-3** are carried forward into this SEA.

<sup>21</sup> USFS 2013 (EA, p. 2.13 to 2-14, and 3.9-5).

## 4.0 MITIGATION, MONITORING, AND ADAPTIVE MANAGEMENT

The mitigation and monitoring requirements listed below are summarized from Section 2.0 and 3.0 of this SEA. They are incorporated into the program and apply to \*both\* the Ongoing Action and Proposed Action, unless otherwise specified. Monitoring is identified for important cases, to ensure compliance with overarching legal requirements.

*Mandatory* mitigation and monitoring:

- Project Design Features:
  - Ongoing Action – all requirements in Section 2.3 except **HERB-1 to HERB-20**.
  - Proposed Action – all requirements listed in Section 2.3.
- CAA. Monitoring would be required for **AIR-2**.
- CWA. Monitoring would be required for **HSA-9**.
- NHPA. Monitoring needed to ensure compliance with **HER-1 to HER-3** and **HER-5**.
- Tribal. Monitoring needed to ensure compliance with **NATIVE-1**.
- ESA. Monitoring would be required for **BIO-1, BIO-10, CM-10, ITS-1, and RMP-1**.
- Herbicides. Monitoring would be required for implementing **HERB-16**.

*Discretionary* mitigation and monitoring for the decision maker to consider:

- CWA. BMP monitoring may be completed for this project if time permits, otherwise all projects on the CNF are within the scope of the CNF's BMP evaluation program. Even if the project is not specifically monitoring, results from evaluations inform BMP effectiveness and potential BMP refinements for all project.
- MTBA. Monitoring was not required in the 2013 EA. Monitoring that would occur for other plant and wildlife project design features would be sufficient to determine if the Forest Service is meeting its obligations to protect migratory birds per the LMP.

*Adaptive Management*: If during the implementation of the Ongoing Action or Proposed Action, monitoring results validate the effects anticipated or indicate that changes are needed to keep potential effects within the scope of the NEPA analysis, the Line Officer in consultation with the Forest Service IDT and applicable regulatory agencies may make minor changes. All changes would be documented in the project record. Changes would not trigger a new NEPA process so long as potential effects remains within the scope of the existing environmental effects analysis (2013 EA and this SEA).

## 5.0 REFERENCES

### General

- BLM, 2019. BLM's Salvatore Fuels Reduction Permit, information available at: [https://eplanning.blm.gov/epl-front-office/eplanning/lup/lup\\_register.do](https://eplanning.blm.gov/epl-front-office/eplanning/lup/lup_register.do).
- CalFire, 2019. California Vegetation Treatment Program (VTP), information available at: <https://bof.fire.ca.gov/projects-and-programs/calvtp/>.
- California Public Utilities Commission (CPUC), 2016. SDGE Master Special Use Permit and Permit to Construct Powerline Replacement Projects - Segments TL682 and TL626, information available at: <https://www.cpuc.ca.gov/environment/info/dudek/CNF/CNF.htm#RecordDecisions>.
- San Diego County, 2011. General Plan Update Environmental Review, information available at: <https://www.sandiegocounty.gov/content/sdc/pds/gpupdate/environmental.html>.
- U.S. Forest Service (USFS), 2005a. Land Management Plan (LMP), Parts 1 to 3, for the Angeles, Cleveland, Los Padres, and San Bernardino National Forests (September 2005), available at: <https://www.fs.usda.gov/detail/cleveland/landmanagement/planning/?cid=stelprdb5270296>.
- USFS 2005b. Final Environmental Impact Statement, Volumes 1 to 2, for the or the Angeles, Cleveland, Los Padres, and San Bernardino National Forest LMPs (September 2005), available at: <https://www.fs.usda.gov/detail/cleveland/landmanagement/planning/?cid=stelprdb5270296>.
- USFS, 2013. Environmental Assessment and Finding of No Significant Impact. Palomar Mountain Vegetation Treatment Program, at: <https://www.fs.usda.gov/project/?project=55777>
- USFS, 2014. Environmental Assessment for Invasive Weed Management on the Cleveland National Forest (July 2014), at: <https://www.fs.usda.gov/project/?project=55777>
- USFS, 2015. Environmental Assessment for Lake Morena Community Defense (November 2014), available at: <https://www.fs.usda.gov/project/?project=55777>
- USFS, 2016. Environmental Assessment for Alpine Community Defense Project (December 2016), available at: <https://www.fs.usda.gov/project/?project=55777>
- USFS, 2018. Environmental Assessment for South Main Divide and Greater El Cariso Fuels Management Project (April 2018), available at: <https://www.fs.usda.gov/project/?project=55777>
- USFS, 2019. Palomar Community Defense Zone and Fuelbreak Project SEA and Decision Notice-Finding of No Significant Impact (DN-FONSI) (October 2019), at: <https://www.fs.usda.gov/project/?project=55777> (under “supporting” tab).
- U.S. Navy, 2010 and 2016. U.S. Navy Remote Training Site Warner Springs.

### Air Quality

- California Air Resources Board (CARB) (2010). Title 17 – California Code of Regulations, at: <https://www.arb.ca.gov/regs/regs-17.htm>.
- Hurteau, M., Koch, G., and Hungate, B. 2008. Carbon protection and fire risk reduction: toward a full accounting of forest carbon offsets. *Frontiers in Ecology and the Environment* 6 (9):493-498.
- Hurteau, M., North, M., 2009. Fuel treatment effects on tree-based forest carbon storage and emissions under modeled wildfire scenarios. *Frontiers in Ecology and the Environment*, 7.
- Lui, X., Huey, G.L., Yokelson, R.J, Selimovic, V., Simpson, I.J., Müller, M., Jimenez, J.L, Campunzano-Jost, P., Beyersdorf, A.J., Blake, D.R, Butterfield, Z., Choi, Y., Crouse, J.D., Day, D.A., Diskin, G.S., Dubey, M.K., Fortner, E., Hanisco, T.F, Hu, W., King, L.E, Kleinman, L., Meinardi, S., Mikoviny, T.,

Onasch, T.B., Palm, B.B., Peischl, J., Pollack, I.B., Ryerson, T.B., Sachse, G.W., Sedlacek, A.J., Shilling, J.E., Springston, S., St. Clair, J.M., Tanner, D.J., Teng, A.P., Wennberg, P.O., Wisthaler, A., M. Wolfe. 2017. Airborne measurements of western U.S. wildfire emissions: Comparison with prescribed burning and air quality implications. *Journal of Geophysical Research: Atmosphere*, 122.

Navarro, K.M., Schweizer, D., Balmes, J.R., Cisneros, R. 2018. A Review of Community Smoke Exposure from Wildfire Compared to Prescribed Fire in the United States. *Atmosphere*, 185.

San Diego County Air Pollution Control District (SDCAPCD). 2002. Rule 101 Burning Control, at: [https://www.sandiegocounty.gov/content/sdc/apcd/en/Rule\\_Development/Rules\\_and\\_Regulations.html](https://www.sandiegocounty.gov/content/sdc/apcd/en/Rule_Development/Rules_and_Regulations.html)

U.S. Department of Agriculture (USDA), 2019. Bluesky Playground Web Model v2, at: <https://tools.airfire.org>. Forest Service, Pacific Northwest Research Station, Pacific Wildland Fire Sciences Laboratory, AirFire Research Team. 2019.

U.S. Environmental Protection Agency (USEPA), 2015. Green Book 8-Hour Ozone (2015) Area Information, at: <https://www.epa.gov/green-book/green-book-8-hour-ozone-2015-area-information>

USEPA, 2017. De Minimis Tables. De Minimis Tables, at: <https://www.epa.gov/general-conformity/de-minimis-tables>.

Vaillant, Nicole M.; Reiner, Alicia L.; Noonan-Wright, Erin K. 2013. Prescribed fire effects on field-derived and simulated forest carbon stocks over time. *Forest Ecology and Management*. 310: 711-719.

### **Herbicides**

Bakke, David, 2007. Analysis of Issues Surrounding the Use of Spray Adjuvants with Herbicides. Forest Service (December 2002, revised 2007), available at: [https://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3\\_046692](https://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046692).

Syracuse Environmental Research Associates, Inc. (SERA), 1997. Use and Assessment of Marker Dyes used with Herbicides (December 21, 1997), at: [https://www.fs.fed.us/foresthealth/pesticide/pdfs/091602\\_markerdyes.pdf](https://www.fs.fed.us/foresthealth/pesticide/pdfs/091602_markerdyes.pdf).

SERA, 2011. Imazapyr–Human Health and Ecological Risk Assessments, Final Report (December 16, 2011), available at: [https://www.fs.fed.us/foresthealth/pesticide/pdfs/Imazapyr\\_TR-052-29-03a.pdf](https://www.fs.fed.us/foresthealth/pesticide/pdfs/Imazapyr_TR-052-29-03a.pdf).

SERA, 2014. Scoping/Screening Level Risk Assessment on Fluazifop-P-butyl, Final Report (July 21, 2014), at: <https://www.fs.fed.us/foresthealth/pesticide/pdfs/Fluazifop-P-butyl.pdf>.

SERA, 2016a. Triclopyr –Human Health and Ecological Risk Assessment (Final Report, July 2016), at: [https://www.fs.fed.us/foresthealth/pesticide/pdfs/181126Triclopyr-2011\\_RA.pdf](https://www.fs.fed.us/foresthealth/pesticide/pdfs/181126Triclopyr-2011_RA.pdf) and [https://www.fs.fed.us/foresthealth/pesticide/pdfs/181207Triclopyr\\_2011\\_APPENDICES.pdf](https://www.fs.fed.us/foresthealth/pesticide/pdfs/181207Triclopyr_2011_APPENDICES.pdf).

SERA, 2016b. Sporangin® and Cellu-Treat® (Selected Borate Salts) Human Health and Ecological Risk Assessment, Final Report (October 17, 2016), at: [https://www.fs.fed.us/foresthealth/pesticide/pdfs/Borax\\_Documentation.pdf](https://www.fs.fed.us/foresthealth/pesticide/pdfs/Borax_Documentation.pdf)

### **Heritage**

USFS, et al., 2018. Amendment 1 of the Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Processes/or Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region (Regional PA 2018).

### **Inventoried Roadless Area**

USFS, 2000. Forest Service Roadless Area Conservation, Final Environmental Impacts Statement, Volumes 1, pp. S-8 to S-9 (November 2000).

USFS, 2020. Decision Memorandum for Bernie Gyant, Deputy Regional Forester Pacific Southwest Region (February 4, 2020).

### **Migratory Bird**

U.S Department of Interior, 2017. Solicitor Opinions, Number M-37050, available at: <https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf>

### **Wildlife (ESA-Listed)**

USFS, 2016. Biological Assessment, and request for consultation on the effects of seven fuel breaks on Quino Checkerspot. Cleveland National Forest files.

U.S. Fish and Wildlife Service (USFWS), 2006. Designation of Critical Habitat for the Laguna Mountains Skipper. Federal Register 71: 74592-74615.

USFWS, 2008. Designation of Critical Habitat for *Poa atropurpurea* (San Bernardino bluegrass) and *Taraxacum californicum* (California taraxacum); Final Rule. Federal Register 73: 47706-47767.

USFWS, 2009. Revised Designation of Critical Habitat for the Quino Checkerspot butterfly (*Euphydryas editha quino*). Federal Register 74: 28776-28862.

USFWS, 2016. Formal Section 7 Consultation on Seven Fuel Breaks on the Palomar Ranger District, Cleveland National Forest, California. Cleveland National Forest files. FWS-SDD-16B0161-16F0277

### **Wildlife (Regional Forester Sensitive)**

Barbour, Roger W., and W.H. Davis. 1969. Bats of America. The University Press of Kentucky. pp.227.

Carpenter A.T. 1998. Element Stewardship Abstract for *Tamarix ramosissima Ledebour*, *Tamarix pentandra Pallas*, *Tamarix chinensis Loureiro*, *Tamarix parviflora De Candolle*, Saltcedar, Salt cedar, & Tamarisk. Edited by Ramona A. Robison and John M. Randall, The Nature Conservancy, Wildland Weeds Management and Research, University of California, Davis, CA 95616.

Cleveland National Forest. 1978. Palomar Mountain Silvicultural Examination. Palomar Ranger District, Cleveland National Forest. Prepared by G. Ingco, Silviculturist. Oct. 6, 1978.

Davis, Edward H. 1947. Palomar and The Stars. Unpublished Memoirs 1947.

Goodman, Josh. 2004. Geologist, Goodman and Associates.

ICF International. 2012. Environmental Assessment: Palomar Mountain Vegetation Restoration Project.

Loe and Beyers, 2004. Conservation Strategy for the California Spotted Owl (*Stix occidentalis occidentalis*) on the National Forests of Southern California. Unpublished report from San Bernardino National Forest.

Minnich, Richard A.; Barbour, Michael G.; Burk, Jack H.; Fernau, Robert F. 1995; Sixty Years of Change in California Conifer Forests of the San Bernardino Mountains. Conservation Biology Vol. 9, No. 4, August 1995. Pgs. 902-914.

Price, Michael. 2004. Fry Creek Fuels Reduction Project, Functional Assistance Report. USDA Forest Service, Sierra National Forest.

Stephenson, John R; Calcarone, Gena M. 1999. *Southern California mountains and foothills assessment: habitat and species conservation issues*. General Technical Report GTR-PSW-172. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Dept. of Agriculture; 402 p.

Tamarisk Coalition, 2005. New Mexico Options for Non-Native Phreatophyte Control. Prepared for the New Mexico Non-Native Phreatophyte/Watershed Interagency Workgroup, at: <http://nmdaweb.nmsu.edu>.

- USFWS, 2010. Informal Section 7 Consultation Regarding the Proposed Palomar Community Defense Zone project, Cleveland National Forest. June 08, 2010 (FWS- SD-10B05551-1010725).
- USFWS, 2013. Formal Section 7 Consultation for Some recreation and Road and Trail Use Maintenance on the Cleveland National Forest, San Diego, Orange, and Riverside Counties, California. May 9, 2013 (FWS-OR/SD/WRIV-13B0077-13F0198).
- USFWS, 2016. Formal Section 7 Consultation on Seven Fuel breaks on the Palomar Ranger District, Cleveland national Forest, CA. June 17, 2016. (FWS-SDD-16BO161-16F0277).
- Wells, Jeff. 2009. Wildlife Biological Evaluation and Assessment for Palomar Community Defense Zone Project. Cleveland National Forest. August 1, 2009.
- Winter, Kirsten. 2009. Botany Biological Evaluation and Assessment for Palomar Community Defense Zone Project. Cleveland National Forest. April 17, 2009. [www.fs.fed.us/foresthealth/pesticide/index](http://www.fs.fed.us/foresthealth/pesticide/index).
- USDA Soil Service, USDA Forest Service, 1973. Soil Survey San Diego Area, California. 104pp.
- USDA Forest Service. 2004. Draft Conservation Strategy for the California Spotted Owl (*Strix occidentalis occidentalis*) on the National Forests of Southern California.
- Verner, Jared; McKelvey, Kevin; Noon, Barry R.; Guterrez, R.J.; Gould, Gordon I.; Jr.; Beck, Thomas W.; Technical Coordinators. 1992. *The California spotted owl: a technical assessment of its current status*. Gen. Tech. Rep. PSW-GTR-133. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Dept. of Agriculture; 285 p.
- Western Regional Climate Center. 2004. Desert Research Institute. <http://www.wrcc.dri.edu>.
- Williams, Gerald W. 2001. References on the American Indian Use of Fire in Ecosystems. USDA Forest Service, Washington D.C.
- Wood, Catherine M. 1937. Palomar From Teepee To Telescope. Frye and Smith Ltd. 1937.
- Zeiner, D.C., W.F. Laudenslayer, Jr, K.E. Mayer and M. White, (Eds.) 1990. California Wildlife: Volume II: Birds. Calif. Dept. Of Fish and Game. Sacramento, CA. 732 pp.

### **Plants**

- Calflora. 2019. <https://www.calflora.org/>
- Consortium of California Herbaria, 2019. Consortium of California Herbaria Search Page. Berkeley, CA, at: <http://ucjeps.berkeley.edu/consortium/>
- California Natural Diversity Database, 2019. RareFind 4.0. Sacramento, CA, at: <https://nrmsecure.dfg.ca.gov/cnddb/view/query.aspx>
- California Native Plant Society, 2019. Online Inventory of Rare and Endangered Plants. Sacramento, CA, at: <http://www.rareplants.cnps.org/>
- Ertter B., 2011. *Horkelia*. The Jepson eFlora: <https://ucjeps.berkeley.edu/> (November 2, 2019).

### **Soil and Water**

- Bosch, J.M. and Hewlett, J.D., 1982. A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. *Journal of Hydrology*, 55: 3-23.
- Gucinski, H., et al, 2001. "Forest Service roads: a synthesis of scientific information." General Technical Report PNW-GTR-509.1, USDA Forest Service, Pacific Northwest Research Station, Portland, OR (2001).
- USDA Natural Resources Conservation Service, 2020. Web Soil Survey, at: <https://websoilsurvey.sc.egov.usda.gov/>

USFS, 2011a. R5 FSH 2509.22 - Soil And Water Conservation Handbook, Chapter 10 - Water Quality Management Handbook, available at: <https://www.fs.usda.gov/project/?project=55777>.

USFS, 2011b. Watershed Condition Framework: A Framework for Assessing and Tracking Changes to Watershed Condition (FS-977) (May, 2011), at: [https://www.fs.fed.us/naturalresources/watershed/condition\\_framework.shtml](https://www.fs.fed.us/naturalresources/watershed/condition_framework.shtml).

USFS, 2012. National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide (April 2012), available at: [https://www.fs.fed.us/biology/resources/pubs/watershed/FS\\_National\\_Core\\_BMPs\\_April2012.pdf](https://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf).

SWRCB, 2016. 2014-2016 303d Impaired Water Bodies, at: [https://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2014\\_2016.shtml](https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml)

For information regarding Environmental Protection Agency, at: <https://www.epa.gov/>

For information regarding the San Diego Regional Water Quality Control Board see: [https://www.waterboards.ca.gov/sandiego/water\\_issues/programs/basin\\_plan/](https://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/)  
<https://www.waterboards.ca.gov/sandiego/>