

2012042043

**Initial Study/Mitigated Negative Declaration
For the proposed
Pattymocus Fuelbreak Project
Tehama County, California**

**Program Type: Emergency Supplemental Hazardous Fuel Treatment
(Grant #09-DG-11052012-151)**

**Project # GT-151-TGU-007
State Clearinghouse Number**



**The California Department of Forestry and Fire Protection (CAL FIRE)
The Lead Agency Pursuant to Section 21082.1 of the
California Environmental Quality Act (CEQA)**

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August 9, 2011

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MITIGATED NEGATIVE DECLARATION

Introduction and Regulatory Context

Stage of CEQA Document Development

- Administrative Draft.** This CEQA document is in preparation by California Department of Forestry and Fire Protection (CAL FIRE) staff.
- Public Document.** This completed CEQA document has been filed by CAL FIRE at the State Clearinghouse on April 19, 2012, and is being circulated for a 30-day agency and public review period. The public review period ends on May 21, 2012. Instructions for submitting written comments are provided on Page 6 of this document.
- Final CEQA Document.** This Final CEQA document contains the changes made by the Department following consideration of comments received during the public and agency review period. The changes are displayed in strike-out text for deletions and underlined text for insertions. The CEQA administrative record supporting this document is on file, and available for review, at CAL FIRE's Sacramento Headquarters which is located in the Natural Resources Building, 1416 Ninth Street, Room #1516-37 on the 15th Floor, Sacramento, California.

Introduction

This Initial Study/Mitigated Negative Declaration (IS/MND) describes the environmental impact analysis conducted for the proposed project. This document was prepared by California Department of Forestry and Fire Protection (CAL FIRE) staff and consultants utilizing information gathered from a number of sources including research and field review of the proposed project area and consultation with environmental planners and other experts on staff at other public agencies. Pursuant to Section 21082.1 of the California Environmental Quality Act (CEQA), the Lead Agency, CAL FIRE and its consultant, has prepared, reviewed, and analyzed the IS/MND and declares that the statements made in this document reflect CAL FIRE's independent judgment as Lead Agency pursuant to CEQA. CAL FIRE further finds that the proposed project, which includes revised activities and mitigation measures designed to minimize environmental impacts, will not result in significant adverse effects on the environment.

Regulatory Guidance

This IS/MND has been prepared by CAL FIRE to evaluate potential environmental effects which could result following approval and implementation of the proposed project. This document has been prepared in accordance with current CEQA Statutes (Public Resources Code [PRC] §21000 *et seq.*) and current CEQA Guidelines (California Code of Regulations [CCR] §15000 *et seq.*).

An Initial Study (IS) is prepared by a lead agency to determine if a project may have a significant effect on the environment (14 CCR § 15063[a]), and thus, to determine the appropriate environmental document. In accordance with CEQA Guidelines §15070, a "public agency shall prepare ... a proposed negative declaration or mitigated negative declaration ... when: (a) The Initial Study shows that there is no substantial evidence ... that the project may have a significant impact upon the environment, or (b) The Initial Study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions will reduce potentially significant effects to a less-than-

significant level.” In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the proposed project will not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR). This IS/MND conforms to these requirements and to the content requirements of CEQA Guidelines Section 15071.

Purpose of the Initial Study

CAL FIRE has primary authority for carrying out the proposed project and is the lead agency under CEQA. The purpose of this IS/MND is to present to the public and reviewing agencies the environmental consequences of implementing the proposed project and describe the adjustments made to the project to avoid significant environmental effects or reduce them to a less-than-significant level. This disclosure document is being made available to the public, and reviewing agencies, for review and comment. The IS/MND is being circulated for public and agency review and comment for a review period of 30 days as indicated on the *Notice of Intent to Adopt a Mitigated Negative Declaration* (NOI). The 30-day public review period for this project begins on April 19, 2012 and ends on May 21, 2012.

The requirements for providing an NOI are found in CEQA Guidelines §15072. These guidelines require CAL FIRE to notify the general public by utilizing at least one of the following three procedures:

- Publication in a newspaper of general circulation in the area affected by the proposed project,
- Posting the NOI on and off site in the area where the project is to be located, or
- Direct mailing to the owners and occupants of property contiguous to the project.

CAL FIRE has elected to utilize the second of the three notification options (Posting of the NOI on and off site in the area where the project is to be located). The NOI was posted at prominent locations on and off site for the entire 30-day public review period. The NOI was posted in the following locations:

1. At the CAL FIRE Tehama Glenn Unit Headquarters office in the public lobby reception area; 604 Antelope Blvd. Red Bluff California 96080
2. At a prominent location below Pattymocus lookout where it can readily be seen by anyone passing through the project area.
3. At a prominent location on Ball Road below the project where it can be seen by anyone passing through the area or accessing the project area.
4. At the Tehama County Resource Conservation District Office in the public lobby reception area, 2 Sutter Street Suite D, Red Bluff CA 96080.
5. The NOI was also posted during the 30-day public review period at the Tehama County Clerk/Recorder's Office in Red Bluff, California.

A complete copy of this CEQA document was made available for review by any member of the public requesting to see it at Cal Fire 604 Antelope Blvd. Red Bluff California 96080 or at the Tehama County Resource Conservation District Office, 2 Sutter Street Suite D, Red Bluff CA 96080. An electronic version of the NOI and the CEQA document were made available for review for the entire 30-day review period through their posting on CAL FIRE's Internet Web Pages at:

http://www.fire.ca.gov/resource_mgt/resource_mgt_EPRP_PublicNotice.php

If submitted prior to the close of public comment, views and comments are welcomed from reviewing agencies or any member of the public on how the proposed project may affect the environment. Written comments must be postmarked or submitted on or prior to the date the public review period will close (as indicated on the NOI) for CAL FIRE's consideration. Written comments may also be submitted via email (using the email address which appears below) but comments sent via email must also be received on or prior to the close of the 30-day public comment period. Comments should be addressed to:

Adam Wyman
Environmental Coordinator
California Department of Forestry and Fire Protection, CAL FIRE
Tehama-Glenn Unit
604 Antelope Boulevard
Red Bluff, CA 96080
Phone: (530) 528-5106
Email: sacramentopubliccomment@fire.ca.gov

After comments are received from the public and reviewing agencies, CAL FIRE will consider those comments and may (1) adopt the Mitigated Negative Declaration and approve the proposed project; (2) undertake additional environmental studies; (3) revise and recirculate the planning documents or (4) abandon the project. If the project is approved and funded, CAL FIRE could design and construct all or part of the project.

Project Description and Environmental Setting

The Pattymocus Fuel Break Project entails the development of a 2.3 mile long 300' wide (84 acres in total) fuel break across private lands utilizing a ball and chain apparatus and a dozer to mechanically clear and crush chaparral brush along a system of prominent ridgelines as part of a larger fuel break system. It is anticipated that crushed and cleared brush will be further treated by burning during winter or spring months in approximately 1 to 5 years. As a consequence of this burning, crushed brush will be disposed of, resprouting vegetation will be burned and herbaceous vegetation will be enhanced. The crush and burn treatment retains the vegetation in an early seral stage, extends the useful life of the fuelbreak and reduces the frequency of future retreatments. The fuel break system in the area surrounding Pattymocus consists of 5 other fuel break segments that have been completed or are currently being funded and developed by the Pattymocus CRMP, the Tedoc CRMP, and the Tehama County Resource Conservation District. This proposed project represents the final link in efforts to tie in the fuel break system developed within the Red Bank-Colyear Springs-Pattymocus CRMP area to the South with State Route 36 to the North (See Figure 4). The Pattymocus Fuel Break project area is located on chaparral covered slopes approximately 3.5 air miles east of the Platina community and roughly 2 air miles west of the R Ranch development.

The ball-and-chain apparatus used in connection with project work will be attached to a bulldozer to mechanically clear and crush chaparral along 2.3 miles of ridgelines and primitive jeep trails to a width of about 300 feet. The ball is an 800-pound water-filled steel globe and the chain is retired ship anchor chain (60 to 80-lbs per lineal foot) connected to the bulldozer with by swivel to allow rolling. The “ball & chain” method will require a dozer to travel along the top of main ridges and drag a 150-foot chain that ends with a 4-foot iron ball. The chain will slide or roll on top of the soil along side slopes, catching and crushing the brush as it travels. The chain will stretch above ground in depression areas, and will scuff the soil surface where rises in topography occur. The ball will leave a slight groove on the surface when being pulled straight behind the dozer. Some soil disturbance will occur attributable to roots being pulled out of the ground as the chain passes over vegetation. The disturbed soil will be sheltered somewhat by crushed chaparral vegetation debris and resprouting vegetation until burning occurs. As result of these treatment characteristics, soil disturbance will be minimal.



Ball and chain treatment, with follow-up burning does not cause a permanent vegetation conversion along the fuelbreak. These treatments allow germination of onsite herbaceous species and return existing chaparral species (and habitats) to an early seral stage.

Project access for the dozer will require the crossing of Dry Creek, an intermittent stream, at a pre-established site. The crossing point will be established in an area and in a manner that will have no negative impacts on stream banks or water quality.

The Pattymocus Fuel Break project area is within Western Tehama County's chaparral belt which includes a fringe of oak-woodlands (see Figures 1 and 2). Elevations within the project area range from between 1,600-3,200 feet. Slopes are steep, up to 65% and the area's topography is broken into numerous narrow canyons and short sub-ridges. The area is designated as open space in the Tehama County General Plan and is zoned for ranching and wildlife production. Vegetation within the project impact area consists generally of mature chaparral although scattered grasslands and small stands of oaks and Gray Pine are found in the area as well, particularly at its north end near Ball Road. Changes in species and vegetation densities cause variation in wildfire intensity and effect. South slopes are characteristically chamise-dominated mixed chaparral which also include ceanothus and foothill pine. On north slopes, ceanothus and live oak dominate other chaparral species. Areas of serpentine parent material and rock have created patches of sparse vegetation.

Project Location

Western Tehama County, Sections 1, 11, 12 T28N R9W, MDBM (see Figure 1, Figure 2 and Figure 3).

The project is located in the chaparral belt that extends between conifer timberlands and oak woodland/rangelands in the Coast Range foothills. This expanse of chaparral species, characterized by chamise, ceanothus, and manzanita (*Adenostoma fasciculatum*, *Ceanothus* spp., and *Arctostaphylos* spp.), extends in a band 2-5 miles wide along the length of the Sacramento Valley at an elevation of 1,200-4,000 feet.

Background and Need for the Project

The Pattymocus Fuel Break Project represents a northeastern continuation of the Tedoc Fuel Break being completed by the Tehama County Resource Conservation District. As a result of this project and earlier fuel break efforts, the Pattymocus Fuel Break will result in the completion of a 76 mile fuelbreak network within Western Tehama County including the Red Bank Creek and Cottonwood Creek watersheds (See Figure 4). This area has developed into a belt of dense Chamise chaparral that is at risk from large, fast moving wildfires. The additional 2.3 miles of ridge top fuel breaks created by the Pattymocus Fuel Break along with the other fuel break segments within this system will reduce the occurrence and spread of future catastrophic wildfires by fragmenting large areas of chaparral fuels between Raney Peak and Highway 36W. This fuel break infrastructure will also help to improve wildlife and chaparral health within a large area of northwestern Tehama County by opening up stands of large decadent brush species and creating early seral stage vegetation, thus increasing habitat diversity. In addition, fire fighting personnel will be allowed better access to remote portions of various Westside watersheds in order to conduct containment and backfiring operations during wildfire events. Finally, the Pattymocus fuelbreak and other fuel breaks will become points from which large areas of wild land fuels can be managed through the

use of prescribed fire resulting in a more natural mosaic of various brush species age classes. Such prescribed burns can be used to expand and maintain the effectiveness of this fuel break infrastructure. The network of fuel breaks including the Pattymocus segment will be located exclusively on private property and when completed will give protection to both public and private lands (United States Forest Service and Bureau of Land Management). The western Tehama chaparral belt has a history of large damaging wildfires. These have resulted in severe sediment pulses in the watercourses, stream scour, culvert and road damage, fishery damage, destruction of timber and range, and extensive suppression costs.

Project Objectives

A fuel break is a strategically located band of vegetation where the composition or density of burnable material has been modified. The purpose of a fuelbreak is to avoid large damaging wildfires by breaking up extensive brush fields and providing defensible working space for wildfire suppression efforts. Once completed, the Pattymocus fuelbreak project will create a 300' wide, 2.3 mile long ridge top band of modified fuel above, and southeast of Long Gulch (See Figure 2). This fire protection infrastructure will not reduce the threat of ignition from sources along the Highway 36W or Ball Road, it will create a fuel break and defensible space from which wildfire suppression and backfiring operations can occur. Biodiversity will increase with the change in seral stage and edge effect from the fuelbreak.

Project Period of Performance

August 2012 Project fuelbreak work to be completed October 2012. Burning may extend into 2017.

Description of the Local Environment

(See Project Description and Environmental Setting above).

General Plan Designation: Open Space.

Existing Zoning: Unclassified.

Surrounding land uses:

The project area is very remote with the nearest communities being R-Ranch/Wild Horse Recreational Development located approximately 2 miles to the northeast and the town site of Platina located about 3.5 miles northwest of the project area. Lands within and adjacent to the project area are used primarily for ranching and wildlife based recreation. To the west, the recreation and timberlands of the Shasta Trinity National Forest provide public access. Extensive fire suppression over the past 75 years has resulted in artificially overstocked stands of chaparral. These vegetation concentrations tend to reduce utilization by range cattle and restrict recreational visitors.

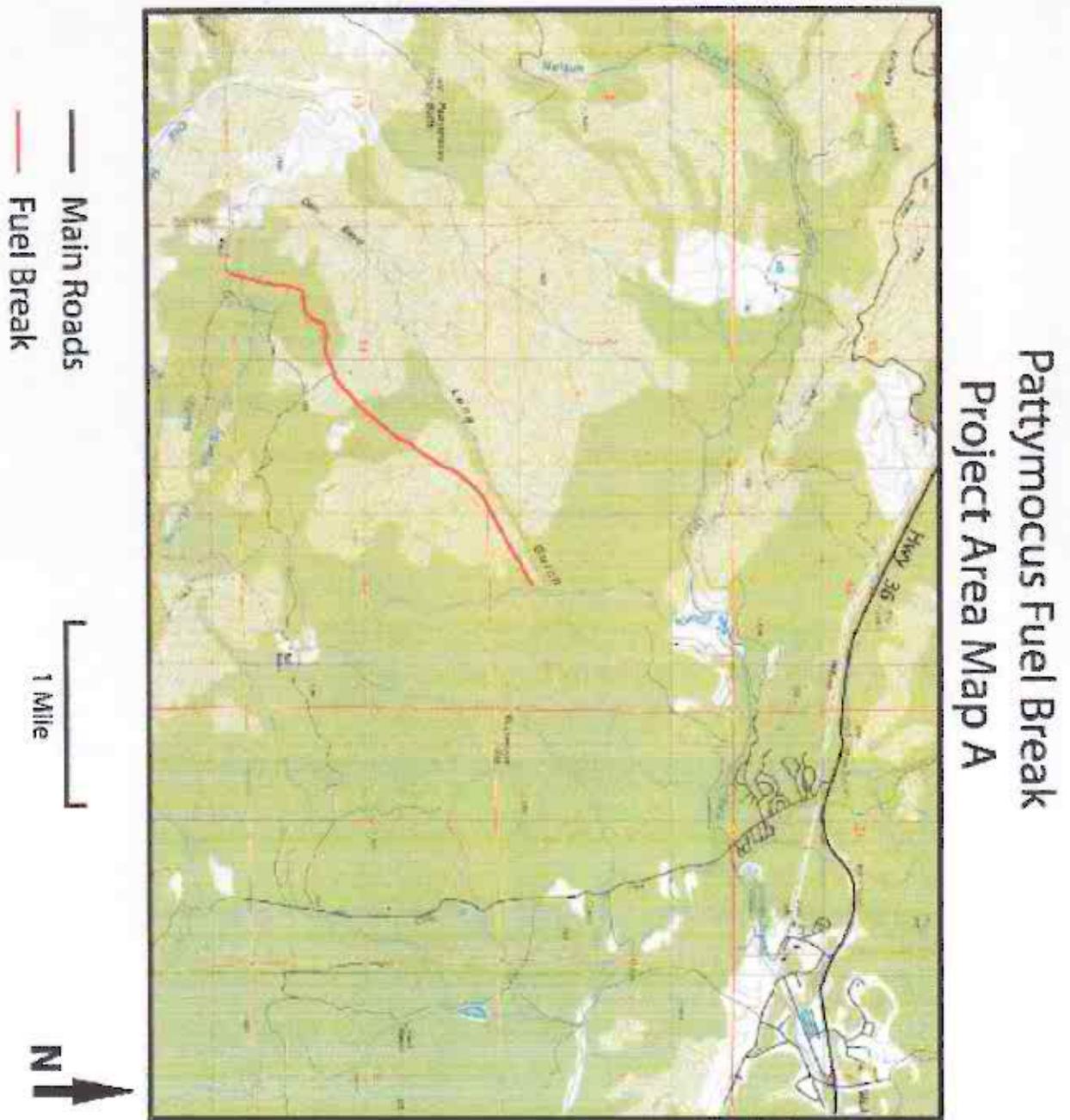
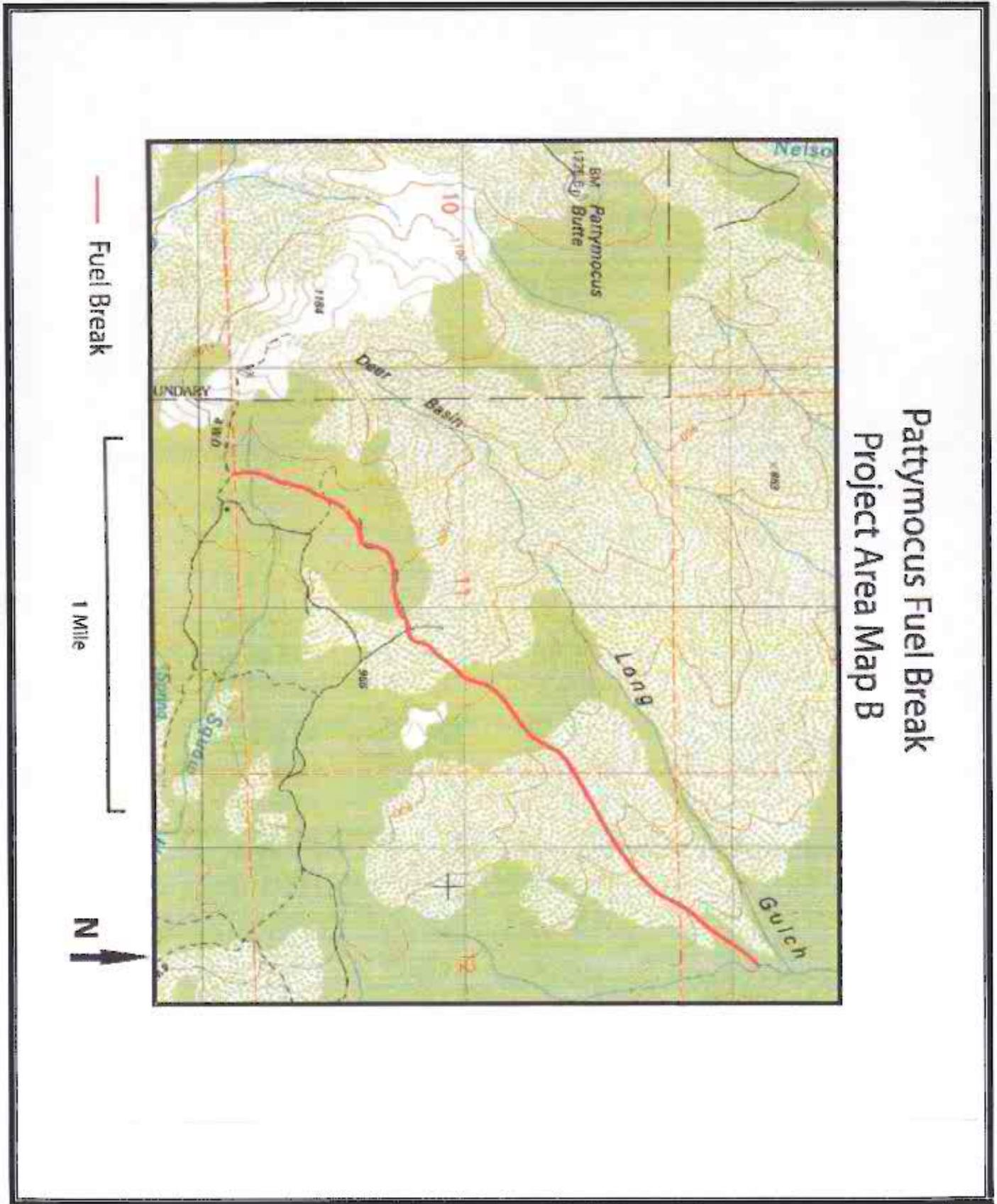


Figure 2. Map A Pattymocus Fuel Break Project Area Map.
(Elevation Shown in Meters (m))



Pattymocus Fuel Break
Project Area Map B

Figure 3. Map B Pattymocus Fuel Break Project Area Map (Detailed)

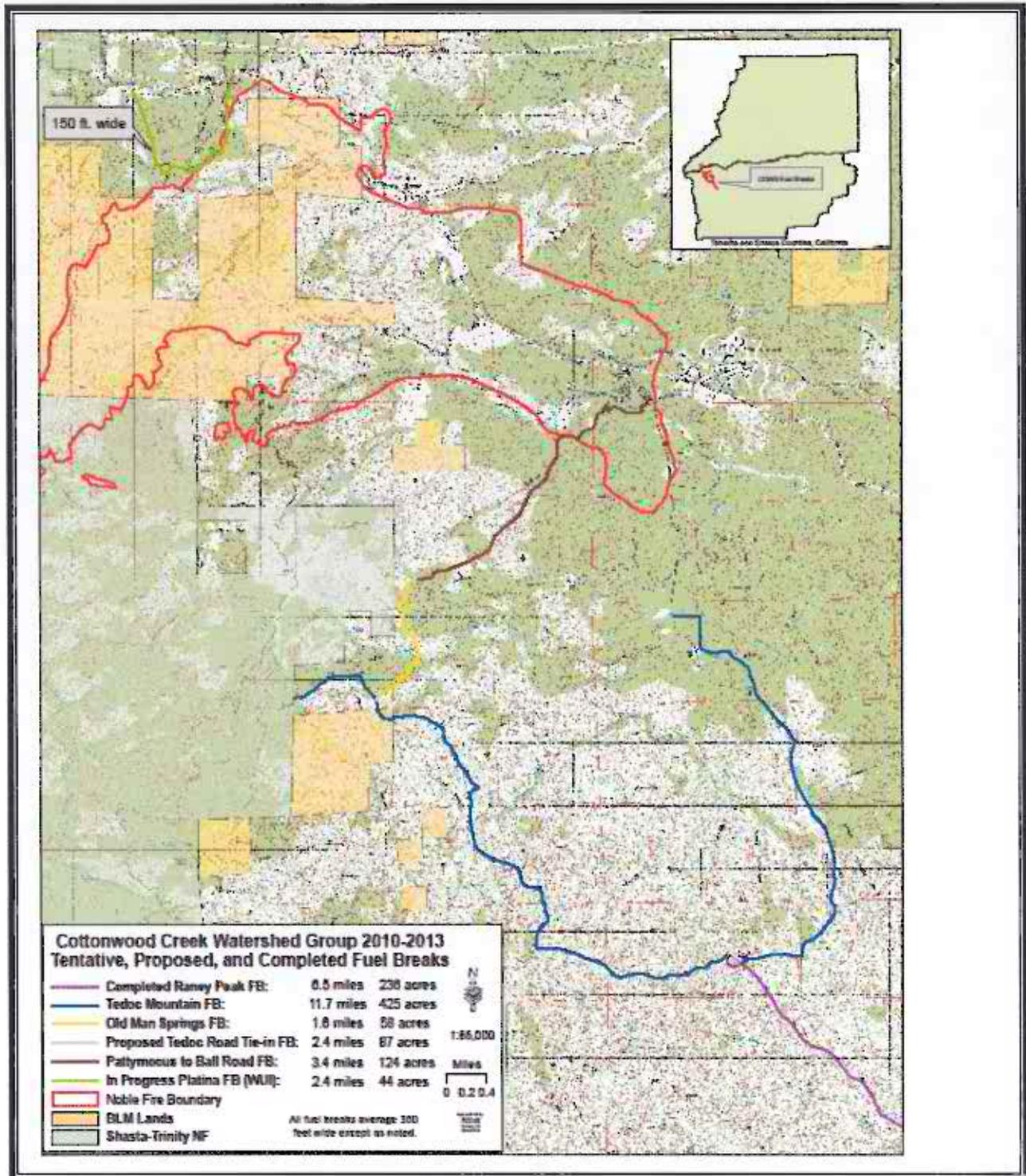


Figure 4. Project Vicinity Map of Fuel Break Projects Within the Raney Peak to R Ranch/Platina Corridor.

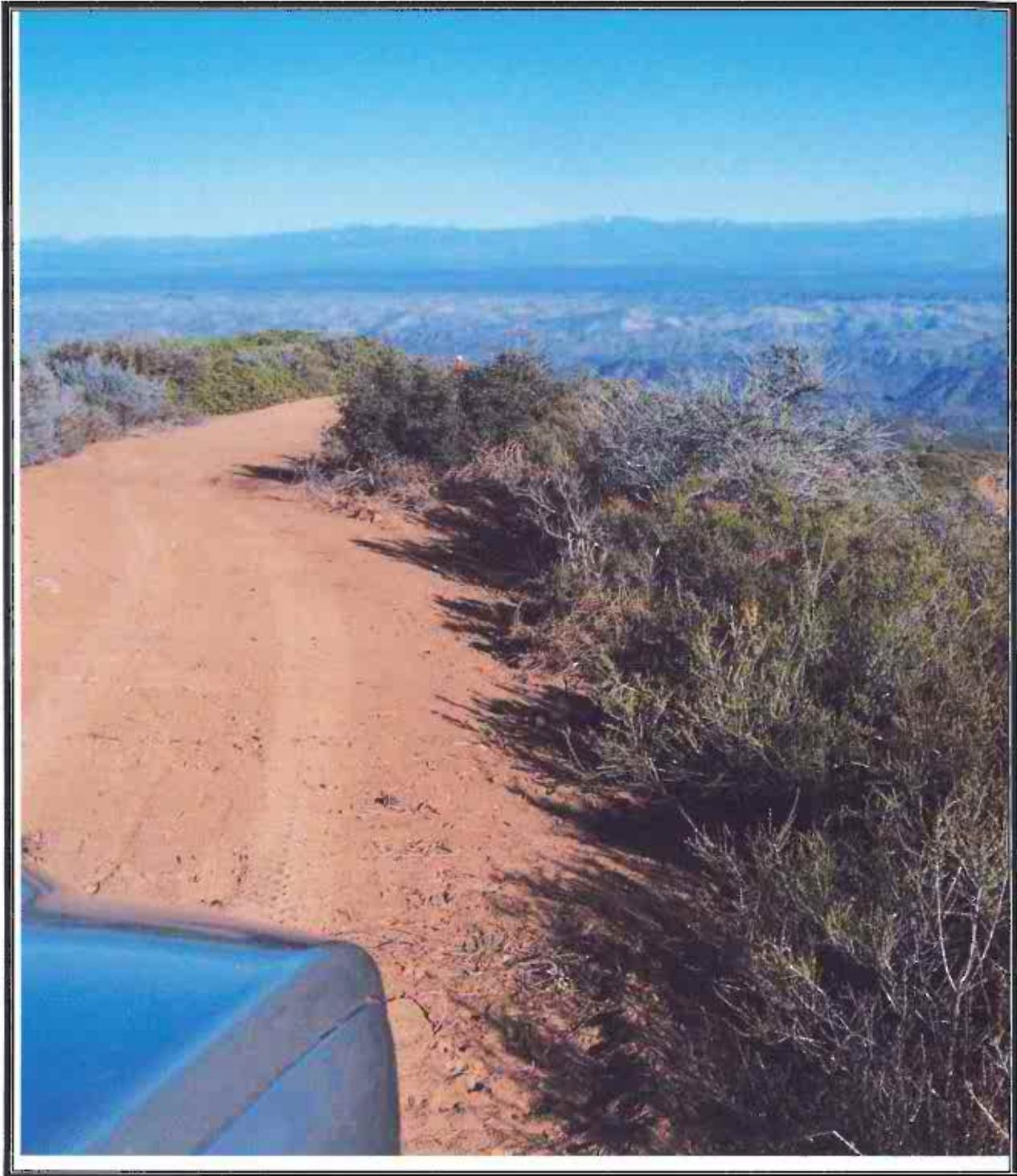


Figure 5. Southerly overview of the Pattymocus Fuel Break project area



Figure 6. The Pattymocus Fuel Break will connect with the Tedoc Fuel Break behind the knoll top center of the photograph and will continue along the prominent ridgeline at the upper left.



Figure 7. Overgrown stand of Chamise Chaparral. Note the grassy component at the bottom of the photograph. One of the goals of this project is to create numerous similar openings throughout the project area in order to reduce the threat and rate of wildfire spread. These grassy areas can be more successfully used as point of control for backfiring and water suppression. The openings also increase wildlife and plant habitat diversity.

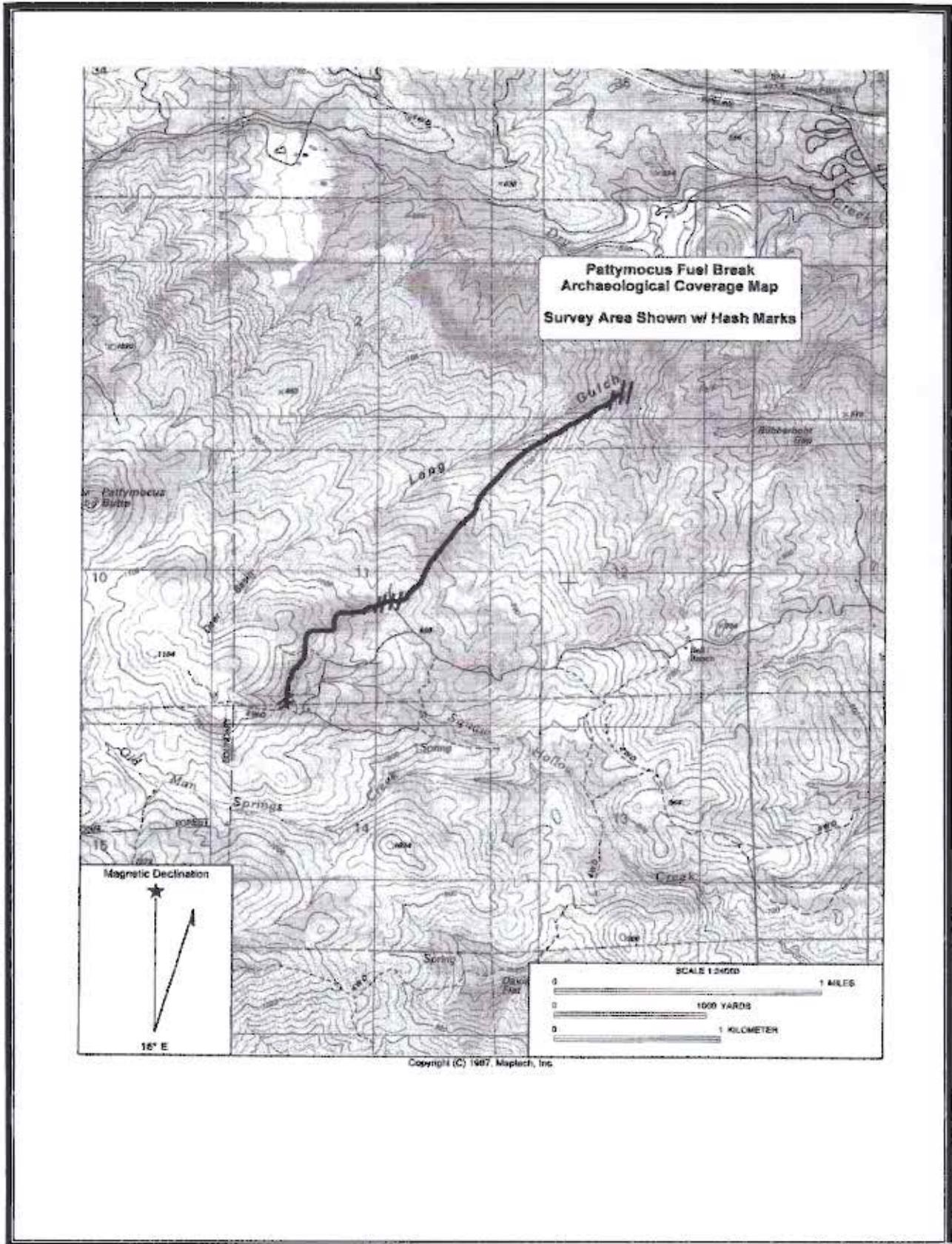


Figure 8. Pattymocus Fuel Break Archeological Coverage Map

Conclusion of the Mitigated Negative Declaration

Environmental Permits and Other Public Agencies Whose Approval May be Required:

The proposed project will require the following environmental permit.

1. A non-discretionary burn permit to burn piles will need to be obtained from the Tehama County Air Pollution Control District depending upon the exact time of burning.
2. Dept. of Fish & Game may require a 1600 permit for stream crossing of Dry Creek.
3. Regional Water Quality Control Board may request an application for a discharge wavier, to be determined during project review.

Mitigation Measures

The following mitigation measures will be implemented by CAL FIRE to avoid or minimize environmental impacts. Implementation of these mitigation measures will reduce the environmental impacts of the proposed project to a less than significant level.

Mitigation Measure 1: The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the fuel is sufficiently cured to assure a clean burn. CAL FIRE will determine the burn day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements when. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

Mitigation Measure 2: Squaw Hollow Creek shall have a 150-foot no treatment area buffer on either side of the stream channel. All other water courses, dry gulches, seeps and springs shall have 50-foot no treatment buffers established. Buffers will be established and flagged where necessary as directed by the CAL FIRE Project Manager prior to the implementation of any project work.

Mitigation Measure 3: During the development of fuel breaks, the dozer blade will be maintained above ground level throughout the project area. Periodic inspection of blade height will be made by the CAL FIRE Project Manager during the execution of project work in order to insure dozer operator adherence.

Mitigation Measure 4: Any List 1, List 2 or List 3 Sensitive Plants discovered within the project area will be avoided with a 25' exclusion zone during execution of project work. CAL FIRE personnel specifically trained in the identification of List 1, List 2 and List 3 species or a professional botanist will be used to evaluate potential habitat for these species prior to implementation of work within the project area. Such personnel will also evaluate potential findings of any such plants within treatment areas during the execution of project work. Qualifications for personnel who will make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled "**Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**". The results of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file. If any such plants are found within treatment areas, they will be flagged and project work will be excluded from those sites.

Mitigation Measure 5: Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the

execution of project work. Within these areas, no vegetation will be intentionally removed in order to minimize impact to stream channels, stream banks, and riparian vegetation. If special status species are found at a particular crossing site, another more appropriate site will be located and used.

Mitigation Measure 6: Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archeological, prehistoric, historic or paleontological resource sites along the path of the Fuel break or within 30 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site has been adequately assessed for significance. Findings of significance will be prepared and submitted to appropriate agencies along with all the tribes listed on the current Native American contact list at the discretion of the professional archeologist. Findings will also be recorded in the project files.

Mitigation Measure 7: If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

Mitigation Measure 8: Waterbars are to be installed on slopes where 200 lineal feet or more of soil has been exposed by project activities. Waterbars are to be installed where trails or existing roads have access to a watercourse. A sufficient number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. Constructed trails on side slopes shall be located where impacts can be minimized. Waterbar installation will be inspected by the CAL FIRE Project Manager before precipitation events. Condition and operation of waterbars will be documented in the project files.

Mitigation Measure 9: Any area of newly exposed soil of over 1000 square feet that has the potential to transport sediment to a water course will be mulched with brush to minimize the potential for erosion. Dozer or hand-constructed water bars will be installed to divert water onto stable vegetation and away from watercourses, as needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to a significant precipitation event and recorded in the project file.

Mitigation Measure 10: The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from dry or wet waterways as well as areas that could potentially flow into a stream in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be available at refueling and maintenance areas. Fuel spillage shall be minimized by conducting these operations in flat areas. Equipment shall be stored and maintained within properly cleared areas. CAL FIRE personnel will inspect refueling areas to assure compliance. These inspections will also verify the sites' adequacy in protecting riparian and terrestrial resources as

well as the availability of containment equipment.

Mitigation Measure 11: Diesel fuel shall at no time be transported across a live stream, except for that in the fuel tank of equipment being operated. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across live streams.

Mitigation Measure 12: Contractors providing operations equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of live streams.

Summary of Findings

This IS/MND has been prepared to assess the project's potential effects on the environment and an appraisal of the significance of those effects. Based on this IS/MND, it has been determined that the proposed project will not have any significant effects on the environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project will have no effect related to Agricultural and Forest Resources, Land Use and Planning, Mineral Resources, Population and Housing, Recreation, Transportation and Traffic, along with Utilities and Service Systems.
2. The proposed project will have a less than significant impact on Aesthetics, Public Services, Greenhouse Gas Emissions and Noise.
3. Mitigation is required to reduce potentially significant impacts related to Air Quality, Biological Resources, Cultural Resources, Geology and Soils Hazards and Hazardous Materials as well as Hydrology and Water Quality.

The Initial Study/Environmental Checklist included in this document discusses the results of resource-specific environmental impact analyses which were conducted by the Department. This Initial Study revealed that potentially significant environmental effects that could result from the proposed project; however, CAL FIRE revised its project plans and has developed mitigation measures which will eliminate impact or reduce environmental impacts to a less than significant level. CAL FIRE has found, in consideration of the entire record, that there is no substantial evidence that the proposed project as currently revised and mitigated would result in a significant effect upon the environment. The IS/MND is therefore the appropriate document for CEQA compliance.

INITIAL STUDY/ENVIRONMENTAL CHECKLIST

| PROJECT INFORMATION | | | | | |
|---|---|-------------------------------------|------------------------------------|-------------------------------------|------------------------------------|
| 1. Project Title: | Pattymocus Fuel Break | | | | |
| 2. Lead Agency Name and Address: | California Department of Forestry and Fire Protection P.O. 944246 Sacramento, CA 94244-2460 | | | | |
| 3. Contact Person and Phone Number: | Adam Wyman (530) 528-5106 | | | | |
| 4. Project Location: | Sections 1,11,12 T28N-R9W, MDBM Western Tehama County | | | | |
| 5. Project Sponsor's Name and Address: | N/A (CAL FIRE is project sponsor and lead agency) | | | | |
| 6. General Plan Designation: | Unclassified | | | | |
| 7. Zoning: | Open Space | | | | |
| 8. Description of Project: See Pages 6-7 of this document | | | | | |
| 9. Surrounding Land Uses and Setting: | Refer to page 9 of this document | | | | |
| 10. Other public agencies whose approval may be required: | See pages 19 of this document | | | | |
| ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: | | | | | |
| <p>The environmental factors checked below are the ones which would potentially be affected by this proposed project and were more rigorously analyzed than the factors which were not checked. The results of this analysis are presented in the detailed Environmental Checklist which follows.</p> | | | | | |
| <input checked="" type="checkbox"/> | Aesthetics | <input type="checkbox"/> | Agriculture and Forestry Resources | <input checked="" type="checkbox"/> | Air Quality |
| <input checked="" type="checkbox"/> | Biological Resources | <input checked="" type="checkbox"/> | Cultural Resources | <input checked="" type="checkbox"/> | Geology / Soils |
| <input checked="" type="checkbox"/> | Greenhouse Gas Emissions | <input checked="" type="checkbox"/> | Hazards & Hazardous Materials | <input checked="" type="checkbox"/> | Hydrology / Water Quality |
| <input type="checkbox"/> | Land Use / Planning | <input type="checkbox"/> | Mineral Resources | <input checked="" type="checkbox"/> | Noise |
| <input type="checkbox"/> | Population / Housing | <input checked="" type="checkbox"/> | Public Services | <input type="checkbox"/> | Recreation |
| <input type="checkbox"/> | Transportation / Traffic | <input type="checkbox"/> | Utilities / Service Systems | <input type="checkbox"/> | Mandatory Findings of Significance |

DETERMINATION

On the basis of this initial evaluation:

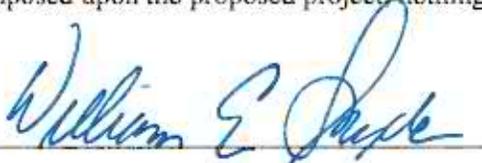
I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

I find that although the proposed project **COULD** have a significant effect on the environment, there **WILL NOT** be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

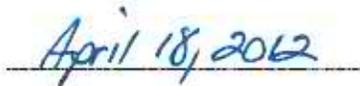
I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

I find that the proposed project **MAY** have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



William E. Snyder, Deputy Director
Environmental Protection Program,
Room #1516-37
Department of Forestry and Fire Protection
P.O. Box 944246
Sacramento, CA 94244-2460



Date Signed

ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|
| I. Aesthetics. Will the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Create a new source of substantial light or glare which will adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) **Would the project have a substantial adverse effect on a scenic vista?**
 Less than Significant. The project area is located in a very remote portion of Western Tehama County that is used primarily for wildlife management and some livestock grazing. A portion of the viewshed is from the R Ranch community and Ball Road which is an unpaved Tehama County maintained secondary road. The majority of the viewshed area is from various jeep trails that are used by hunters, local ranchers and fire fighting personnel. The current view is one of dense brush along these roads. This view will change in the short term as brush will be flattened and small flat areas will be completely cleared of vegetation. It is anticipated that crushed brush will be burned in approximately 3 to 5 years. In approximately two years after crushing and burning, much of the brush will have resprouted and thus revegetating the project area.

- b) **Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**
 No Impact. The project area is not within the viewshed of a scenic highway nor will it damage any scenic resources.

- c) **Would the project substantially degrade the existing visual character or quality of the site and its surroundings?**
 Less than Significant. In the short term the visual character of the project area would change. This would be only a temporary situation that would return to more natural view conditions within approximately two years after crushing and burning.

- d) **Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?**
 No impact. No new sources of light or glare would be created by the execution and completion of project work.

No significant impacts to Aesthetics are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|------------------------------|-------------------------------------|
| II. Agriculture and Forest Resources. | | | | |
| <p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p> | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with existing zoning for agricultural use or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Result in the loss of forest land or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) *Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

No impact. None of the land within the project area is classified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

b) *Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?*
No impact. Project work would not change land use within the project area or on surrounding lands and thus would not conflict with existing zoning for agricultural activities or Williamson Act contracts.

c) *Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?*

No impact. Project area does not contain forestland, timberland or lands zoned as Timberland Production (TPZ).

Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No impact. Project area does not contain forestland, timberland or lands zoned as Timberland Production (TPZ).

e) *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?*

No impact. The fuel break being completed in connection with project work will not be developed to an extent so that the project area could be used for activities which could result in the conversion of agricultural land to non-agricultural uses nor would its existence lead to future development that could result in this kind of land use conversion.

No impacts to Agricultural and Forest Resources are anticipated

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| III. Air Quality. | | | | |
| Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations. Will the project: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

The project site is located in Tehama County, which lies in the Sacramento Valley Air Basin and is under the jurisdiction of the Tehama County Air Pollution Control District (TCAPCD). In general, the air quality in Tehama County is good. However Tehama County as a whole does not fully meet state health standards for clean air, although no specific data is available for the project area. Ozone and particulate matter are the air pollutants of greatest concern. The county's climate and topography that trap Sacramento Valley pollution, along with recent wildfires, all contribute to the air quality problem.

Ozone is an invisible pollutant formed by chemical reactions involving nitrogen oxides, reactive hydrocarbons and sunlight. It is a powerful respiratory irritant that can cause coughing, shortness of breath, headaches, fatigue and lung damage, especially among children, the elderly, and the sick. Particulate matter is fine mineral, metal, soot, smoke and dust particles suspended in the air. For health reasons, the greatest concern is with inhalant particulate matter less than 10 microns in diameter (PM10), which can lodge in the most sensitive areas of the lungs, and cause respiratory and other health problems.

Air quality within Tehama County is regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) at the federal and state levels, respectively, and locally by the TCAPCD. The TCAPCD seeks to improve air quality conditions in the County through a comprehensive program of planning, regulation, enforcement, technical innovation and education to promote the understanding of air quality issues. The clean air strategy of the TCAPCD includes the development of programs for attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The TCAPCD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the federal Clean Air Act (CAA) federal Clean Air Act Amendments of 1990 (CAAA) and the California Clean Air Act (CCAA).

In compliance with the CCAA, air districts submit Air Quality Attainment Plans (AQAP) primarily to address ozone non-attainment. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plans must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The AQAPs stress attainment of ozone standards and focuses on strategies for reducing reactive organic gas and nitrogen oxide emissions. It promotes active public involvement, enforcement of compliance with district rules and regulations, education in the public and private sectors, development and promotion of transportation and land use programs designed to reduce vehicle miles traveled within the region, and implementation of stationary and mobile source control measures. The AQAPs become part of the State Implementation Plan in accordance with the requirements of the CAAA. The TCAPCD has not established quantitative thresholds of significance for the purpose of CEQA with respect to short-term construction emissions of criteria air pollutant or precursor emissions, but instead emphasizes comprehensive control measures which were reviewed for this Initial Study.

Would the Project

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact with Mitigation. The TCAPCD is designated as being either “unclassified” or attainment with all of the federal standards and all of the state standards with the exception of state PM10. The TCAPCD has prepared an AQAP which it implements through its rules and permitting program with the goal of achieving compliance with the state PM10 standard and the maintenance of the other standards. This project will not obstruct implementation of the TCAPCD’s air quality plan. Vegetative material will be crushed or piled for later burning in accordance with State and County Air Regulations along with provisions of the Tehama County Air Quality Plan. The limited effects to air quality that will result either directly or indirectly from this project would be of a short term non-significant nature.

Mitigation Measure #1: The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the fuel is sufficiently cured to assure a clean burn. CAL FIRE will determine the burn day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements when. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less-than-Significant Impact with Mitigation. Operation of the project will not result in a net increase of long-term regional organic gas, nitrogen oxide, PM10, or local carbon monoxide emissions from area or mobile sources. The long-term operation of the proposed project will result in temporary operations of approximately 2 pieces of heavy equipment daily for a 2-4 week period.

Mitigation Measure #1: As listed above applies.

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant with mitigation. The project will generate short-term emissions of dust from driving roads and utilizing heavy equipment during the construction of fuelbreaks. This will occur during a 2-4 week period during the winter or spring when soils may have enough moisture preventing dust from occurring. Emissions (exhaust from engines) produced during the project are short-term in the sense that they will be limited to 2-3 vehicles per day. All of the emissions from heavy equipment will occur in open, remote areas several miles from members of the public, with the exception of the driving of heavy equipment transport tractor-trailer type vehicles, which will travel public roads to and from the project area a few times during the life of the project.

The Tehama County Air Pollution Control District monitors and controls the number of large scale ignitions that are conducted on a particular day and thus can limit the cumulative impact of air emissions that result from the execution of this project's burning operations. In addition, crushed brush and brush piles will be burned over an area of several miles. Once project work is completed, additional mosaic or broadcast burning may be conducted separately by various landowners. These burns would fall under the same County air regulations as the project under analysis. Emissions from burning are also addressed separately under the greenhouse gas (GHG) analysis.

Mitigation Measure #1: As listed above applies.

d) Expose sensitive receptors to substantial pollutant concentrations?

Less than significant. The project is in very remote portion of Tehama County. The nearest sensitive receptors are the communities of R-Ranch located approximately 2 air miles to the northeast and Platina located roughly 3.5 air miles to the northwest of the general project area. If anticipated future burning not directly connected to the Pattymocus Fuel Break project is conducted, the Tehama County Air Pollution Control District would determine the days burning would occur in order to maximize smoke dispersal.

e) Create objectionable odors affecting a substantial number of people?

No impacts. The occurrence and severity of odor impacts depend on numerous factors including the nature, frequency, and intensity of the source; wind speed and direction, and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The diesel exhaust from the use of on-site construction equipment will be intermittent and temporary, and will dissipate rapidly from the source with an increase in distance.

Execution of project work will result in diesel smoke from dozers which will be required to have all State required air emissions control equipment installed. Project operations will not involve the use of any materials that could create objectionable odors with the exception of diesel exhaust and fuel vapors that may be considered to be an objectionable odor by some individuals. However, these odors are common to equipment operators. Because of the anticipated rapid dissipation of gases in the air and the distance to the nearest potentially sensitive receptors, potential for the project to generate objectionable odors is minimal over the current baseline. As a result, this impact is considered to have no impacts.

Burning conducted in connection with the Pattymocus Fuel Break project and burning not directly connected to this effort would fall under regulations imposed by the Tehama County Air Pollution Control District. Due to the fact that project operations would occur in a very remote location, any odors or pollutants generated by smoke in connection with project work will not affect substantial numbers of people.

Impacts to air quality are expected to be less than significant with the incorporation of the following mitigation measures into the execution of project work.

Measures to Reduce Impacts to Air Quality

Mitigation Measure #1: The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the fuel is sufficiently cured to assure a clean burn. CAL FIRE will determine the burn day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements when. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

No less than significant adverse impacts to air quality are anticipated with the implementation of the above mitigation measure.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| IV. Biological Resources. Will the project: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

The Pattymocus Fuel Break will create an open area through existing solid stands of decadent chaparral habitat which have not been burned in many years. Openings within these stands of vegetation could lead to localized habitat fragmentation and predation of those small animal species that use decadent chaparral vegetation as habitat. Small mammals and herpetological species such as newts have small home ranges and sometimes require contiguous riparian habitat in order to move from one location to another in order to avoid predation. In completing this project, 84 acres of climax upland chaparral habitat containing little variation, will be impacted in the short term. Riparian zones containing a variety of species and vegetation age classes will be largely unaffected by project work. Crossing sites will be inspected by a professional botanist as well as the CAL FIRE Project Manager just prior to crossing in order to locate sensitive or rare species. If these are found, the crossing will be moved to a location where no significant impacts will occur.

As listed in this project’s Mitigated Measures pages (18-20), mitigations established to protect aquatic and riparian species generally entail stream buffers covered by dense brush which will act as filtering strips. Crossings will be

located where stream banks are low and damage to the channel and riparian vegetation is minimal. No blading will take place in the riparian zone. No significant impacts to biological resources are expected provided the specific mitigation measures listed below are followed. With regards to upland chaparral species found within the more impacted portions of the project, these begin to sprout within several weeks after crushing or burning and rapidly increase in size during the first two years after impact burning treatments. This characteristic has been noted within other older fuel breaks and prescribed burn sites within the vicinity of the Pattymocus Fuel Break Project area. As a result, habitat fragmentation that occurs due to this project will be for a relatively short period of time and within a small portion of a large, rather homogeneous landscape. In addition, the varying ages of the fuel breaks and other fuels reduction projects within the surrounding area create habitat diversity that are needed for the array of species that inhabit the chaparral ecosystems of western Tehama County. Finally, burning activities will only occur between October and May, outside the nesting season for local avian species.

During March 2011, a check of nine 7.5 Minute quadrangles surrounding the Pattymocus Fuelbreak Project was made of the Department of Fish and Game's California Natural Diversity Database (CNDDDB). The quadrangles used in this analysis are listed in Appendix B. The Cal Fish database, a species list generated from the California Wildlife Habitat Relationship System Database Version 8.2 (2008) and numerous other references were also reviewed in order to determine the possible occurrence of terrestrial, amphibian, aquatic and anadromous species. The results of the CNDDDB search and Species Analysis that covers both Listed Species and Species of Concern is found in Appendix B.

- a) *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation. A review of the California Natural Diversity Database, Department of Fish and Game Cal Fish information along with other sources of information indicate that no Candidate, Sensitive or Special Status Species are located within or immediately adjacent to the Pattymocus Fuel Break project area. Those with the highest probability of occurring within the project area inhabit riparian areas and wet environments as are found along stream courses. Such sites would only be impacted at dozers crossings and impacts to these areas would reduce through Mitigation Measures 2, 3, 4, and 5 to a level that is less than significant.

Mitigation Measure 2: Squaw Hollow Creek shall have a 150-foot no treatment area buffer on either side of the stream channel. All other water courses, dry gulches, seeps and springs shall have 50-foot no treatment buffers established. Buffers will be established and flagged where necessary as directed by the CAL FIRE Project Manager prior to the implementation of any project work.

Mitigation Measure 3: During the development of fuel breaks, the dozer blade will be maintained above ground level throughout the project area. Periodic inspection of blade height will be made by the CAL FIRE Project Manager during the execution of project work in order to insure dozer operator adherence.

Mitigation Measure 4: Any List 1, List 2 or List 3 Sensitive Plants discovered within the project area will be avoided with a 25' exclusion zone during execution of project work. CAL FIRE personnel specifically trained in the identification of List 1, List 2 and List 3 species or a professional botanist will be used to evaluate potential habitat for these species prior to implementation of work within the project area. Such personnel will also evaluate potential findings of any such plants within treatment areas during the execution of project work. Qualifications for personnel who will make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled "**Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**". The results of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file. If any such plants are found within treatment areas, they will be flagged and project work will be excluded from those sites.

Mitigation Measure 5: Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, no vegetation will be intentionally removed in order to minimize impact to stream channels, stream banks, and riparian vegetation. If special status species are found at a particular crossing site, another more appropriate site will be located and used.

- b) *Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?*
Less than Significant with Mitigation. No formally designated riparian habitats or sensitive natural communities have been established within the Project area. In addition, Mitigation Measures 2 and 3 are incorporated into project implementation to ensure that riparian habitats are not impacted.
- c) *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*
No Impact. Project work entails only a minor amount of incidental earth movement and there are no federally protected wetlands located within the project area.
- d) *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*
Less than Significant Impact with Mitigations. Significant impacts to migratory terrestrial, aquatic or avian species will not occur that are attributable to this project. Mitigation measures 2 and 5 are incorporated into project implementation in order to reduce any potential impacts to aquatic or riparian species to a less than significant level.

- e) *Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No impact. There are no local policies or ordinances protecting biological resources that affect the project area

- f) *Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

No impact. There are no formally approved, adopted or recognized habitat and natural community plans that affect the project area.

Measures to Reduce Impacts to Biological Resources

Mitigation Measure 2: Squaw Hollow Creek shall have a 150-foot no treatment area buffer on either side of the stream channel. All other water courses, dry gulches, seeps and springs shall have 50-foot no treatment buffers established. Buffers will be established and flagged where necessary as directed by the CAL FIRE Project Manager prior to the implementation of any project work.

Mitigation Measure 3: During the development of fuel breaks, the dozer blade will be maintained above ground level throughout the project area. Periodic inspection of blade height will be made by the CAL FIRE Project Manager during the execution of project work in order to insure dozer operator adherence.

Mitigation Measure 4: Any List 1, List 2 or List 3 Sensitive Plants discovered within the project area will be avoided with a 25' exclusion zone during execution of project work. CAL FIRE personnel specifically trained in the identification of List 1, List 2 and List 3 species or a professional botanist will be used to evaluate potential habitat for these species prior to implementation of work within the project area. Such personnel will also evaluate potential findings of any such plants within treatment areas during the execution of project work. Qualifications for personnel who will make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled "**Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**". The results of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file. If any such plants are found within treatment areas, they will be flagged and project work will be excluded from those sites.

Mitigation Measure 5: Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, no vegetation will be intentionally removed in order to minimize impact to stream channels, stream banks, and riparian vegetation. If special status species are found at a particular crossing site, another more appropriate site will be located and used.

No significant adverse impacts to Biological Resources are anticipated with the implementation of the above mitigation measures.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|-------------------------------------|--------------------------|
| V. Cultural Resources. Will the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Discussion

Information about Cultural Resources

In order to assess possible impacts to cultural resources attributable to the Pattymocus Fuel Break project, an archeological records search was made for the project area by the Northeast Center of the California Historical Resource Information Center (NCCHRIC) at California State University Chico. The date of that records search was December 13, 2010 (Information Center File Number: #F10-14). These records indicated that no portion of the proposed project area has received archeological survey coverage and no prehistoric or historic archeological sites have been recorded. Native American consultation identification letters were submitted to the following groups on November 19, 2010:

- Native American Heritage Commission**
- Paskenta Band of Nomlaki Indians**
- Redding Rancheria**
- Enterprise Rancheria of Maidu Indians**
- Tasmin Koyom Indian Foundation**
- Greenville Rancheria**

As of June 1, 2011 no responses had been received from these groups who will be contacted if any archeological sites are found within the project area during project implementation.

Pre field research included a review of past fuel management project documents which showed no indication of prehistoric or historic sites in adjacent areas during the completion of prescribed burns and other fuels

management projects. It was also determined that due to the absence of water within the Pattymocus Fuel Break Project area; there is a low potential for the presence of prehistoric or historic sites. An archeological field survey was conducted by CAL FIRE Archeologist Richard Jenkins on April 26, 2011 and May 5, 2011. A field report was prepared on May 20, 2011. One moderate to high sensitivity area was found at the eastern end of the project along Long Gulch (see Figure 8. Pattymocus Fuel Break Archeological Coverage Map) which contains a seasonal creek. From discussions with landowners, Richard Jenkins was informed that most ridges in the area had been impacted by dozers over the past 100 years. Mr. Jenkins also commented that in addition to a lack of water, the project area contains steep slopes which limits their potential as having significant cultural and historic resources. No prehistoric and historic artifacts, features or sites were discovered within the project area during field surveys. No protection measures were provided in the May 9, 2011 Archeological Survey Report however, the mitigation measures shown below under “*Measures to Reduce Impacts to Cultural Resources*” will protect undiscovered cultural or historical resources.

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Less than Significant Impact. Due to its location generally away from water sources and on steep slopes, the project area is considered to have a low level of significance in terms of historic sites. No historic artifacts, features or sites were discovered during the field survey. Mitigation measures have been developed in connection with project work (see below under “*Measures to Reduce Impacts to Cultural Resources*”) that will reduce impacts on potential to any unidentified historical resources to a less than significant level.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant Impact with mitigation. The project area’s location away from water sources and on steep slopes also reduces the potential of it containing archeological sites. The field survey described above revealed no significant prehistoric sites. The Mitigation Measures shown below have been developed in connection with project work that will reduce impacts on potential unidentified archeological resources to a less than significant level.

Mitigation Measure #6: Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archeological, prehistoric, historic or paleontological resource sites along the path of the fuel break or within 30 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site

has been adequately assessed for significance. Findings of significance will be prepared and submitted to appropriate agencies along with all the tribes listed on the current Native American contact list at the discretion of the professional archeologist. Findings will also be recorded in the project files.

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. No indication of significant paleontological resources or unique geologic features have been noted by project personnel working in the field. The mitigation measures shown below have been developed in connection with project work that will reduce potential impacts on paleontological resources or unique geologic features to a less than significant level.

d) Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact with mitigation. No historic or prehistoric sites were found within the project's impact area nor were human remains found during the previously mentioned archeological survey conducted on April 26, 2011 and May 5, 2011. Mitigation measures have been developed in connection with project work (see below) that will reduce potential impacts on human remains to a less than significant level. These measures provide a formal set of procedures to be used in identifying and assessing any human remains found during the execution of project work.

Mitigation Measure #7: If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

Measures to Reduce Impacts to Cultural Resources

Mitigation Measure #6: Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archeological, prehistoric, historic or paleontological resource sites along the path of the fuel break or within 30 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently

protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site.

Mitigation Measure #7: If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

No significant adverse impacts to Cultural Resources are anticipated with the implementation of the above mitigation measures.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|------------------------------|-------------------------------------|
| VI. Geology and Soils. Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Be located on a geologic unit or soil that is unstable, or that will become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

Soil types present within the project area include loams and gravelly loams that have low to moderate erosion potential. Impacts related to project work will include minor soil disturbance from ball and chain use. Negative impacts will be limited to scuffing of the soil surface in some areas. Dozers will be operating with the blade approximately 6" above ground level. Impacts from dozers will be mainly from the tracks and in those areas where turns are made. Where equipment must climb steep slopes up to main ridges (30% and greater), short diagonal dozer trails will be constructed just wide enough for safe dozer travel. Through the creation of numerous horizontal tracts and by minimizing the distance of vertical tracts on steep slopes, erosion potential will be minimized. In addition, there will be a great deal of woody material that will remain on the soil surface after crushing by the dozer as well as the ball and chain. This vegetative debris will catch a majority of sediment that develops. A 150 foot stream buffer will be created between all project work and wet stream channels. A 50 foot stream buffer will be created at all dry stream channel tributaries. These buffers will contain undisturbed chaparral and will act as a filter to prevent sediment from entering the project area's stream system.

a) **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:**

i) **Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)**

No Impacts. A review of the current Alquist-Priolo Earthquake Fault Zone Maps indicates that there are no faults within or adjacent to the project area.

ii) **Strong seismic ground shaking?**

No Impacts. The proposed project will be limited to partial disturbance of the top 1-4 inches of the surface during brush crushing. The only exception will be the installation of waterbars for erosion control. This activity is not expected to create measureable ground shaking or trigger any seismic events. No blasting or explosives are proposed.

iii) **Seismic-related ground failure, including liquefaction?**

No Impacts. Soil liquefaction occurs within relatively loose, cohesionless sands located below the water table that are subjected to ground acceleration from earthquakes. The project area is located in uplands, well above a horizontal water table. No earthquake faults are known to be present in the area.

iv) **Landslides?**

No Impacts. See comments under VI a) i) above. No landslides are known to be in the area.

b) **Would the project result in substantial soil erosion or the loss of topsoil?**

Less than Significant with Mitigation. Soil types present are loams and gravelly loams that have low to moderate erosion potential. The removal of vegetation and soil impacts attributable to dozer operations and possible future prescribed burning has the potential to cause erosion or loss of top soil. These impacts however will be minimized through the implementation of Mitigation Measure 3 and 5 listed above as well as Mitigation Measures 8 and 9 shown below.

Mitigation Measure 8: Waterbars are to be installed on slopes where 200 lineal feet or more of soil has been exposed by project activities. Waterbars are to be installed where trails or existing roads have access to a watercourse. A sufficient number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. Constructed trails on side slopes shall be located where impacts can be minimized. Waterbar installation will be inspected by the CAL FIRE Project Manager before precipitation events. Condition and operation of waterbars will be documented in the project files.

Mitigation Measure 9: Any area of newly exposed soil of over 1000 square feet that has the potential to transport sediment to a water course will be mulched with brush to minimize the potential for erosion.

Dozer or hand-constructed water bars will be installed to divert water onto stable vegetation and away from watercourses, as needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to a significant precipitation event and recorded in the project file.

- c) *Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*
Less than Significant with Mitigation. The proposed project will not cause any ground disturbance that will affect the geological stability of the areal. See comments and Mitigations under VI b).
- d) *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?*
No Impact. There are no expansive soils as defined in Table 18-1-B of the Uniform Building Code within the project area. In addition project work does not entail the construction of buildings or proximity to buildings that could be at risk from expansive soils.
- e) *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?*
No impact. No septic tanks or alternative waste water disposal systems will be developed in connection with the execution of this project and the area is not zoned for development.

Measures to Reduce Impacts to Geology and Soil

Mitigation Measure 3: During the development of fuel breaks, the dozer blade will be maintained above ground level throughout the project area. Periodic inspection of blade height will be made by the CAL FIRE Project Manager during the execution of project work in order to insure dozer operator adherence.

Mitigation Measure 5: Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, no vegetation will be intentionally removed in order to minimize impact to stream channels, stream banks, and riparian vegetation. If special status species are found at a particular crossing site, another more appropriate site will be located and used.

Mitigation Measure 8: Waterbars are to be installed on slopes where 200 lineal feet or more of soil has been exposed by project activities. Waterbars are to be installed where trails or existing roads have access to a watercourse. An sufficient number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. Constructed trails on side slopes shall be located where impacts can be minimized. Waterbar installation will be inspected by the CAL FIRE Project Manager before precipitation events. Condition and operation of waterbars will be documented in the project files.

Mitigation Measure 9: Any area of newly exposed soil of over 1000 square feet that has the potential to transport sediment to a water course will be mulched with brush to minimize the potential for erosion.

Dozer or hand-constructed water bars will be installed to divert water onto stable vegetation and away from watercourses, as needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the CAL FIRE Project Manager prior to a significant precipitation event and recorded in the project file.

No significant adverse impacts to Geology and Soils are anticipated with the implementation of the above mitigation measures.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|-------------------------------------|--------------------------|
| VII. Greenhouse Gas Emissions. Would the project: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Information about Greenhouse Gas Emissions

CEQA Guideline § 15064.4 requires a lead agency to make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of Greenhouse Gas (GHG) emissions resulting from a project, and make a careful judgment to determine significance. The analysis presented below was conducted in accordance with the GHG analysis requirements found in the CEQA Guidelines and utilized recently published technical guidance for CEQA environmental impact studies (ICF Jones and Stokes 2007, CAPCOA 2008, and OPR 2008).

State Law (Health and Safety Code §38505g) defines greenhouse gas to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and hexafluoride. Significant changes in global climate patterns have recently been associated with global warming which has been attributed to the accumulation of GHG emissions in the atmosphere. Greenhouse gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally while others are created and emitted solely through human activities. The emission of GHGs from burning fossil fuels (i.e., fuels containing carbon), in conjunction with other human activities, appears to be closely associated with global warming (OPR 2008:2). The standard unit to measure GHG emissions is expressed in metric tons (or tonnes) of CO₂e.

The baseline conditions at the project site currently include ranching operations which results in GHG emissions from activities such as operating motorized equipment, such as backhoes, tractors, light vehicles (pick-ups and all-terrain vehicles, chainsaws, etc). The GHG emissions from current operations were not calculated for this analysis as they will all continue as normal outside the activities proposed in this project. The estimate of the GHG emissions which would result from approval and implementation of the proposed project above and beyond the existing baseline conditions has been assessed in the analysis.

Discussion of GHG Categories.

In order to evaluate the total GHG emissions for this project, 3 categories of emissions were assessed. A complete analysis for each of the GHG categories in the Table is presented in Appendix D. The table below summarizes the full analysis, based on the rationale for the factors/variables used in the second column of the Table to calculate GHG emissions (See Appendix D). The conversion factors were obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). Other conversions were made using factors in the Forestry Handbook (Wenger 1984).

1. Brush Crushing using Ball and Chain with subsequent burning : Development of a 2.3 mile long 300' wide fuelbreak = 84 acres
2. Diesel Fuel Use during Operations: The heavy equipment proposed for use, including move-in/out is estimated to consume 500 gallons of diesel fuel.
3. Gasoline Use during Operations: The use of light trucks for access and supervision is estimated to consume 100 gallons of gasoline.

Production of Greenhouse Gases from Pattymocus Project (Metric Tons of CO2)
See Appendix D for rationale and discussion.

| GHG Summary Table | | | | |
|--|---|------------------------------------|------------------------------|---------------------------------|
| GHG Category | Factors/Variables | Quantity of Units Used for Project | Calculation | GHG Emissions Metric Tons *CO2e |
| 1. Chaparral removal | Chaparral avg's 27.5 to 36.7 tons per acre. (36.7 used for a conservative estimate) | 84 Acres | 84 ac. X 36.7 tons per ac. = | 3082.8 |
| 2. Diesel fuel | Conversion factor for diesel is 10.15 **KG per Gallon, then gallons X 10.15 / ***1,000 = CO2e | 500 Gallons | 1,250 gal. X 10.15 / 1,000 = | 5.3 |
| 3. Gasoline fuel | Conversion factor for gas is 8.81 KG per Gallon, then gallons X 8.81 / 1,000 = CO2e | 100 Gallons | 300 gal. X 8.81 / 1,000 = | .9 |
| *CO2e = Carbon Dioxide Equivalent (a standard unit to measure global warming potential) **KG = kilograms *** dividing by 1,000 determines the volume of emissions in metric tons | | | | Total 3,089.0 |

CAL FIRE has not established a significance threshold for GHG emissions and additional research is required before a useful threshold for these types of projects can be established. Of the 3,089 metric tons of CO2 this project would emit, only 6.2 metric tons is from diesel and gasoline consumption alone. The much larger amount of CO2 (3082.8 tons) is from the chaparral removal. The rapid rate of regrowth of chaparral would likely offset the CO2 release within an estimated 8-10 years. It is CAL FIRE's determination that this level of GHG emission is a less than significant environmental impact.

- a) *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*
Less than Significant Impact. See also comments above and Appendix D.
- b) *Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gas?*
Less than Significant Impact. See comments above and Appendix D.

Based on the above analysis, impacts related to greenhouse gas emissions will be less than significant.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| VIII. Hazards and Hazardous Materials. Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, will it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, Would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, Would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Discussion:

Dozers working within the project area will be fueled with diesel. It is possible a spill could occur while transporting diesel to the job site or during dozer fueling operations. This is unlikely however, and the risk would not be significant with the implementation of mitigation measures 11, 12, and 13. The amount fuel being transported would be no higher than 100 gallons per day. Fuel spillage will be minimized by conducting these operations in flat areas and by having fuel containment equipment at the refueling sites. Equipment will be walked across stream channels where minor leakage could potentially occur. The potential for fuel to enter stream channels is minor and less than significant as contractors will be required to make inspection for leaks and correct any found, prior to crossing stream channels. Fuel will not be transported across stream channels other than that within dozer fuel tanks or on existing roads. Contractors will be required to locate fuel storage facilities away from stream channels and areas that could potentially flow into a stream. In the event of an accidental spill, they will

have fuel containment equipment (absorbent sheets and waddles) at refueling sites.

- a) *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Less than Significant with Mitigations. Project work poses a minor potential hazard related to the transport and use of fuel and lubricants for dozers. The risks related to this hazard will be reduced to a less than significant level through the implementation of Mitigation Measures 10, 11, & 12.

Mitigation Measure #10: The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from dry or wet waterways as well as areas that could potentially flow into a stream in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be available at refueling and maintenance areas. Fuel spillage shall be minimized by conducting these operations in flat areas. Equipment shall be stored and maintained within properly cleared areas. CAL FIRE personnel will inspect refueling areas to assure compliance. These inspections will also verify the sites' adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Mitigation Measure #11: Diesel fuel shall at no time be transported across a live stream, except for that in the fuel tank of equipment being operated or at existing road crossings. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across live streams.

Mitigation Measure #12: Contractors providing operations equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of live streams.

- b) *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?*

Less than Significant Impact with Mitigations. See comments under VIII. a) above.

- c) *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

No Impact. There are no existing or proposed schools within one-quarter mile of the project area.

- d) *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

No Impact. The project area is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5.

- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The project area does not lie within an airport land use plan or within two miles of a public airport or public use airport.

- f) *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*
No Impact. There are no private air strips within or adjacent to the project area.
- g) *Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*
No Impact. Project work will occur within an unpopulated area of Tehama County and as a result will not interfere with an adopted emergency response plan or emergency evacuation plan prepared for wildland areas.
- h) *Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*
Less than Significant Impact with Mitigations. The project work includes the use dozers and has the potential to ignite a fire within a wildland area. The risk to people and structures is reduced as project work will be conducted outside of the declared Fire Season when fuel moisture and humidity are high. The completion of the Pattymocus Fuel Break project will reduce the risk of loss, injury or death attributable to catastrophic wildfire through the removal of excess vegetative fuels. See also Mitigation Measure #1

Measures to Reduce Impacts Related to Hazards and Hazardous Materials

Mitigation Measure #1: The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the fuel is sufficiently cured to assure a clean burn. CAL FIRE will determine the burn day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements when. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

Mitigation Measure #10: The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from dry or wet waterways as well as areas that could potentially flow into a stream in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be available at refueling and maintenance areas. Fuel spillage shall be minimized by conducting these operations in flat areas. Equipment shall be stored and maintained within properly cleared areas. CAL FIRE personnel will inspect refueling areas to assure compliance. These inspections will also verify the sites' adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Mitigation Measure #11: Diesel fuel shall at no time be transported across a live stream, except for that in the fuel tank of equipment being operated. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across live streams.

Mitigation Measure #12: Contractors providing operations equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of live streams.

Based on the above factors and mitigation measures, the project will have a less than significant impact related to hazards and hazardous materials.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| IX. Hydrology and Water Quality. Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells will drop to a level that will not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which will result in substantial on- or off-site erosion or siltation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Result in inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion:

Dozers will be operating and creating soil disturbance, however, the impact will be less than significant with the incorporation of mitigation measures. The dozers will be working with the blade above ground. The soil will be scuffed from dozer tracks as well as the ball and chain. There will be a great deal of crushed and compacted vegetation left on the soil surface to stabilize disturbed soil. Dense vegetation buffers will be maintained along streams within the project area that will act as vegetative barriers and sediment filtering strips. Equipment will operate inside buffer zones only at designated flagged crossings as established by CAL FIRE personnel. These

area will have firm soils, be located where riparian vegetation is minimal and where there are no indications of listed plant, animal or aquatic species. No disturbed soil is expected to reach the stream system in connection with project work and only a minimal amount of stream sediment will be disturbed attributable to dozer crossings of stream channels.

- a) *Would the project violate any water quality standards or waste discharge requirements?*
Less than Significant with Mitigation. The project will not violate any water quality standards or waste discharge requirements. Additional protections are provided by mitigation measures. Project work poses a potential for impacts to water quality standards related to soil sediment and the release of diesel fuel and equipment lubricants. This potential will be reduced to a less than significant level through the implementation of Mitigation Measures 2, 3, 5 & 12.
- b) *Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?*
No Impacts. No groundwater will be utilized and no domestic wells are located near the project.
- c) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?*
No Impact. All project work will be conducted outside of the streams and watercourses. No project activities relate to altering drainage patterns. See also Mitigations Measures 2 & 5.
- d) *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?*
Less than Significant. Dozer work will be conducted largely on brush covered ridge tops and sideslopes. Within those portions of the fuel break on steep slopes, considerable vegetative debris, both live and dead, will be retained to minimize run off. Subsequent burning activities will target brush piles and not be broadcast burned.
- e) *Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*
No Impact. The project area is within a wildland area with no manmade storm water drainage systems.
- f) *Would the project otherwise substantially degrade water quality?*
Less than Significant with Mitigation. Impacts to water quality will be reduced to less than significant level through the implementation of Mitigation Measures 2, 3, 5, and 12.

- g) *Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?*

No impacts. The project area contains no housing units and no housing will be constructed as a result of project work.

- h) *Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?*

No Impacts. No structures will be developed that would impede or redirect flood flows.

- i) *Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?*

No Impacts. The project area is uninhabited and no levees or dams will be constructed.

- j) *Would the project result in inundation by seiche, tsunami, or mudflow?*

No Impacts. There is no potential for seiches or tsunamis within the project area.

Measures to Reduce Impacts to Hydrology and Water Quality

Mitigation Measure 2: Squaw Hollow Creek shall have a 150-foot no treatment area buffer on either side of the stream channel. All other water courses, dry gulches, seeps and springs shall have 50-foot no treatment buffers established. Buffers will be established and flagged where necessary as directed by the CAL FIRE Project Manager prior to the implementation of any project work.

Mitigation Measure 3: During the development of fuel breaks, the dozer blade will be maintained above ground level throughout the project area. Periodic inspection of blade height will be made by the CAL FIRE Project Manager during the execution of project work in order to insure dozer operator adherence.

Mitigation Measure 5: Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, no vegetation will be intentionally removed in order to minimize impact to stream channels, stream banks, and riparian vegetation. If special status species are found at a particular crossing site, another more appropriate site will be located and used.

Mitigation Measure 12: Contractors providing operations equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of live streams.

No significant adverse impacts related to hydrology and water quality are anticipated with the implementation of the above mitigation measures.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| X. Land Use and Planning. Would the project: | | | | |
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) *Would the project physically divide an established community?*
No Impact. The project area is remote and has no developed communities.
- b) *Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?*
No Impact. The Tehama County General Plan designates land use within the project area for grazing and wildlife management. This project does not conflict with any Federal, State, or County land use plans.
- c) *Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?*
No Impact. Habitat conservation plans or natural community plans have not been established for the lands within the project area.

No impacts to land use and planning are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| XI. Mineral Resources. Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*
 No Impact. The Pattymocus Fuel Break Project entails the reduction of forest and chaparral vegetation and will not result in any loss of mineral resources.
- b) *Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*
 No Impact. Project work will not result in the loss of any locally important mineral resource recovery site.

No impacts to mineral resources are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|-------------------------------------|-------------------------------------|
| XII. Noise. Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, will the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) For a project within the vicinity of a private airstrip, will the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

a) *Would the project create exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?*

No impacts. During the development of the project, a temporary increase in ambient noise level will be created by heavy equipment (dozers). This will be only during daylight hours. On average, roughly ½ mile of Fuel break will be created each day. As a result, noise generating equipment will be within a particular location for a limited period of time resulting in potentially short term impacts to wildlife. In addition, the project area is remote with only a few scatted structures within two miles of the project. No impacts to the noise standards established in the Tehama County General Plan will occur.

b) *Would the project create exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

No impact. The only vibration or ground borne noise created during the implementation of this project would be from dozers or the ball and chain used to create the fuel breaks. There are no occupied structures within the project area. No impacts related to ground borne vibration or noise levels within the project area will occur.

- c) *Would the project create a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*
No impact. Increases in noise levels related to project work will be minor and temporary. Once project work is complete, ambient noise levels will return to pre-project levels.
- d) *Would the project create a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*
Less than significant impact. Within that portion of the project area immediately adjacent to dozer work, ambient noise levels will be increased above existing levels but only for a very short period of time (one day or less). No operations will occur at night or on weekends. Once project work has been completed, ambient noise levels will return to their pre-project levels. Impacts to ambient noise levels will be temporary and less than significant.
- e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*
No impact. There are no public airports within the project area and no noise impacts related to airport operations are anticipated.
- f) *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*
No impact. There are no private airstrips within the project site or immediately surrounding area. Due to the distance to the nearest private airstrip, the project site will not cause people to be subject to levels of noise that are above ambient levels.

Impacts related to noise will be less than significant.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|------------------------------|-------------------------------------|
| XIII. Population and Housing. Would the project: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) *Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*
No impact. This project will not entail the development of any structures or activities that would induce population growth.
- b) *Would the project displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?*
No impact. There are no homes within the project area. No indirect impacts related to displacement of homes are anticipated.
- c) *Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*
No impact. There are no permanent residents living within the project area. No impacts related to displacement of residents are anticipated.

No impacts to population and housing are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|-------------------------------------|-------------------------------------|
| XIV. Public Services. Would the project: | | | | |
| a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: | | | | |
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:*

This project is located in a remote area of Tehama County where there are few public services.

Fire protection?

Less than Significant effect. The fuel breaks will reduce the potential for large catastrophic wildfires that could impact service levels of the area fire protection resources. As a result, there will be beneficial impacts to fire protection services used by the communities of Platina and the R Ranch. No negative impacts to the provision of Fire protection, Police protection, Schools, Parks or Other Public Facilities will occur.

Police protection?

No impact. Police protection will not be impacted by the project.

Schools?

No impact. School facilities or student populations will not be impacted by the project.

Parks?

No impact. Parks or park utilization will not be impacted by the project.

Other Public Facilities?

No impact. No other public facilities will be impacted by the project.

Impacts to public services are anticipated to be less than significant.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|--|--------------------------------|--|------------------------------|-------------------------------------|
| XV. Recreation. Would the project: | | | | |
| a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*
No impact. No increase in the use of parks or other recreational facilities will result from the execution of project work.

- b) *Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?*
No impact. No recreational facilities will be construction or expanded as a result of project work.

No impacts to recreation are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|------------------------------|-------------------------------------|
| XVI. Transportation/Traffic. Would the project: | | | | |
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

Pattymocus Fuel Break project work will begin at the northern end of the Tedoc Fuel Break and terminate near a private road that intersects Ball Road, an unpaved Tehama County maintained road (see Figures 2 and 3). All project work will be completed off any public roads.

- a) *Would the project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?*
No impacts. Project work will not result in an increase of traffic.
- b) *Would the project exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?*
No impacts. Project work will not result in an exceedence of any level of service standard for roads and highways.
- c) *Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*
No impacts. No changes to air traffic patterns will result from the execution and completion of project work.

- d) *Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*
No impacts. This project does not propose the construction of any roads or have incompatible uses with any existing roads.
- e) *Would the project result in inadequate emergency access?*
No impacts. With the completion of the Pattymocus Fuel Break, a large portion of remote chaparral lands within Western Tehama County will have improved access for wild land fire fighting forces. No negative impacts to emergency access will occur.
- f) *Would the project result in inadequate parking capacity?*
No impacts. This project will not change parking capacity.
- g) *Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?*
No impacts. This project will not conflict with any polices plans or programs supporting alternative transportation.

No impacts to transportation and traffic are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|--------------------------------|--|------------------------------|-------------------------------------|
| XVII. Utilities and Service Systems. Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Discussion

- a) **Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**
No impacts. The project is located in a remote portion of Tehama County that has no wastewater collection or treatment facilities.
- b) **Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**
No impacts. No new wastewater facilities will be constructed nor will there be an expansion of water facilities attributable to project work.
- c) **Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**
No impacts. No new storm water facilities will be constructed nor will there be a necessity for expanding such infrastructure.
- d) **Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**
No impacts. No new or expanded water entitlements will be required in order to complete or maintain project work. No use of on site water is anticipated with this project.
- e) **Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?**
No impacts. There are no wastewater treatment providers operating within the project area.
- f) **Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?**
No impacts. Project work will not result in the need for a landfill and will not generate landfill waste materials.
- g) **Would the project comply with federal, state, and local statutes and regulations related to solid waste?**
No impacts. Project work will not result in the development of solid waste as defined in federal state and local statutes.

No impacts to utilities and public service systems are anticipated.

| ENVIRONMENTAL ISSUES | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|----------------------|--------------------------------|--|------------------------------|-----------|
|----------------------|--------------------------------|--|------------------------------|-----------|

XVIII. Mandatory Findings of Significance.

- a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or

| | | | |
|--------------------------|-------------------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--------------------------|-------------------------------------|--------------------------|--------------------------|

threatened species, or eliminate important examples of the major periods of California history or prehistory?

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?

Authority: Public Resources Code Sections 21083 and 21083.05.

Reference: Government Code Section 65088.4, Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21083.05, 21083.3, 21093, 21094, 21095, and 21151; *Sundstrom v. County of Mendocino*, (1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors* (1990), 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Discussion

a) *Would the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?*

Less than Significant with Mitigations. The mitigation measures listed in the Mitigated Negative Declaration will prevent project work initiated in connection with the Pattymocus Fuel Break Project from having a significant negative impact on the environment within the project area or the surrounding landscapes of northwestern Tehama County.

b) *Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)*

Less than Significant Impacts. The Pattymocus Fuel Break Project will be executed within a portion of Western Tehama County that is very remote. The impactful activities to be completed in the execution of project work are relatively minor in their significance due to the project's design and the mitigation measures that have been incorporated into the work scope. A number of other similar fuel break projects have been completed or are now in progress with this area of Western Tehama County. These projects together create a system of wildfire protection infrastructure. Impacts are considered either benign or beneficial to the resource values addressed in this environmental checklist. The Pattymocus Fuel Break and the other segments of this fire control infrastructure system will have very low impact on environmental conditions within their respective project areas due to the following characteristics

- The large area of very similar vegetation and habitats found throughout Western Tehama County

- The relatively small amount of change in total vegetation attributable to the Pattymocus Fuel Break and other nearby treatment areas in terms of the overall chaparral landscape of Western Tehama County
- The rapidity with which treatment areas will become revegetation with native grass and shrub species

In addition, these fuel breaks will provide significant protection to the area's landscapes and natural systems and will open up artificially dense stands of decadent chaparral creating a variety of habitat types. Consequently it has been determined that this project will have no negative environmental impacts that are individually limited but cumulatively considerable. Also no resources or environmental issues within the project area were identified that could not be rendered less than significant through the implementation of mitigation measures.

c) *Would the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?*

No impacts. The project area is very remote and given the low intensity nature of project work, no direct or indirect impacts to human beings are anticipated.

Appendices

Appendix A

Mitigation Monitoring and Reporting Plan (MMRP) for the Pattymocus Fuel Break Project Initial Study/Mitigated Negative Declaration Tehama County, California

In accordance with CEQA Guidelines Section 15074(d), when adopting a mitigated negative declaration, the lead agency will adopt a Mitigation Monitoring and Reporting Plan (MMRP) that ensures compliance with mitigation measures required for project approval. The California Department of Forestry and Fire Protection (CAL FIRE) is the lead agency for the above-listed project and has developed this MMRP as a part of the final Initial Study/Mitigated Negative Declaration (IS/MND) supporting the project. This MMRP lists the mitigation measures developed in the IS/MND which were designed to reduce environmental impacts to a less-than-significant level. This MMRP also identifies the party responsible for implementing the measure, defines when the Mitigation Measure must be implemented, and which party or public agency is responsible for ensuring compliance with the measure.

Potentially Significant Effects and Mitigation Measures

The following is a list of the resources that will be potentially affected by the project and the mitigation measures made part of the Initial Study/Mitigated Negative Declaration. Included are Air Quality, Biological Resources, Cultural Resources, Hazards and Hazardous Materials along with Hydrology and Water Quality.

Mitigation Measure #1: The CAL FIRE Tehama-Glenn Unit has obtained a burn permit from Tehama County Air Pollution Control District (TCAPCD Burn Permit #0786 on file in Tehama-Glenn Unit Headquarters). All burning shall be conducted during the regular burn season (non-fire season) when fire danger is low and the fuel is sufficiently cured to assure a clean burn. CAL FIRE will determine the burn day status prior to initiating any burning activity and burn during permissive burn days, while following all federal, state, and local requirements when. CAL FIRE will conduct its burning operations under a Smoke Management Plan approved by the TCAPCD.

Schedule: Prior to any burning

Responsible Party: CAL FIRE Project Manager

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager

Initials: _____

Date: _____

Mitigation Measure 2: Squaw Hollow Creek shall have a 150-foot no treatment area buffer on either side of the stream channel. All other water courses, dry gulches, seeps and springs shall have 50-foot no treatment buffers established. Buffers will be established and flagged where necessary as directed by the CAL FIRE Project Manager prior to the implementation of any project work.

Schedule: Prior to any ball & chain operations

Responsible Party: CAL FIRE Project Manager and Dozer Operator

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager

Initials: _____

Date: _____

Mitigation Measure 3: During the development of fuel breaks, the dozer blade will be maintained above ground level throughout the project area. Periodic inspection of blade height will be made by the CAL FIRE Project Manager during the execution of project work in order to insure dozer operator adherence.

Schedule: During ball & chain operations.

Responsible Party: Dozer Operator and CAL FIRE Project Manager

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager

Initials: _____

Date: _____

Mitigation Measure 4: Any List 1, List 2 or List 3 Sensitive Plants discovered within the project area will be avoided with a 25' exclusion zone during execution of project work. CAL FIRE personnel specifically trained in the identification of List 1, List 2 and List 3 species or a professional botanist will be used to evaluate potential habitat for these species prior to implementation of work within the project area. Such personnel will also evaluate potential findings of any such plants within treatment areas during the execution of project work. Qualifications for personnel who will make evaluations of sites include those found in the California Department of Fish and Game's 2009 document entitled "2". The results of findings will be documented by the CAL FIRE Project Manager or professional botanist and included in the project file. If any such plants are found within treatment areas, they will be flagged and project work will be excluded from those sites.

Schedule: Prior to any soil or vegetation disturbance

Responsible Party: CAL FIRE biological inspector or professional biologist

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager

Initials: _____

Date: _____

Mitigation Measure 5: Equipment crossings of waterways, streambeds and their associated approaches will be located and flagged by the CAL FIRE Project Manager or professional botanist prior to the execution of project work. Within these areas, no vegetation will be intentionally removed in order to minimize impact to stream channels, stream banks, and riparian vegetation. If special status species are found at a particular crossing site, another more appropriate site will be located and used.

Schedule: Prior to any dozer operations

Responsible Party: CAL FIRE Project Manager or professional biologist

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager

Initials: _____

Date: _____

Mitigation Measure #6: Within areas of ground or vegetation disturbing activities, if project work appears to expose any previously unknown archeological, prehistoric, historic or paleontological resource sites along the path of the Fuel break or within 30 feet beyond the project boundary, the site will be avoided. Work may continue elsewhere within the overall project area. Exposed cultural or paleontological resources will be appropriately flagged in order to immediately establish an exclusion buffer of at least 100 feet. A professional archeologist will examine the site, evaluate found objects and make a finding of their significance. The archeologist will also

develop recommendations for the permanent protection of objects and site treatments as necessary. Identified sites will be permanently protected through avoidance. These sites will be made off limits to both personnel and equipment. A professional archeologist will determine an appropriate permanent flagged exclusion zone once the site has been adequately assessed for significance. Findings of significance will be prepared and submitted to appropriate agencies along with all the tribes listed on the current Native American contact list at the discretion of the professional archeologist. Findings will also be recorded in the project files.

Schedule: Prior to and during mechanical operations

Responsible Party: CAL FIRE Project Manager, Dozer Operator and professional archeologist

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager and CAL FIRE archeologist

Initials: _____

Date: _____

Mitigation Measure #7: If during the execution of project work human remains are found, the CAL FIRE project manager will halt work at that location until a professional archaeologist visits the site in order to assess their significance and process the remains. The County coroner will be immediately notified. If the remains are determined by the County coroner to be Native American, the Native American Heritage Commission (NAHC) and all the tribes listed on the current Native American contact list will be notified within 24 hours and the guidelines of the NAHC will be adhered to in the treatment and disposition of the remains. Findings of significance will be prepared and submitted to appropriate agencies at the discretion of the professional archeologist. Findings will also be recorded in the project files by the CAL FIRE Project Manager. Project work may continue on other non-impacted portions of the project area.

Schedule: Prior to and during mechanical operations

Responsible Party: CAL FIRE Project Manager, Dozer Operator and professional archeologist

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager and CAL FIRE archeologist

Initials: _____

Date: _____

Mitigation Measure #8: Waterbars are to be installed on slopes where 200 lineal feet or more of soil has been exposed by project activities. Waterbars are to be installed where trails or existing roads have access to a watercourse. A sufficient number of waterbars as determined by the CAL FIRE Project Manager will be installed to prevent the degradation of water quality. Constructed trails on side slopes shall be located where impacts can be minimized. Waterbar installation will be inspected by the CAL FIRE Project Manager before precipitation events. Condition and operation of waterbars will be documented in the project files.

Schedule: During and following mechanical operations prior to precipitation

Responsible Party: CAL FIRE Project Manager and Dozer Operator

Verification of Compliance:

Monitoring Party: CAL FIRE Project Manager

Initials: _____

Date: _____

Mitigation Measure 9: Any area of newly exposed soil of over 1000 square feet that has the potential to be transferred to a water course will be mulched with brush to minimize the potential for erosion. Dozer or hand-constructed water bars will be installed to divert water onto stable vegetation and away from watercourses, as needed. Verification of proper installation and sufficiency of both mulching and waterbars will be made by the

CAL FIRE Project Manager prior to a significant precipitation event and recorded in the project file.

Schedule: Prior to and during mechanical operations
Responsible Party: CAL FIRE Project Manager and Dozer Operator
Verification of Compliance:
Monitoring Party: CAL FIRE Project Manager
Initials: _____
Date: _____

Mitigation Measure #10: The CAL FIRE Project Manager will select refueling and maintenance areas for equipment in areas that are situated in flat sites that are away from dry or wet waterways as well as areas that could potentially flow into a stream in the event of an accidental spill. Fuel containment equipment (i.e., absorbent sheets and waddles) will be available at refueling and maintenance areas. Fuel spillage shall be minimized by conducting these operations in flat areas. Equipment shall be stored and maintained within properly cleared areas. CAL FIRE personnel will inspect refueling areas to assure compliance. These inspections will also verify the sites' adequacy in protecting riparian and terrestrial resources as well as the availability of containment equipment.

Schedule: Prior to and during mechanical operations
Responsible Party: CAL FIRE Project Manager, CAL FIRE personnel and Dozer Operator
Verification of Compliance:
Monitoring Party: CAL FIRE Project Manager
Initials: _____
Date: _____

Mitigation Measure #11: Diesel fuel shall at no time be transported across a live stream, except for that in the fuel tank of equipment being operated. In addition, on going inspections of the project area will assure compliance to the prohibitions of transporting fuel across live streams.

Schedule: During mechanical operations
Responsible Party: Dozer Operator
Verification of Compliance:
Monitoring Party: CAL FIRE Project Manager
Initials: _____
Date: _____

Mitigation Measure #12: Contractors providing operations equipment (dozers, etc.) shall make daily inspection of equipment for leaks, correcting and repairing any such leaks prior to resuming any crossing of live streams.

Schedule: Prior to and during mechanical operations
Responsible Party: Dozer Operator and professional archeologist
Verification of Compliance:
Monitoring Party: CAL FIRE Project Manager
Initials: _____
Date: _____

APPENDIX B

Results of Natural Diversity Database Inquiry and Species Review

Listed Species Found in the Vicinity Of the Pattymocus Fuel Break

During March 2011, a check of nine 7.5 Minute quadrangles was made of the Department of Fish and Game’s California Natural Diversity Database (CNDDDB). The quadrangles used in this analysis are listed below. The Cal Fish database, a species list generated from the California Wildlife Habitat Relationship System Database Version 8.2 (2008) and numerous other references were also reviewed in order to determine the possible occurrence of terrestrial, amphibian, aquatic and anadromous species. The following results relate to listed Endangered, Threatened, or Sensitive Species (List 1 , List 2 and List 3).

7.5 Minute Quadrangles Used For California Natural Diversity Database Check

Pattymocus Fuel Break Project

| | | |
|---------------------|-------------------|-------------------|
| Wildwood | Chanchelulla Peak | Arbuckle Mountain |
| Pony Buck Peak | Platina | Beegum |
| Black Rock Mountain | North Yolla Bolly | Tomhead Mountain |

California Department of Fish and Game Species of Special Concern:

Under California law, Species of Special Concern are to be considered during the environmental review process. The California Environmental Quality Act (CEQA; California Public Resources Code §§ 21000-21177) requires State agencies, local governments, and special districts to evaluate and disclose impacts from "projects" in the State. Section 15380 of the CEQA Guidelines indicates that species of special concern should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined in State regulations. Therefore, species of special concern have been included in this analysis.

Summary of Plant and Animals identified in Natural Diversity Database Quad Search

- | | |
|---|-----------------------------------|
| 1 = Federal Endangered | 2 = Federal Threatened |
| 3 = California Endangered | 4 = California Threatened |
| 5 = California Fully Protected | 6 = California Protected |
| 7 = California Species of Special Concern | 8 = Federally Proposed Endangered |
| 9 = Federally Proposed Threatened | 10 = Federal Candidate |
| 11 = BLM Sensitive | 12 = USFS Sensitive |
| 13 = CDF Sensitive | 14 = Harvest |
| 15 = Federal Species of Concern | |
| HR = Heritage Rank | |
| NPS = California Native Plant Listing | |
| RPR = Rare Plant Rank | |

| Common Name | Genus/Species | Status |
|-----------------------------|----------------------------------|-------------|
| Pacific Fisher | (Marten pennanti (pacifica) DPS) | 7 |
| California Red Legged Frog | (Rana aurora draytonii) | 2,7 |
| Foothill Yellow Legged Frog | (Rana boylei) | 7,11,12 |
| Western Pond Turtle | (Actinemys mamorata) | 7,11,12 |
| Pacific Tailed Frog | (Ascaphus truei) | 4 |
| Western Spadefoot Toad | (Spea hammondii) | 7 |
| Wawona riffle beetle | (Atractelmis wawona) | 15 |
| Golden Eagle | (Aquila chrysaetos) | 5,11,13 |
| Long Eared Owl | (Asio otus) | 7 |
| Short Eared Owl | (Asio flammeus) | 7 |
| Willow Flycatcher | (Empidonax traillii) | 1,3,12 |
| Bewick's Wren | (Thryomanes bewickii) | 7 |
| Loggerhead Shrike: | (Lanius ludovicianus) | 1,7 |
| Hutton's Vero | (Vireo huttoni) | 7 |
| Yellow Warbler | (Dendroica petechia) | 7 |
| Common Yellowthroat | (Geothlypis trichas) | 7 |
| Yellow-breasted Chat | (Icteria virens) | 7 |
| Spotted Towhee | (Pipilo crissalis) | 7 |
| California Towee | (Pipilo crissalis Vigors) | 2,3 |
| Grasshopper Sparrow | (Ammodramus savannarum) | 7 |
| Humboldt Martin | (Martes americana humboldtensis) | potential 3 |
| Western Red Bat | (Lasiurus blossevillii) | 7,12 |
| Pallid Bat | (Antrozous pallidus) | 7,11,12 |
| Townsend's Big-eared Bat | (Corynorhinus townsendii) | 7,11,12 |
| Western Mastiff Bat | (Eumops perotis) | 7,11 |
| San Joaquin pocket mouse | (Perognathus inornatus) | 11 |
| Ring-tail cat | (Bassariscus astutus) | 5 |
| American Badger | (Taxidea taxus) | 7,14 |
| Mountain Lion | (Felis concolor) | 7 |
| California Mtn King Snake | (Lampropeltis zonata) | 7,12 |
| Common Garter Snake | (Thamnophis sirtalis) | 1,3,5,7 |
| Trinity Shoulderband | (Helminthoglypta talmadgei) | 11 |

| | | |
|-------------------------|---|-------------------------------------|
| Brandegee's eriastrum | (<i>Eriastrum brandegeae</i>) | HR G3/S3.2, RPR 1B.2. |
| Jepson's Milk Vetch | (<i>Astragalus rattanii</i> var. <i>jepsonianus</i>) | HR G4T2/S2.2, RPR 1B.2. |
| Dimorphic snapdragon | (<i>Antirrhinum subcordatum</i>) | HR S3.3, RPR 4.3 |
| Stebbin's Harmonia | (<i>Harmonia stebbinsii</i>) | HR G2/S2.2, RPR 1B.2. |
| Pale Yellow Stonecrop | (<i>Sedum laxum</i> ssp. <i>flavidum</i>) | HR G5T3Q/S3.3, RPR 4.3 |
| Mt. Tedoc leptosiphon | (<i>Leptosiphon nuttallii</i> ssp. <i>howellii</i>) | HR G5T2/S2, RPR 1B.3 |
| Woolly Meadowfoam | (<i>Limnanthes floccosa</i> ssp. <i>floccose</i>) | HR G4T4/S3.2 RPR 4.2 |
| Tracy's eriastrum | (<i>Eriastrum tracyi</i>) | HR G1Q/S1.1, RPR 1B.2 RTE elsewhere |
| Big-Scale balsamroot | (<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>) | HR G3G4T2/S2.2, RPR 1B.2 |
| Dimorphic snapdragon | (<i>Antirrhinum subcordatum</i>) | HR G3/S3.3, RPR 4.3 |
| Dwarf soap root | (<i>Chlorogalum pomeridianum</i> var. <i>minus</i>) | NPS 1B2 |
| Stony Creek Spurge | (<i>Chamaesyce ocellata</i> ssp. <i>rattanii</i>) | NPS 1B2 |
| Adobe-Lily | (<i>Fritillaria Pluriflora</i>) | CNPS 1B2 |
| Colusa Layia | (<i>Layia Septentrionalis</i>) | NPS 1B2 |
| White-Stemmed Clarkia | (<i>Clarkia Gracilis</i> ssp. <i>albicaulis</i>) | NPS 1B2 |
| Indian Valley Brodiaea | (<i>Brodiaea Coronaria</i> ssp. <i>rosea</i>) | NPS 1B1 |
| Scabrid Alpine Tarplant | (<i>Anisocarpus Scabridus</i>) | NPS 1B3 |
| Klamath Sedge | (<i>Carex Klamthensis</i>) | NPS 1B2 |
| Leafy-stemmed mitrewort | (<i>Mitella caulescens</i>) | RPR 4.2 |
| Oval-leaved viburnum | (<i>Viburnum ellipticum</i>) | RPR 2.3 |
| Oregon Fireweed | (<i>Epilobium oregonum</i>) | NPS 1B2 |
| Niles' harmonia | (<i>Harmonia doris-nilesiae</i>) | NPS 1B |
| Coast fawn lilly | (<i>Erythronium revolutum</i>) | NPS 2.2 |

Pacific Fisher (*Marten pennanti (pacifica)* DPS)⁷; The Pacific Fisher is listed as a State "Species of Special Concern under California law. The fisher (*Martes pennanti*) is a specialized forest carnivore that is associated with closed-canopy, late-succession forests throughout its range. The Pattymocus Fuel Break project area will be conducted largely within chaparral lands along with remnant stands of low elevation pine and fir that occur within this portion of northwestern Tehama County. Closed-canopy, late successional forests are not present in the project area. If the Pacific Fisher is observed during project work, observation areas and any nesting sites will be identified and avoided by equipment and personnel.

California Red Legged Frog (*Rana aurora draytonii*)²⁷ The California Red Legged Frog is highly aquatic with little movement away from streamside habitat during the dry season. Individuals found in interior areas of California tend to hibernate in burrows during winter months as well as for temporary retreat during periods of activity. This project is not anticipated to impact the species as no activity will occur within its primary aquatic habitat. In addition, upland burrows will not be affected by project work. Any pile burning or future prescribed burns will occur exclusively outside riparian zones and only during winter months when this species is in hibernation.

Foothill Yellow Legged Frog (*Rana boylili*): ^{7,11,12} This aquatic species requires shallow, flowing water, found in small to moderate-sized streams with at least some cobble-sized substrate. This type of habitat is best suited to oviposition and provides significant refuge habitat for larvae and postmetamorphs. Foothill yellow-legged frogs are infrequent or absent in habitats where introduced aquatic predators such as fishes and bullfrogs are found including small streams and wet areas. This project would not impact the species if individuals did occupy portions of the riparian habitat found within the project area as no activity will occur within riparian zones and upland burrows will not be affected by project work. Any pile burning or future prescribed burns will occur exclusively outside riparian zones and only during winter months when this species is in hibernation.

Western Pond Turtle (*Actinemys marmorata*): ^{7,11,12} The Western Pond Turtle is listed as a Species of Special Concern throughout Northern California. This species requires some slack or slow water aquatic habitat and as a result is uncommon within high gradient streams that occur within the project area. The steepness of stream gradients within this portion of Tehama County result in water temperatures, current velocities, and food source limitations which reduce the species local distribution. Habitat quality seems to vary with the availability of aerial and aquatic basking sites. Hatchlings (i.e. individuals through their first year of activity) require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western Pond Turtles also require an upland oviposition site in the vicinity of the aquatic site. Suitable oviposition sites must have the proper thermal and hydric environment for incubation of the eggs. There are no ponds within the project area and all springs, streams and wet areas will be protected by an exclusion zones.

Pacific Tailed Frog (*Ascaphus truei*): ⁴ The Pacific Tailed Frog is classified as a California Species of Special Concern in the upper Sacramento River system. *A. truei* habitat normally consists of permanent streams having relatively low water temperatures. Intermittent streams are often found to provide unsuitable habitat for this species. Tailed frogs are found in forested assemblages dominated by old growth stands of Douglas fir, redwood, Ponderosa pine, and western hemlock which possess the habitat structure most likely to create the low temperature and clear water conditions required by *A. truei*. The Pattymocus Fuel Break project area consists of dense chaparral stands and very low elevation remnant stands of pine and fir that are located a considerable distance down slope from the upper Sacramento River system.

Western Spadefoot Toad (*Spea hammondi*): ⁷ Western spadefoot toads require two distinct habitat components to complete their life cycle and these normally need to be in close proximity. Included is the presence of aquatic habitat for breeding and a terrestrial habitat for feeding and estivation. Western spadefoot toads are mostly terrestrial using upland habitats to feed and burrow in for their long dry-season dormancy. This toad lays its eggs in a variety of permanent and temporary wet areas including rivers, creeks, and pools in intermittent streams, vernal pools, temporary rain pools and stock ponds. The species reproduces in water when temperatures are between (48°F and 86°F), and water must be present for more than three weeks for metamorphosis to be

completed. Protection of habitat for the spadefoot will be in the form of 50' wide no impact zones along wet and dry streams, springs and other wet areas.

Wawona riffle beetle (*Atractelmis wawona*)¹⁵ The Wawona riffle beetle Occurs in riffles of rapid clear mountain streams at moderate elevations ranging between (2,000' to 5,000') No habitate for the Wawona Riffle beetle occurs in the project area.

Golden Eagle (*Aquila chrysaetos*):^{5,11,13} This California fully protected species' habitat within the Northern California interior consists of rolling foothills and mountain areas. The Golden Eagle requires open terrain for hunting; such as grasslands, savannahs, as well as early successional stage forests and shrub land habitats. Cover generally takes the form of secluded cliffs with overhanging ledges as well as large trees used for cover. Nesting sites are normally located on cliffs of all heights and in large trees in open areas. The species uses rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, cliffs and rock outcrops. Breeding occurs from late January through August and peaks between March and July. Fuel break development will occur within stands of tall dense chaparral with scattered low elevation pine and fir. Thick chaparral will be removed opening up the project area and improving the species' access to prey. That portion of project work occurring within these scattered stands will treat understory brush and small trees 10" in diameter or less. No large nesting trees will be impacted. Finally, there are no cliffs or overhanging ledges within or near the project area.

Long Eared Owl (*Asio otus*):⁷ This species utilizes riparian habitat along with live oak thickets and dense tree canopies. Decline in species population has been attributed to destruction and fragmentation of riparian habitat and live oak groves. Long Eared Owls normally hunt in open areas as well as in woodlands and forested habitats. This owl utilizes nesting sites in trees found within dense riparian canopies as well as those found in foothill hardwood and Ponderosa pine habitats. It also utilizes meadow edges for foraging. Development of the Pattymocus Fuel Break along with the related pile burning and potential future prescribed burning will have the affect of creating areas of open vegetation for a period of 10 year or longer, thus crating additional foraging areas. The wide riparian buffers designed into the project will protect any nesting and roosting trees within the project areas riparian corridors.

Short Eared Owl (*Asio flammeus*):⁷ Short-eared Owls inhabit open spaces such as grasslands, prairie, agricultural fields, mountain meadows and alpine tundra. Nests are located on ridges and mounds within dry sites supporting vegetation that conceal incubating females. Suitable nesting habitat is characterized by herbaceous vegetation that is tall and dense enough to conceal the incubating female and for daytime cover. Breeding habitat must have sufficient ground cover to conceal nests and nearby sources of small mammals for food. Communal roosts occur in old growth fields, along thick hedgerows, in overgrown rubble in abandoned fields, or in clumps of

dense conifers. These owls tend to roost in trees only when snow covers the ground. Foraging habitat is similar to nesting habitat and includes grasslands, prairies, marshlands, and seasonal wetlands.

At the present time, most of the project area is covered by tall dense single species stands of chamise chaparral which contain little if any herbaceous vegetation due to crown closure which in the project area is almost 100%. Breeding habitat must have sufficient ground cover to provide sources of small mammals for food. The current height and extent of chaparral vegetation within the project area makes locating and catching these food sources very difficult. Through the removal of dense chaparral vegetation, hunting conditions for this species' are expected to improve. Trees of sufficient size for winter nesting will not be impacted by project work as only a portion of those 10" dbh and under trees will be treated.

Willow Flycatcher (Empidonax traillii):^{1,3,12} *Willow flycatcher breeding habitat often occurs within and adjacent to forested habitats. The species has historically nested throughout much of California where mesic willow thickets are found and has specific habitat requirements, typically consisting of riparian habitat often dominated by willows and alders as well as permanent water, often in the form of low gradient watercourses, ponds, lakes, wet meadows, marshes, and seeps. Loss, fragmentation, and modification of riparian breeding habitat are thought to have resulted in the decline of the Willow Flycatcher. In recognizing the potential for loss of riparian habitat for this species, wide riparian buffers will be established in all permanent and intermitted stream zones as well as at all springs and wet areas.*

Bewick's Wren (Thryomanes bewickii):⁷ *The Bewick's Wren is a common resident throughout California and is principally a chaparral species in mixed and montane chaparral habitats. The Bewick's Wren may move outward from montane chaparral, into riparian habitats and borders of both woodlands and coniferous forests with brushy understory. The wren feeds on insects, spiders, and other small invertebrates; mostly foraging on lower limbs and branches of small trees and shrubs as well as stems of large herbaceous plants. Foraging normally occurs within the cover of dense, shrubby vegetation within 4' of the ground. This species seeks cover in dense shrubs, thickets, slash piles, fallen trees and nests in ground cavities as well as those within snags, rock crevice, human-made structures, and woodpecker holes. Its breeding period is from mid-February into early August, and peaks from mid-May to late June. Although work related to the Pattymocus Fuel Break will impact chaparral species within a small portion of the entire project area, the treatment of this vegetation will allow the development of large herbaceous plants which house foraged insets. In a very short period of time (3 to 4 years) the brush species within the fuel break area will regain heights of 4' or more. With better control of wildfire events, those remaining trees within the chaparral stands as well as those at the timber line will be better protected and will remain in place as a nesting site.*

Loggerhead Shrike: (*Lanius ludovicianus*): ^{1,7} Shrikes require open land with lookout perches for hunting, preferring areas with short vegetation such as pastures, lawns and freshly-plowed fields. They prefer sites with a variety of vegetation types and land uses. They nest in dense, brushy vegetation, either in hedgerows or isolated trees adjacent to feeding areas and roadsides. The amount of cover provided is more important than the type of plant in terms of nest site criterion and trees with thorns are preferred. The nest is usually well hidden and located on top of an existing nest. Given the relatively limited amount of area to be treated, the habitat types available to this species will be large and no large isolated trees will be impacted.

Hutton's Vero (*Vireo huttoni*): ⁷ Hutton's Vireo is associated with live-oak, mixed conifer and deciduous forests, especially those near wetlands or forest openings where insects, spiders, small fruits, berries, and plant galls are available as food sources. These forest tree species are also used as nesting platforms. Little if any impact to this species are anticipated as there are no extensive stands of forestlands within the projects impact area and trees within the riparian zone will be protected with large no treatment buffers.

Yellow Warbler (*Dendroica petechia*): ⁷ Yellow Warblers generally occupy riparian vegetation in close proximity to water along streams and in wet meadows. Throughout these areas they are found in willows, cottonwoods and other species of riparian shrubs or trees. Yellow Warblers also breed in xeric montane shrub fields and occasionally in the shrubby understory of mixed-conifer forest. This species appears to adapt its foraging to variation in local vegetation structure and its diet in California consists largely of animal matter, including ants, bees, wasps, caterpillars, beetles, true bugs, flies, and spiders. Yellow Warblers have shown a high degree of site fidelity returning to their previous year's breeding grounds and territory. The cutting, piling and burning or chipping of vegetation will result in the creation of variations in brush age and size classes that will create well utilized browsing habitat.

Common Yellowthroat (*Geothlypis trichas*): ⁷ The Common Yellowthroat frequents low, dense vegetation near water and seeks cover in thick tangles within wetlands. Occasionally the species breeds in dense shrubs, and lush fields. Brushy habitats are sometimes used in migration. Feeding habits include consumption of insects, especially caterpillars and other larvae along with spiders and a few seeds. It also gleans wetland herbage and shrubs. Nests are usually placed on or within 3' of the ground and are sometimes built over water, in emergent aquatic vegetation, dense shrubs, or other dense growth. The species' breeding period is from early April to mid-July, with peak activity in May and June. No impacts to this species are anticipated given the extensive protection that will be provided to riparian zones, springs and wet areas.

Yellow-breasted Chat (*Icteria virens*): ⁷ Nesting Yellow-breasted Chats occupy early successional riparian habitats with a well-developed shrub layer and an open canopy. Vegetation structure, rather than age appears to be the important factor in nest-site selection. Nesting habitat is usually restricted to the narrow border of streams,

creeks, sloughs, and rivers and seldom forms extensive tracts. Blackberry, wild grape, willow, and other plants that form dense thickets and tangles are frequently selected as nesting strata. Nests are typically placed within 1 meter of the ground but may range up to 2.4 meters. Taller trees, such as cottonwoods and alders, are required for song perches. Adult chats feed predominantly on insects and spiders. Wild fruits and berries are also important. Adults feed nestlings primarily soft-bodied insects (orthopterans and larval lepidopterans). Potential project impact threats to the Yellow-breasted Chat will be minimized through the establishment of riparian buffers.

Spotted Towhee (*Pipilo crissalis*)⁷ / California Towhee (*Pipilo crissalis Vigors*)^{2,3} : The California Spotted Towhee and the California Towhee live in chaparral and other tangled, shrubby, and dry habitats at elevations ranging from 2,680' to 6,200'. California Towhees hop or run on the ground but tend to stay close to the protection of low shrubs and trees. The towhee breeds in relatively small and sometimes isolated patches of dense thickets of willows along stream sides, springs and seeps. This species forages in adjacent arid uplands. Through the control and management of wildfire within Western Tehama County, long term development of healthy sustainable scrub and woodland stands of various age classes is anticipated. Without control of vegetative cover, fire frequency and intensity is expected to increase, reducing suitable towhee habitat.

Grasshopper Sparrow (*Ammodramus savannarum*):⁷ This species occurs in dry, dense, native grassland having a mix of grasses and forbs for foraging and nesting. It also inhabits hillsides and mesas. Tall forbs and scattered shrubs are used for singing perches. The Grasshopper Sparrow feeds primarily on insects, especially Orthoptera along with other invertebrates as well as grass and forbs seeds. Foraging occurs by scratching in soil and ground litter within the low foliage of relatively dense grasslands. Thick cover of grasses and forbs is essential for concealment. Nesting material consists of grasses and forbs in slight ground depressions hidden at the base of overhanging clumps of vegetation. It uses scattered shrubs for singing perches. The species breeding period is from early April to mid-July, with a peak in May and June.

At the present time, the Pattymocus Fuel Break Project area has very little in the way of grasslands, forbs and shrubs as it is composed almost exclusively of old growth chaparral having a closed canopy. The current vegetation pattern of the area has not only limited this avian species foraging and nesting opportunities, it has reduced food sources through the development of largely single species chaparral stands that limit the diversity of inhabiting insects. Through cutting, piling and burning or chipping as well as potential prescribed fire treatments in the future, an array of vegetation types will be created which will expand the species life function opportunities.

Humboldt Martin (*Martes americana humboldtensis*): *M. a. humboldtensis* appears to meet CESA criteria for listing as Endangered in its historic range of Del Norte, Humboldt, Mendocino, and Sonoma counties. Its possible occurrence was noted in the twelve quadrangle review of the California Natural Diversity Database during November 2010. The combination of historic trapping and more recent habitat loss by timber harvest has led to

the severe reduction or extirpation of this taxon. The Humboldt marten is associated with coniferous forests and their riparian zones. Physical structure of the forest, including large live and dead trees, coarse woody debris along with relatively low and closed canopy appear to be more important for martins than species composition. This structure is produced by late-seral-stage forests which are not found within the Pattymocus Fuel Break project area.

Western Red Bat (*Lasiurus blossevillii*): ^{7,12} *This species of medium-sized bat is born from late spring to early summer. It roosts in the foliage of large shrubs and trees, usually sheltering on the underside of overhanging leaves. Roosting habitat is found in woodland borders and rivers. Roost sites have been found in edge habitats adjacent to riparian habitat. Roost trees are typically large diameter cottonwoods, and willows associated with riparian habitats. Foraging occurs in and amongst vegetation and this species forages regularly over the same territory. Foraging has been noted in habitats such as oak woodland, low elevation conifer forest and along riparian corridors. The Western Red Bat may forage in areas adjacent to streams and rivers that do not provide roosting habitat. Other requirements include undisturbed foliage roost sites that provide protection from predators along with structurally diverse vegetation that supports a variety of insect prey habitat. This species is found to be less abundant in low and middle elevations mixed conifer forests. The Western Red Bat was ranked in the top five species of conservation concern as less than 6% of relatively intact old growth, riparian forest remains.*

Given the level of agency concern over the long term viability of Western Red Bat populations and the important role riparian corridor species play in the bats natural history, this project's work scope has been designed in a manner that will protect this species habitat. Included are wide riparian buffers along all wet and dry streams, springs and any wet areas. Of equal importance to the long term viability of this bat is that the level of fuels management afforded by this project will significantly reduce the risk of catastrophic wildfire that could completely inundate the project area's riparian zones. Also, the fuel break's importance in controlling wildfire will help to protect the remnant conifer forest habitat located within the project area as well as those forested areas further upslope.

Pallid Bat (*Antrozous pallidus*): ^{7,11,12} *The Pallid Bat generally inhabits shrublands, woodlands, grasslands and occasionally cottonwood-riparian zones within those habitats. It is most common in areas having rocky outcroppings, particularly near water. During summer this species usually roosts in rock crevices, rock piles, tree cavities, shallow caves, and abandoned mines. The pallid bat is sensitive to human disturbance. Recreational activities may impact roosting bats sometimes resulting in the abandonment of young and roosts. Fuel break implementation has been designed so that no rocky outcroppings will be impacted. No large trees of a size suitable for nesting will be impacted within the project area. It is estimated that fuel break development will occur at rate of 1/5 to 1/2 mile per day. As a result, any particular location along the project route will*

experience equipment noise for less than a day and those sites suitable for roosting will be a considerable distance from project operations.

Townsend's Big-eared Bat (*Corynorhinus townsendii*):^{7,11,12} *C. townsendii* occurs primarily in oak woodlands and lower to mid-elevation mixed coniferous-deciduous forests of the inner coast ranges and Sierra Nevada foothills. Its distribution tends to be geomorphically determined, by the availability of caves or cave-like roosting habitat. Population concentrations occur in areas with substantial surface exposures of cavity-forming rock. *C. townsendii* also roosts in cave analogues, such as old mine workings and abandoned buildings. The Pattymocus Fuel Break project area is located down slope from coniferous forests and there are no caves or abandoned buildings in the area that could be used as habitat. Consequently, the chance of this species occurrence is minimal.

Western Mastiff Bat (*Eumops perotis*):^{7,11} This species occurs in semi-arid to arid habitats, including conifer and deciduous woodlands, annual and perennial grasslands and chaparral. Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcrops and buildings. Crevices in cliff faces, and trees are required for roosting. When roosting in rock crevices, the Western Mastiff Bat needs vertical faces to drop off in order to take flight. This species feeds on insects in flight from ground to tree-level. Over rugged terrain these bats typically forage at much greater heights (195') above the ground. Nursery roosts normally include tight rock crevices at least 35" deep and 2" wide, or crevices in buildings. Breeding occurs most frequently in early spring, parturition may occur from early April through August or September. No large trees of a size suitable for nesting will be impacted within the projects area's chaparral belt or within the small remnant stands of timber. In addition, there are no cliff faces within the project area. It is estimated that fuel break development will occur at rate of 1/5 to 1/2 mile per day. As a result, any particular location along the project route will experience equipment noise for less than a day and any sites suitable for roosting will be a considerable distance from project operations. At those points where the fuel break transects roads, tank traps or gates will be installed to prevent trespass and possible vehicle harassment of this and other critical species within the project area.

San Joaquin pocket mouse (*Perognathus inornatus*):¹¹ Within northwest Tehama County, The San Joaquin pocket mouse inhabits arid annual grasslands and chaparral. This species spends considerable time in burrows that are plugged with earth during the day time and it forages at night. Breeding occurs between March and July. All project work entailing dozers will occur above ground. In addition, any future burning will occur outside this species breeding period. Fuels created by project work would be very flashy in nature with little if any heavy fuels contacting the soil surface. As result, any fires passing thought the area would move very quickly and would not significantly increase ground temperatures that could injure or kill burrowing individuals. As result no significant impact to *Perognathus inornatus* is anticipated.

Ring-tail cat (*Bassariscus astutus*): ⁵ The ringtail occurs in various riparian habitats and in forest and shrub habitats at elevations from sea level to 8,800'. For diurnal rest sites, ringtails use trees as well as rock outcropping. Its principal habitat requirements related to den sites include boulders or tree hollows with sufficient food in the form of rodents and other small animals. They will also take substantial amounts of birds and eggs, reptiles, invertebrates, fruits (berries of madrone, manzanita, cascara, cacti and mistletoe), seeds acorns and some carrion. Foraging habitats include rocks, and in trees, near water. In summer and fall, the ringtail diet consists primarily of insects, while birds, mammals, and carrion are eaten in the spring and winter. The primary threat to this species in California appears to be loss and degradation as a result of urbanization and development.

Impacts to the Ringtail are anticipated to be minimal. The project route will not impact rock outcroppings and no large trees within either the chaparral belt or in remnant conifer stands will be removed or damaged. Wide no impact buffers will provide riparian habitat protection. In addition, opening up the current extensive strands of dense, old growth chaparral is expected to result in a variety of habitats that are conducive to the development of plant and animal food sources. As noted, the primary threat to this species relates to impacts from urbanization and development. The Pattymocus Fuel Break will be developed in a very remote area of Tehama County. Work scope measures such as the installation of tank traps or gates will provide protection from trespass, illegal trail development and harassment of this species within the project's impact area.

AMERICAN BADGER (*Taxidea taxus*) ^{7,14:} This species is found throughout California with the exception of the North Coast area. It is most abundant in drier open stages of most shrub, forest, and herbaceous habitats having friable soils suitable for the development of new burrows. Old burrows are frequently used as well. Young are born in burrows dug in relatively dry, often sandy soil, usually in areas with sparse overstory cover. Suitable habitat for badgers is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils. Badgers mate in the summer and early fall. Gestation period varies from 183-265 days with birthing occurring during March and April. The project area has very little in the way of open, sparse vegetation in either the scattered stands of low elevation timber or solid stands of chaparral. Consequently impacts to this species are anticipated to be minimal.

Mountain Lion (*Felis concolor*): ⁷ Mountain lions inhabit an array of landscapes that provide cover, habitat and food. These include chaparral, foothill oak woodlands and conifer forests. These areas contain woody vegetation, deer and solitude which are some of this species primary life requirement. Areas too small to accommodate the species home range which can be 100 miles or more, cannot support Lion populations unless they are connected

to one another by suitable corridors of vegetation that provide a large enough accessible area in the aggregate. As the Mountain Lion's preferred prey, deer require open and closed vegetation types in order to maintain sufficient herd sizes. Mountain lions will also prey on beaver, porcupines, rabbits, skunks, and other small mammals, birds, and fish. Females breed at two or three years of age, then every 18 to 20 months thereafter. Young may be born at any time of the year.

The Pattymocus Fuel Break project will impact a very limited portion of Western Tehama County's chaparral and low elevation conifer. Once project work is completed, a variety of habitat types will have been developed that replace the current solid stands of chaparral that occupy the area. Local ranchers have noted that areas of chaparral having been opened up due to fire or mechanical treatments immediately develop into important feeding sites for deer herds which are the Mountain Lion's favorite prey. The project area is very remote, an important component of ecologically significant Mountain Lion habitat. Work scope measures developed to prevent trespass will maintain the area's solitude making it more attractive habitat for this species.

California Mountain King Snake (*Lampropeltis zonata*): ^{7,12} California Mountain King snakes are found in mountainous areas throughout their range. This snake inhabits moist woods from sea level to extremely high elevations. The King snake prefers coniferous forests and woodlands above 3,000'. This species appears to prefer rocky areas, but is also found beneath logs and under bark. It prefers southwestern facing slopes and often retreats beneath rock flakes. King snakes will eat lizards, other snakes, birds and their eggs, as well as small mammals. Eggs are laid in June and July. No impacts to this species are anticipated as project work will be conducted at ground level largely within chaparral stands down slope from Western Tehama County's continuous conifer forests.

Common Garter Snake *Thamnophis sirtalis*: ^{1,3,5,7} Common garter snakes are very widespread, highly adaptable and can survive extreme environmental conditions. They are found in a wide variety of habitats including meadows, marshes, woodlands, and hillsides. They tend to prefer moist, grassy environments and are often found near water such as near the edges of ponds, lakes, and streams. These snakes begin mating in the spring as soon as they emerge from hibernation. Gestation is usually two to three months. Most females in the northern part of their range give birth to from 4 to 80 young between late July and October. Outside of protected riparian zones, the project area is very dry and unlikely to harbor this species of Garter Snake.

Trinity Shoulderband (*Helminthoglypta talmadgei*) ¹¹ The Trinity Shoulderband inhabits stable talus and rockslides areas normally in limestone substrates, usually near springs or streams. Trees and bushes appear to be important for shading and food, though deep shade is not necessary. Project work will occur largely along hill

tops and on vegetated slopes not usually found in connection with talus slopes and rockslides. Any crossing of Dry Creek will occur on relatively flat stable areas. Consequently impact of *Helminthoglypta talmadgei* is not anticipated.

Brandege's eriastrum (*Eriastrum brandegeae*): This plant currently has a Heritage Rank of G3/S3.2 and a Rare Plant Rank of 1B.2. It is widespread throughout the general area. The plant likes disturbance and is often found along the edges of roads. Vegetation manipulations to be completed in connection with the Pattymocus Fuel Break project are expected to benefit this species.

Jepson's Milk Vetch (*Astragalus rattanii* var. *jepsonianus*): The Jepson's Milk Vetch has a Heritage Rank of G4T2/S2.2 and a Rare Plant Rank of 1B.2. This plant grows as a low annual herb with purple flowers, blooming in April to June. The plants are normally confined to moist areas along creeks and springs. These wet areas will be protected by extensive no impact zones.

Dimorphic snapdragon (*Antirrhinum subcordatum*): This plant has a Heritage Rank of S3.3 and a Rare Plant Rank of 4.3 and has been found in several locations adjacent to but outside the project area.

Stebbin's Harmonia (*Harmonia stebbinsii*): *Harmonia stebbinsii* is listed with a Heritage Rank of G2/S2.2 and has a Rare Plant Rank of 1B.2. Sightings have been reported to the north and west of the project area but none have been reported within the Pattymocus Fuel Break project's impact area.

Pale Yellow Stonecrop (*Sedum laxum* ssp. *flavidum*): The Pale Yellow Stone Crop has a Heritage Rank of G5T3Q/S3.3 and a Rare Plant ranking of 4.3. This plant is found further upslope from the project area within higher elevation chaparral lands, Ponderosa pine and Mixed Conifer forests at elevations ranging between 2,624' and 6,562'.

Mt. Tedoc Leptosiphon (*Leptosiphon nuttallii* ssp. *howellii*): This plant has a Heritage ranking of G5T2/S2 and a Rare Plant Rank of 1B.3. It is found within higher elevation sites to the west and north of the Pattymocus Fuel Break project area.

Woolly Meadowfoam (*Limnanthes floccosa* ssp. *floccose*): The California Natural Diversity Data reports *Limnanthes floccosa* ssp. *floccose* as having a Heritage Rank of G4T4/S3.2 and a Rare Plant Rank of 4.2. This fairly endangered California species is found near the wet inner edges of vernal pools the closest of which are located 30 miles to the southeast of the project area.

Tracy's eriastrum (Eriastrum tracyi): Tracy's eriastrum is closely related to Brandegee's eriastrum (*Eriastrum brandegeae*) and has a Heritage Rank of G1Q/S1.1 and a Rare Plant Rank of 1B.2: Rare, Threatened, or Endangered in California and elsewhere. Sightings of this plant have occurred near the community of Platina located northwest of the project area.

Big-Scale balsamroot (Balsamorhiza macrolepis var. macrolepis): This species of balsamroot has a Heritage Rank of G3G4T2/S2.2 and a Rare Plant Rank of 1B.2. The plant is found within grasslands, foothill woodlands and occurs in various land cover types, including purple needle grass grassland, serpentine bunchgrass grassland, mixed serpentine chaparral, mixed oak woodland and forest, Ponderosa pine forest and woodland, between 150' and 4,500'. Several sightings for this plant have been made east of the project area.

Dimorphic snapdragon (Antirrhinum subcordatum): The current Natural Diversity Database list dated November 2010 shows the Dimorphic snapdragon as having a Heritage Rank of G3/S3.3 and a Rare Plant Rank of 4.3, "Not very endangered in California". Sightings of this plant have been made northeast of the project area near Highway 36W.

Dwarf soap root (Chlorogalum pomeridianum var. minus): This 1B2 rated bulb is found on grassy road banks, open meadows, and slopes. All of the Pattymocus Fuel Break project's treatment areas are currently covered by dense stands of chaparral vegetation whose shade reduces the opportunity for the plant to flourish. It is anticipated that clearing a portion of this vegetation and opening up the soil to sunlight will increase the potential for the species to occupy portions of the project area.

Stony Creek Spurge (Chamaesyce ocellata ssp. rattanii): This plant is endemic to Tehama County's westside and is rated 1B.2 by California Native Plant Society. The plant is found in dry stream beds, rock outcrops, dry gravelly and grassy slopes, flats, and roadsides, at elevations from 85' to 1800'. In addition, wide protective buffers have been established around all wet and dry streams, springs and seeps.

Adobe-Lily (Fritillaria Pluriflora): Adobe-lily currently has a CNPS rating of 1B.2 and occurs in chaparral, cismontane woodlands as well as valley and foothill grasslands. Known occurrences have been found between 196' to 2313'. The potential for this plant occurring within the project area is also minimized as a majority of the impact area is very steep and there are little to any fine textured soils within the fuel break's path.

Colusa Layia (Layia Septentrionalis): Colusa Layia has CNPS rating of 1B.2. The plant occurs on loose serpentine or other rocky soils in fields, on grassy slopes or along road cuts within chaparral and cismontane woodland habitats. This species habitat is normally found between 328' to 3,593' in elevation. At the present time

there is very little botanical diversity within the project area which consists almost entirely of tall, dense stands of chaparral brush species. It is anticipated that with the removal of a portion of the current vegetation, additional moisture and sunlight will result in a greater variety of plant species within the project's impact area.

White-Stemmed Clarkia (Clarkia Gracilis ssp. albicaulis): This annual plant has a CNPS rating of 1B.2 and grows abundantly in open woodlands and grassy meadows that have been created by wildfire. It is anticipated that removing a significant portion of the large woody chaparral vegetation within the project area will increase the percentage of open sites and the likelihood of this species becoming established within the project area.

Indian Valley Brodiaea (Brodiaea Coronaria ssp. rosea): This 1B.1 rated perennial herb grows in grasslands, often on serpentine soils at elevations ranging between 1072' and 4640'. At the present time, the project area contains a number of former grassland sites that have become overgrown with decadent stands of chaparral vegetation that in some instances completely shade the soil surface. With the removal of this vegetation, these open grasslands sites will be reestablish for a period of time increasing the likelihood of this species occupying the project's treatment areas.

Scabrid Alpine Tarplant (Anisocarpus Scabridus): Scabrid Alpine Tarplant occupies upper montane coniferous forests on rocky metamorphic sites. This species is not expected to be found in the project area which is largely within Western Tehama County's chaparral belt. The nearest sighting of this species was in the vicinity of the Yolla Bolly Wilderness which is located more than 10 miles to the northwest.

Klamath Sedge (Carex Klamthensis): Klamath Sedge has a CNPS rating of 1B.2 Its habitat includes fens and other moist and wet habitat, generally on serpentine soils. A number of springs are located in the project area where this plant may be found but these will be protected by exclusion zones.

Leafy-stemmed mitrewort (Mitella caulescens): This plant has a Rare Plant Rank of 4.2. Leafy-stem mitrewort may be found from the coast to the middle elevations of Shasta County's coastal mountains. It is most often found in meadows, moist and swampy ground, as well as shady woods. The project area is extremely dry and there are no areas shaded by a tree dominated canopy within or adjacent to the project site.

Oval-leaved viburnum (Viburnum ellipticum): The Oval-leaved viburnum has a Rare Plant Rank of 2.3. It is generally found at elevations of between 950' to 1,000'. In California, this plant generally grows in association with open, low elevation conifer forests which begin their presence at approximately 3,000'. Vegetation within the project area is not conducive to this plant as it consists of dense single species chaparral stands. Consequently, it is not anticipated that this plant will be found within the project area. The CAL FIRE Project Manager will inspect open areas for the occurrence of this species. If individuals are found, these sites will be flagged and project work will continue around inhabited areas.

Oregon Fireweed (Epilobium oregonum): This CNPS 1B.2 plant is found within the Klamath Range within Siskiyou and Shasta Counties along with that part of the Coast Range of Shasta County. This plant is found in wet and boggy areas located on serpentine soils at elevations ranging between 4,000 and 10,000 far above that of the Pattymocus Fuel Break project area. In addition, there are no bogs or open wetlands within the project's impact area.

Niles' harmonia (Harmonia doris-nilesiae): Niles' harmonia has a CNPS Rating of 1B. This plant inhabits openings and rocky areas located within the serpentine belt of western Tehama County at elevations ranging between 2,133' and 4,000' well above that of the Pattymocus Fuel Break project area. Individuals of this species have been located within Chaparral and lower elevation conifer forests located approximately 12 miles west of the project area.

Coast fawn lilly (Erythronium revolutum): The Coast fawn Lilly has a CNPS rating of 2.2. This member of the Lilly family is most abundant within 100 miles of the coast and it is found in moist places such as wooded stream banks, bogs, and wet forest understory in both Redwood and mixed conifer forests. The Pattymocus Fuel Break project area is very dry including the riparian zone of Dry Creek. Lower elevation mixed conifer forests are located about five miles to the west of the project area and roughly 1,500' higher in elevation. Consequently, the occurrence of this species is not anticipated.

Appendix C

Analysis of Greenhouse Gas (GHG) Emissions

Prepared by: Chuck Schoendienst
February 29, 2012

In order to evaluate the total GHG emissions for this project, 3 categories of emissions were assessed. The Table below summarizes the full analysis in this section. A complete analysis for each of the GHG categories in the Table is presented in this section, which includes the rationale for the factors/variables used in the second column of the Table to calculate GHG emissions.

| GHG Summary Table | | | | |
|---|--|------------------------------------|------------------------------|--|
| GHG Category | Factors/Variables | Quantity of Units Used for Project | Calculation | GHG Emissions Metric Tons *CO ₂ e |
| 1. Chaparral removal | Chaparral avg's 27.5 to 36.7 tons per acre. (36.7 used for a conservative estimate) | 84 Acres | 84 ac. X 36.7 tons per ac. = | 3082.8 |
| 2. Diesel fuel | Conversion factor for diesel is 10.15 **KG per Gallon, then gallons X 10.15 / ***1,000 = CO ₂ e | 500 Gallons | 1,250 gal. X 10.15 / 1,000 = | 5.3 |
| 3. Gasoline fuel | Conversion factor for gas is 8.81 KG per Gallon, then gallons X 8.81 / 1,000 = CO ₂ e | 100 Gallons | 300 gal. X 8.81 / 1,000 = | .9 |
| *CO ₂ e = Carbon Dioxide Equivalent (a standard unit to measure global warming potential) **KG = kilograms *** dividing by 1,000 determines the volume of emissions in metric tons | | | | Total 3,089.0 |

Greenhouse gas emissions from Chaparral

Removal or burning of chaparral vegetation as proposed in this project will result in greenhouse gas emissions. Approximately 84 acres of chaparral brush are encompassed within the project footprint. Not all of the 84 acres will be fully treated because some plants will be undisturbed and unburned due to variations in topography and chain contact. However, for the purpose of this evaluation, it is assumed that all acres will be treated, since it will yield a conservative estimate for this project. For this projection, it is assumed that 100% of displaced brush will be killed and eventually consumed. Since burning this brush would not occur immediately after it is crushed, this will allow time for the brush to partially resprout, act as ground cover for erosion control and allow dead material to cure before burning.

To analyze the impacts of the emissions, an understanding of the carbon cycle is required. Below is a brief explanation of the carbon cycle.

The carbon cycle is the biogeochemical cycle by which carbon is exchanged among the biosphere, pedosphere, geosphere, hydrosphere, and atmosphere of the Earth. It is one of the most important cycles of the earth and allows for the most abundant element to be recycled and reused throughout the biosphere and all of its organisms.

Carbon exists in the Earth's atmosphere primarily as the gas carbon dioxide (CO₂). Although it is a small percentage of the atmosphere (approximately 0.04% on a molar basis), it plays a vital role in supporting life. Other gases containing carbon in the atmosphere are methane and chlorofluorocarbons (the latter is entirely anthropogenic). Trees convert carbon dioxide into carbohydrates during photosynthesis, releasing oxygen in the process. This process is most prolific in relatively new forests

where tree growth is still rapid. The effect is strongest in deciduous forests during spring leafing out. This is visible as an annual signal in the [Keeling curve](#) of measured CO₂ concentration. Northern hemisphere spring predominates, as there is far more land in temperate latitudes in that hemisphere than in the southern.

Forests store 86% of the planet's above-ground carbon and 73% of the planet's soil carbon.

Carbon is released into the atmosphere in several ways:

- Through the [respiration](#) performed by plants and animals. This is an [exothermic reaction](#) and it involves the breaking down of glucose (or other organic molecules) into carbon dioxide and water.
- Through the [decay](#) of animal and plant matter. [Fungi](#) and [bacteria](#) break down the carbon compounds in dead animals and plants and convert the carbon to carbon dioxide if oxygen is present, or [methane](#) if not.
- Through [combustion](#) of organic material which [oxidizes](#) the carbon it contains, producing carbon dioxide (and other things, like water vapor).

Around 42,000 [gigatonnes](#) of carbon are present in the [biosphere](#). Carbon is an essential part of life on Earth. It plays an important role in the [structure](#), [biochemistry](#), and [nutrition](#) of all living [cells](#).

- [Autotrophs](#) are organisms that produce their own [organic compounds](#) using carbon dioxide from the air or water in which they live. To do this they require an external source of energy. Almost all autotrophs use solar radiation to provide this, and their production process is called [photosynthesis](#). A small number of autotrophs exploit chemical energy sources in a process called [chemosynthesis](#). The most important autotrophs for the carbon cycle are [trees](#) in forests on land and [phytoplankton](#) in the Earth's oceans. Photosynthesis follows the reaction $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- Carbon is transferred within the biosphere as [heterotrophs](#) feed on other organisms or their parts (e.g., fruits). This includes the uptake of dead organic material ([detritus](#)) by fungi and bacteria for [fermentation](#) or [decay](#).
- Most carbon leaves the biosphere through [respiration](#). When oxygen is present, [aerobic respiration](#) occurs, which releases carbon dioxide into the surrounding air or water, following the reaction $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$. Otherwise, [anaerobic respiration](#) occurs and releases methane into the surrounding environment, which eventually makes its way into the atmosphere or hydrosphere (e.g., as marsh gas or [flatulence](#)).
- Burning of biomass (e.g. forest fires, wood used for heating, anything else organic) can also transfer substantial amounts of carbon to the atmosphere
- Carbon may also be circulated within the biosphere when dead organic matter (such as [peat](#)) becomes incorporated in the geosphere.

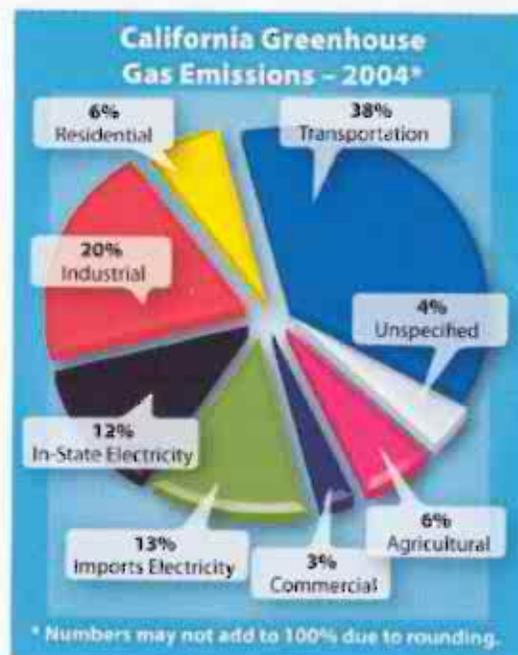
Carbon storage in the biosphere is influenced by a number of processes on different time-scales: while [net primary productivity](#) follows a [diurnal](#) and seasonal cycle, carbon can be stored up to several hundreds of years in trees (or thousands of years in long lived trees such as redwoods) and up to thousands of years in soils and oceans. Changes in those long term carbon pools (e.g. through de- or afforestation or through temperature-related changes in soil respiration) may thus affect global climate change (Wikipedia).

Air Resources Board GHG Inventory Work

ARB has undertaken an extensive inventory documentation and refinement exercise to develop a draft updated statewide GHG emissions inventory and corresponding documentation. This statewide GHG inventory is an aggregate, "top-down" inventory for the period 1990-2004. The Board approved a 2020 emissions limit of 427 million metric tonnes of CO₂ equivalent in December 2007. The 2020 emissions limit is equivalent to the 1990 emissions level (ARB 2010).

<http://www.climatechange.ca.gov/inventory/index.html>

In California, the annual fossil fuel burning (FFB) emissions inventory of CO₂ is 362 million metric tonnes CO₂ per year averaged from 1990–2003. Even so, the annual averaged emissions of CO₂ from wildfires are significant (24 million metric tonnes CO₂ per year; equivalent to 6% of the FFB emission estimates). Although the ratio of annual state-level CO₂ emissions from fires to FFB sources is fairly low, and California does not have significant coal-fire power plant CO₂ emissions, this ratio is also subject to substantial variation. By the end of October 2003, wildfires burned more than 750,000 acres, producing the equivalent of 49% of the monthly CO₂ emitted by FFB sources for state. This occurred in more than one year that we investigated. The major wildfires in September 2006, including the Day Fire in Southern California, produced an estimated 16 million metric tonnes CO₂ for that month, equivalent to approximately 50% of estimated total monthly FFB emissions for the entire state (Wiedinmyer, C. and Jason C Neff, 2007). Far more acres are burned each year in wildfires than are burned in prescribed fires. To the extent that prescribed fire can lessen the intensity or reduce the acres burned in wildfires, prescribed fire can temporarily reduce the carbon emissions from the wildland.



Chaparral is a complex of shrubby vegetation types, characterized by evergreen sclerophyll shrubs in genera such as *Adenostoma*, *Ceanothus*, and *Arctostaphylos*, that dominates many sites at low to middle elevations throughout California, and into Arizona and Mexico as well. Notable for its intense fire behavior, chaparral has been classified as an intermediate fire return interval system (FRI of 20-100 years) that typically burns in stand-replacing crown fires (Conard and Weise 1998).

Plants in this ecosystem are adapted to the Mediterranean climate, local soils, and the fire regime. Fire adaptations include vigorous stump sprouting after fires by many shrubs, including the manzanitas, *Ceanothus*, and scrub oak. Chamise produces dormant seeds that require fire for scarification; these seeds create a large seed bank during non-fire years. In addition, most chaparral plants seed quickly, usually within three to five years after sprouting. Many of the shrubs, especially chamise, promote fire by producing highly flammable dead branches after about 20 years. Another chaparral plant, *Ceanothus*, has leaves that are coated with flammable resins. Fires occurring at intervals greater than 20 years are often high intensity because of the large amount of fuel existing in shrub tops. Many nutrients are locked in the foliage of chaparral plants. Through burning, these nutrients are recycled back into the soil. After fires in chaparral, forbs are usually profuse on the newly opened floor. After a year, the plant community is dominated by annual grasses. Five years after a fire, chaparral shrubs once again dominate the ecosystem (NWCG). Fertilization increases leaf area production and capacity to sequester

carbon (Mader 2007). Prescribed fire returns a portion of the nutrients stored in the biomass and litter to the soil. Thereby, fertilizing the remaining vegetation and increasing the capacity to sequester carbon.

On average, the biomass accumulation of chaparral lands in California is about 15 to 20 tons per acre (Bolsinger 1989). The carbon component of the biomass accounts for about 50% of the mass. Therefore, California's chaparral lands contain on average 7.5 to 10 tons per acre of carbon (27.5 to 36.7 tons per acre CO₂ equivalent) in the biomass. There is approximately 10 million acres of chaparral in California. At 7.5 tons per acre the carbon stored in chaparral in the state is about 75 million tons (275 million tons CO₂ equivalent). At some point the carbon stored in the plants will be released through respiration, decay or combustion. Although some of the carbon will be added to the soil most will be released to the atmosphere.

Over time the carbon that is stored in vegetation will be released as part of the normal carbon cycle. Carbon will also be sequestered overtime as new vegetation grows as long as the land remains productive. Prescribed fire is a tool to help maintain those carbon stocks over time. By reducing the probability of catastrophic wildfire prescribed fire can increase the probability of survival some of the vegetation within the project area, as well as, vegetation adjacent to the project allowing the remaining vegetation to continue to sequester carbon. The carbon released by the prescribed fire will be resequenced by the remaining vegetation and new vegetation following the burn. This has the potential to reduce the massive increase in short term emissions from wildfire and spread the emissions over a longer time period while allowing sequestration to occur in the remaining vegetation.

Prescribed burning is generally used to reduce the fuel load of the forest floor and coarse woody debris, as well as a portion of the above ground biomass. The purpose of the fire is to reduce the risk of large damaging fires by creating conditions that increase the effectiveness of fire suppression. Prescribed fire typically does not affect soil carbon due to lower burn temperatures than wildfire. Prescribed burning returns some carbon dioxide, methane, nitrous oxide, and particulate matter to the atmosphere. Combustion generally is more complete than wildfire, which releases higher concentrations of the other greenhouse gasses and particulate matter (Mader 2007).

Chaparral is an intermediate fire-return interval (FRI) system, which typically burns with high-intensity crown fires. Although it covers only perhaps 10% of the state of California, and smaller areas in neighboring states, its importance in terms of fire management is disproportionately large, primarily because it occurs in the wildland-urban interface through much of its range. Historic fire regimes for chaparral are not well-documented, partly due to lack of dendrochronological information, but it appears that infrequent large fires with FRI of 50-100+ years dominated. Fires in chaparral seem to have always burned the largest areas under severe fire weather conditions (major heat waves or high winds). Patterns of fuel development and evidence on the effectiveness of age-class boundaries at stopping fires suggest that, while fire in young stands is more amenable to control than that in older stands, chaparral of all ages will burn under severe conditions. We recommend a two-part strategy of: 1) establishment of strategically placed dynamic fuel management zones in wildland areas to provide access and opportunities for fire control, and; 2) intensive fire risk management zones (managed and developed cooperatively with local agencies and landowners) to protect values in the wildland-urban interface (Conard and Weise 1998).

An important cause of carbon loss is catastrophic wildfires, especially in fire-adapted ecosystems (Helms 2007). Fire is one of the largest potential risks to loss of stored terrestrial C and is a loss pathway that is difficult to quantify due to the high degree of spatial and temporal variation in fire emissions. At multi-

decadal time scales, wildfires have a near neutral effect on atmospheric CO₂: vegetation regrowth balances punctuated C losses due to combustion, assuming that fire return intervals remain constant (Wiedinmyer, C. and Jason C Neff, 2007). Fuel reduction projects that do not change the vegetation type are carbon neutral over time. The time needed to sequester the amount of carbon released by the treatment is determined by the amount of carbon released and the subsequent regrowth of the vegetation.

California's wildlands are going to burn and the carbon is going to be released. Through prescribed fire land managers can have a say in the timing and quantity of some of those releases. Land managers can also lessen the impacts or provide benefits for other environmental resources. Fire hazard reduction may be an objective of prescribed fire; however, other objectives such as, control of invasive species, wildlife habitat improvement, or range improvement are often also objectives. If a wildfire does happen to enter an area that was treated the wildfire may be contained sooner with reduced area burned and consequently reduced carbon emissions. The reduce number of acres or fire intensity may have benefits to other resource areas beside the reduction of carbon emissions. The reduced wildfire size or intensity may also have benefits to environmental resources, public health, as well as, public and firefighter safety.

All CAL FIRE prescribed burns get a Smoke Management Permit from the Local Air District. Burning is done on approved burns days as determined by the Air District. This process ensures there are not any significant smoke impacts to public health from the project.

Prescribed burn projects undertaken by CAL FIRE are a management tool. These projects only take place on working landscapes. They are not used to convert areas to other land uses. The land remains in production and therefore is available to sequester carbon into the future. Conversion of land to other uses such as factories or subdivisions would have a much greater increase in carbon emissions. Prescribed fires are also designed to achieve the landowners objectives; they are carefully planned to minimize the area treated and to only consume the amounts of fuel necessary to meet the prescribed burn objectives. Prescribed burns are not initiated without specific burning objectives to be achieved. CAL FIRE does not believe prescribed burning produces an increase in the long term release of greenhouse gases from chaparral landscapes.

Chaparral Removal on the Proposed Project:

As shown on the Project Maps (Figure 3), the Pattymocus Fuel Break Project entails the development of a 2.3 mile long 300' wide (84 acres in total) fuel break across private lands utilizing a ball and chain apparatus and a dozer to mechanically clear and crush chaparral brush along a system of prominent ridgelines. The crushed and cleared brush will be further treated by burning during winter or spring months in approximately 2 to 5 years.

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Greenhouse Gas Emissions from Diesel Consumption

The conversion factor presented below was obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). These factors may change (slightly) over time. The prudent GHG emissions researcher may wish to review the most current CCAR General Reporting Protocols to obtain any updated conversion factor.

The conversion factor for diesel consumption is **10.15 KG/GALLON**.

If a project would consume 300 gallons of diesel fuel, to calculate the GHG emissions one would multiply 300 (the number of gallons) times 10.15 (the conversion factor) divided by 1,000 to determine the volume of emissions to be 3.15 metric tons of CO₂e.

Greenhouse Gas Emissions from Gasoline Consumption

The conversion factor presented below was obtained from the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2009). These factors may change (slightly) over time. The prudent GHG emissions researcher may wish to review the most current CCAR General Reporting Protocols to obtain any updated conversion factor.

The conversion factor for gasoline consumption is **8.81 KG/GALLON**.

If a project would consume 30 gallons of gasoline, to calculate the GHG emissions one would multiply 30 (the number of gallons) times 8.81 (the conversion factor) divided by 1,000 to determine the volume of emissions to be 0.265 metric tons of CO₂e.

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