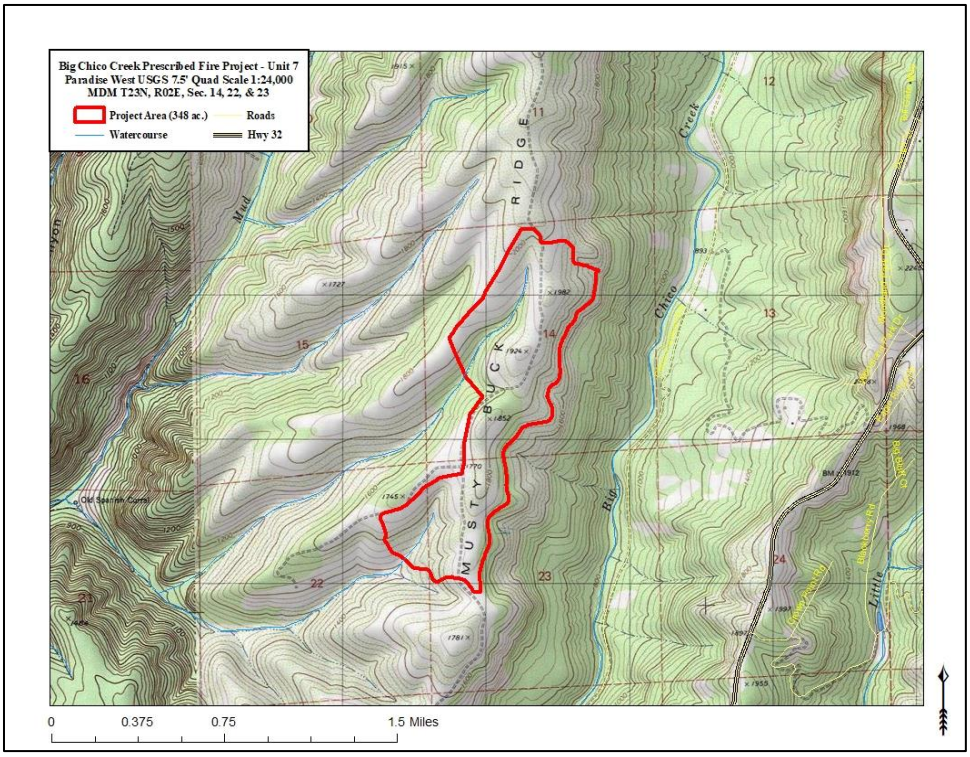
# Initial Study-Mitigated Negative Declaration
# for the proposed
# Big Chico Creek Ecological Reserve (BCCER)
# Prescribed Fire Program, Unit 7 Project
# Butte County, California

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Prepared for:

The California Department of Forestry and Fire Protection
The Lead Agency Pursuant to § 21082.1 of the
California Environmental Quality Act

**May 2020**

# Contents

# MITIGATED NEGATIVE DECLARATION

## *Introduction and Regulatory Context*

### INTRODUCTION

This initial study-mitigated negative declaration (IS-MND) describes the environmental impact analysis conducted for the proposed project. This document was prepared by CAL FIRE staff utilizing information gathered from a number of sources including research, field review of the proposed project area and consultation with environmental planners and other experts on staff at other public agencies. Pursuant to § 21082.1 of CEQA, the lead agency, CAL FIRE, 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 a significant effect on the environment.

### REGULATORY GUIDANCE

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

An initial study 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. This IS-MND conforms to these requirements and to the content requirements of CEQA Guidelines § 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 to describe the adjustments made to the project to avoid significant 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 state 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 requirements for providing an NOI are found in CEQA Guidelines §15072. These guidelines require CAL FIRE to notify the general public by providing the NOI to the county clerk for posting, sending the NOI to those who have requested it, and 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 posting the NOI on and off site in the area where the project is to be located, the second of the three notification options. The NOI will be posted at the CAL FIRE Station #22 in Cohasset, the road in to the project area at the corner of Villa Rd. and Ponderosa Way, and at the entrance to the Big Chico Creek Ecological Reserve.

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 that 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:

Timothy C. Keesey, Conservation Project Coordinator
Butte County Resource Conservation District
150 Chuck Yeager Way, Suite A
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(530) 260-0934
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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; or (3) abandon the project.

## *Project Description and Environmental Setting*

### PROJECT LOCATION

The project setting is remote and rural, with no homes or public infrastructure visible from most of the project area. The 322-acre project location is on the northern boundary of BCCER on Musty Buck Ridge (T23N, R02E, portions of sections 14, 22, and 23). Private dirt roads established by previous landowners are the primary access to this remote area of BCCER. This area of BCCER is infrequently visited for management activities, recreation, or research due to accessibility via Cohasset or rarely by fording Big Chico Creek. Adjacent land uses include hunting, low-intensity grazing, and the research and education programs of the main BCCER.

## BACKGROUND AND NEED FOR THE PROJECT

The project is a 322-acre fuels reduction and ecological enhancement effort situated on Musty Buck Ridge within the 3,950-acre Big Chico Creek Ecological Reserve. Musty Buck Ridge is comprised of unique geology dominated by volcanic mudflows generally trending in a north-south orientation. The ridge top-centered project area includes headwater tributaries flowing into Sycamore Creek, Mud Creek, and Big Chico Creek. Dominant vegetation within the project area includes annual grasslands, black oak and canyon live oak woodlands, and scrub communities dominated by buck brush, deer brush, scrub oak, and manzanita. In August 1999, much of Musty Buck Ridge was burned in the 16,757-acre Musty Fire. The project is situated within the perimeter of the Musty Fire. The project area is relatively remote, and is accessible by only two rough privately maintained 4WD roads. The terrain is rolling to extremely steep, interrupted by rocky areas and steep cliffs. The project objectives are:

1. To enhance ecological health by re-establishing a fine-grain mosaic from scrub-dominated areas, promote the resiliency of oak woodlands to fire and climate change, and encourage native species diversity in grasslands;
2. To create a public safety fire-break for local communities including Chico, Cohasset, Forest Ranch and Richardson Springs; and
3. To provide for the safe and permanent re-introduction of prescribed and cultural fire as a stewardship tool.

To accomplish these objectives, the applicant proposes to reduce shrub continuity to promote a diverse age-class mosaic and reduce wildfire related risks to oak woodlands. The project applicant is Terra Fuego Resources Foundation, a private prescribed fire contractor, on behalf of the CSU, Chico Ecological Reserves Foundation. The Butte County Resource Conservation District is assisting in the development of the CEQA Initial Study and Cal FIRE is acting as the CEQA lead agency.

## PROJECT OBJECTIVES

The project objective is to remove enough encroaching brush and chaparral to achieve a healthy and resilient landscape reflected in a fine grain mosaic of shrubs interspersed with grasslands and oak woodlands that is reflective of traditional knowledge and historic photographs of this area. It is intended that facilitating this vegetation composition and structure will achieve a dynamic ecological community that is fire resistant and adaptive to future environmental change (i.e., warmer and drier conditions or climate extremes). It is believed that this approach will provide improved water yield and quality, provide diverse habitat including at springs and seeps, reduce rates of spread for future wildfires, and provide fire protection for the communities of Chico, Richardson Springs, Cohasset, and Forest Ranch. After the project, desired conditions will be maintained with ecologically and culturally appropriate broadcast burning in such a way as to promote native species and achieve numerous ecocultural objectives.

Initial project work will involve enhancement of existing fuel transitions along roads, trails, and edges of shrub patches in order to achieve adequate spacing to enable the safe use of

broadcast burns where appropriate. In some instances this enhancement may be achieved by running burn strips in shrubs during high moisture conditions, or focusing on areas with senescent shrubs.

## PROJECT START DATE

Fall 2020

## PROJECT DESCRIPTION

The 322-acre BCCER prescribed fire would complete the western portion of a landscape-scale defensible zone in the path of historic fire spread in the Big Chico Creek Watershed within BCCER. The other, eastern portion is already being achieved by the BCCER-VMP units on the other side of Big Chico Creek.

The project would reduce fuels using mechanical cutting, crushing brush with a machine such as a small tracked Bobcat, uprooting brush by pulling, pile burning, and broadcast burning. Means of shrub and small tree removal -- mechanical, motorized, or fire -- would be selected based on careful analysis of current site conditions including weather, time of year, and the presence of sensitive cultural or biological resources, as described in this document. Usually, more than one tool would be present on site at a time so that operations can be carefully optimized for site conditions. On steep slopes, or where machine access is impractical, fuels would be reduced by hand crews opening long hand-cut transects and piling brush for machine collection, or later pile-burning when conditions are optimal. Pockets of black oak would be used as “anchor points” to define project boundaries and sub-zones within the project area. Approaching the project in this way will conserve black oaks and facilitate range expansion where appropriate conditions exist. There is evidence from within the project area that these black oak stands were once more expansive, but top-killed by previous wildfires. Currently many pole-sized oaks are emerging within dense shrub stands, and arise as sprouts from large diameter burls.

Auxiliary project operations would include maintenance and improving (including isolated widening) the natural surface (dirt or bedrock) of the private 4WD roads which access the steep, remote area, and rehabilitation of excessively disturbed areas (e.g., machine tracks) after machine operations are concluded. Brush removal would be almost entirely within a 50-100-foot buffer of Musty Buck Rd., and would taper off to a lighter prescription beyond the buffer. The lighter prescription would widen existing openings, interrupt fuels continuity to slow fire spread, reduce ladder fuels to protect black oak crowns from ignition, yet still maintain a desirable spatial and biological diversity of shrub species.

## ENVIRONMENTAL SETTING OF THE PROJECT REGION

Big Chico Creek is part of the southern Cascade Range. The headwaters of Big Chico Creek originate on Colby Mountain at 5,973’, and flows are contributed from surface runoff of snowmelt, rain, and groundwater from springs. The headwaters are dominated by manzanita shrub fields and pine-fir forests. Big Chico Creek flows generally southwest through a mix of volcanic mudflow and basalt formations, and fossiliferous sandstone formations, to the

bottomlands of the Sacramento Valley and ultimately into the Sacramento River. The watershed is unusual in that almost every single acre is inside a single county (Butte County, California) and in that the entire forested upland portion of the watershed is divided among just 15 landowners, providing outstanding opportunities for watershed-scale conservation. Big Chico Creek is home to numerous sensitive species, including freshwater mussels, small populations of spring-run Chinook salmon, western pond turtles, and foothill yellow-legged frog. The watershed is the ancestral home of Yana (*i.e.,* Yahi) and Kojomkawi (*i.e.*, Konkow) speaking peoples represented today by several bands within the county and surrounding areas. Members of those bands continue to maintain a relationship with this landscape as a place of residence, ceremony, harvesting, stewardship, and other traditional activities.

The region has a Mediterranean climate with rainy, mild winters and extremely hot, dry summers. Annual precipitation averages between 40-60 inches, followed by a 6-to-9-month dry season. The wet season produces vigorous vegetation growth that may be subject to seasonal drought, and prone to fire. California native plants have evolved with relatively frequent fires, and in many cases require fire or fire byproducts to remain healthy or to reproduce. This fire history includes lightning and anthropogenic sources, and it is certainly true for the Big Chico Creek Watershed. Frequent burning by local Indigenous peoples created a landscape that was fire-maintained by low to moderate intensity fires that self regulated. Woodland conditions were historically open with grass and herbaceous undergrowth and scattered shrubs, which resulted in a fire resistant and resilient landscape. While fire suppression policies have been in place for more than a century, there is a history of wildfires and prescribed burns within and adjacent to the boundary of BCCER. The most recent large fire within the project area was the Musty Fire in 1999, which was caused by lightning. This fire had variable effects on vegetation within the landscape including the fragmentation of some chaparral dominated areas and crown mortality in some of the hardwood trees, which have since regenerated from basal sprouting. The resulting community still exhibits standing dead biomass in some areas. Almost the entire upland portion of the Big Chico Creek watershed has been designated by CALFIRE as a “high” or “severe” wildfire hazard zone.

It is a stated goal of BCCER management to restore these vegetation communities to more historic conditions, and prescribed and cultural fire will be central to these efforts. Current initiatives are focused on strategic fuels reduction areas that will slow or halt fire movement in the Big Chico Creek Watershed to minimize risk to the surrounding communities. The program has several component units which have been or will be separately analyzed for environmental impacts. The purpose of this CEQA evaluation is to analyze the potential environmental impacts of a proposed 322-acre area prescribed fire located along the northern boundary of BCCER on Musty Buck Ridge as indicated on the attached maps.

## DESCRIPTION OF THE LOCAL ENVIRONMENT

The Big Chico Creek Ecological Reserve (BCCER) is a research and teaching preserve which includes 4.5 stream miles of the creek. BCCER actively manages its 3,950 acres for a wide range of ecocultural objectives, especially promoting native species habitat, eradicating invasive plants, creating educational opportunities for the hundreds of students who visit each year, maintaining roads and foot trails for recreational and research access, and promoting the

use of cultural and prescribed burning practices. Based on analysis of the Northern Sierra Nevada Vegetation Survey GIS data set, 15 vegetation communities occur within BCCER, and include willow-alder riparian vegetation, valley oak-sycamore riparian forest, blue oak woodlands, blue oak-gray pine woodland, black oak woodland, Ponderosa pine-live oak forest, chaparral dominated by *Ceanothus* and *Arctostaphylos* spp., small wetlands around seeps and springs, annual-dominated grassland, and perennial-dominated grassland, among others. Elevations range from 2,150 feet at the northeastern end of the preserve to 700 feet at the southern end where Big Chico Creek exits the reserve.

The 322-acre project site is mostly chaparral, dominated by *Ceanothus* and *Arctostaphylos* spp. with *Garrya* and *Lepechinia* also important. Black oak forms small groves in damper draws. Blue oak is also present. The ground cover is a diverse mix of annual and perennial grasses and wildflowers, mostly native. There are no remaining perennial springs in the project area. Seasonal seeps and ephemeral wetlands may develop after prolonged rainfall.

## CURRENT LAND USE AND PREVIOUS IMPACTS

Until the late nineteenth century, the site was primarily used by Indigenous peoples as part of their daily lives. They maintained open, sunny oak woodland conditions with regular, low-intensity fire. The chaparral communities were maintained in a fine grain mosaic interspersed with grasses and forbs. Collectively, these fire maintained areas achieved numerous ecocultural objectives including high-quality food, medicine, and fiber. The tending to these places was disrupted by American settlement. In the late 1800s and 1900s, the site was considered valuable cattle and sheep ranching land, indicating that grass was far more abundant than it is today. Several old homesteads and cattle camps can be found across the landscape, at sites where there is currently no available water even though old maps sometimes show a named or unnamed spring. This indicates that historic springs dried up in the last century, which is consistent with encroaching brush reducing the water yield from former oak savannah. As ranching became increasingly less profitable, BCCER was formed with the purchase of the Simmons ranch in 1999 and the Henning ranch in 2001.

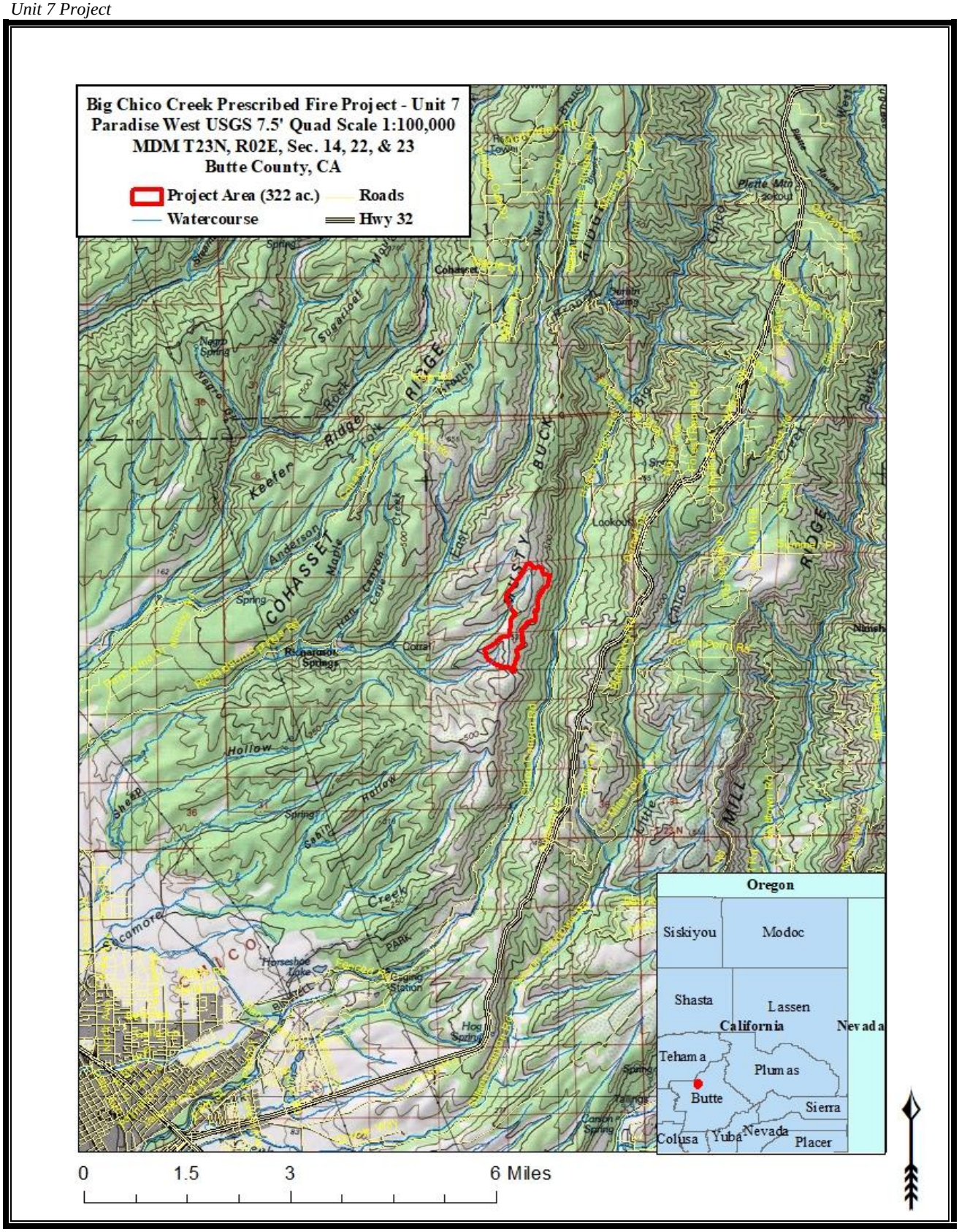


Figure 1. Project Location Map #1 of 1.

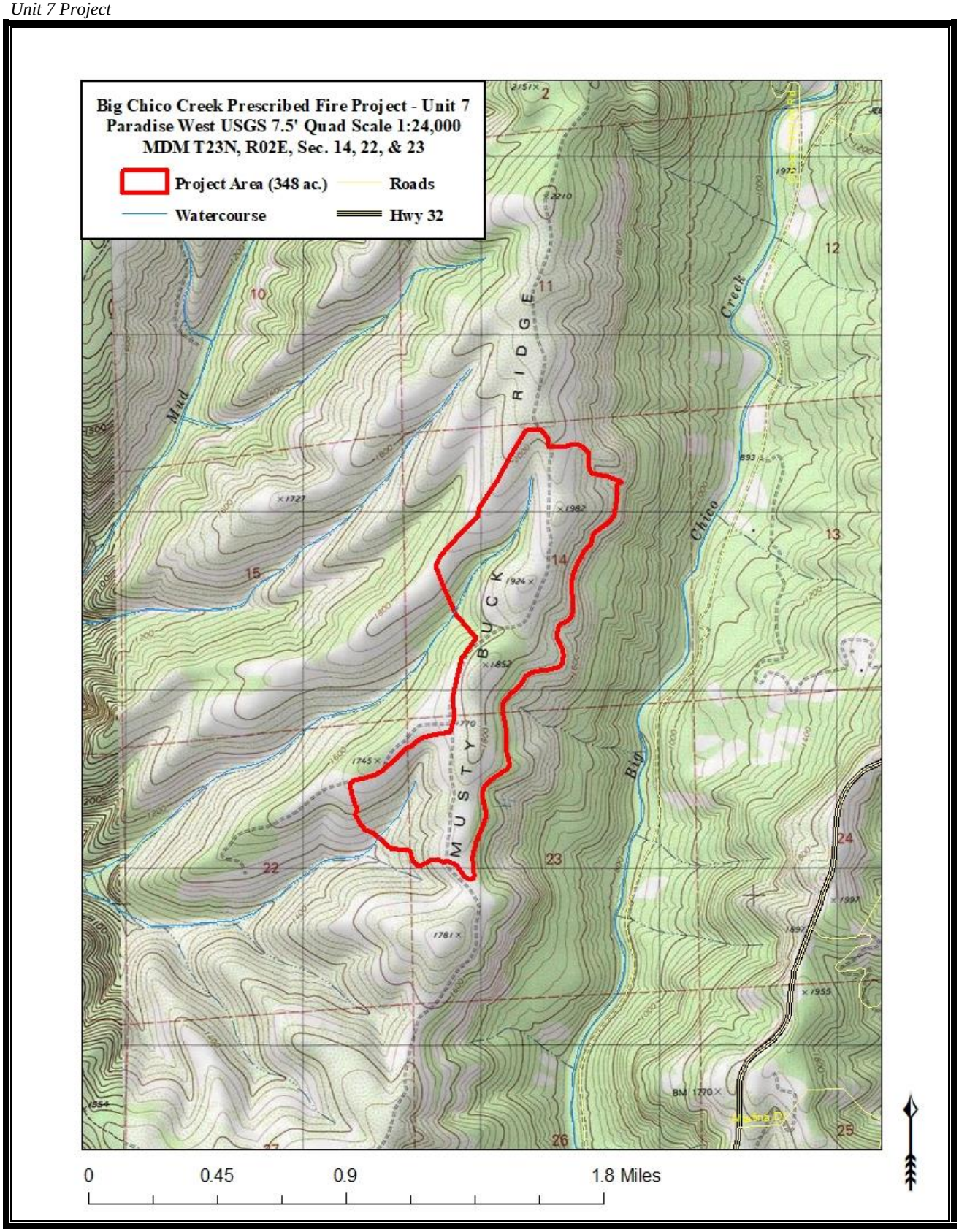


Figure 2. Project Location Map #1 of 2.

## Environmental Permits

The proposed project will require the following environmental permits and CAL FIRE will comply with the following state regulations:

- Smoke Management Plan approved by Butte County Air Quality Management District
- Prescribed Burn Plan approved by CAL FIRE

### MITIGATION MEASURES

The following 15 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: AGR – 1***: Tree protection:* Conifer and oak trees will be protected through use of a cool prescription and/or chaparral understory will be cleared around trees as appropriate for protection. Fire will be maintained at a low to moderate intensity that is not expected to harm trees.

**Mitigation Measure #2: AIR-1**: *Permits:* The proposed treatments are not expected to adversely affect air quality standards, regional haze, and wilderness air quality related values, because of laws, rules, regulations and mitigation measures that would be implemented. Prescribed burning is regulated by the BCAQMD in compliance with the state smoke management plan, Title 17. Fire managers are required to meet all air district standards and therefore the prescribed burning operations are presumed to conform to the Clean Air Act.

**Mitigation Measure #3: *BIO – 1:*** *Terrestrial and Aquatic Wildlife Resources*: Best Management Practices (BMPs) will be applied for protecting wildlife and wildlife habitat, including:

- **New wildlife findings:** In the event of a verified threatened, endangered or sensitive species occurrence prior to or during project implementation, the appropriate limited operating periods would apply based on consultation with CDFW. Other mitigations may take place as agreed upon in consultation with CDFW.
- **Snags:** Retain snags when possible for wildlife habitat.
- **Structure trees:** Retain and protect high value wildlife habitat trees (trees with multiple tops, broken tops, rot, cavities, and other formations) that create structure for nests and dens.
- **Prescribed fire line construction (machine):** There will be no mechanical fire line construction within 50' of watercourses or springs.
- **Pile burning:** No pile burning will be done within 50 feet of watercourse or springs.
- **Gas Powered Equipment:** No fueling of gas powered equipment will occur within 100 feet of a watercourse or spring.

**Mitigation Measure #4: BIO-2:** *Botanical Resources - Erythranthe glaucescens:* Populations of Erythranthe glaucescens will be flagged prior to project implementation and no pile-burning or grading will be allowed on top of known populations of *Erythranthe glaucescens* (Shield-bracted monkeyflower). Broadcast fire will be fine.

**Mitigation Measure #5: BIO-3:** *Botanical Resources - Polygonum bidwelliae*: *Polygonum bidwelliae* (Bidwell's knotweed) is not expected to be negatively affected by either broadcast fire or scattered burn piles. Populations will be flagged and no additional soil will be placed in these flagged areas during grading or scraping of roads. In the unit, *P. bidwelliae* currently utilizes existing roads for habitat because it prefers exposed, gravelly basalt soils where there is little competition from annual grasses.

**Mitigation Measure #6: BIO-4:** *Noxious Weeds:* Prevent spread of invasive species with equipment: Use contract clauses to require that the activities of contractors are conducted to prevent and control the introduction, establishment, and spread of aquatic and terrestrial invasive species. For example, where determined to be appropriate, use agreement clauses to require contractors to abide by vehicle and equipment cleaning requirements/standards prior to using the vehicle or equipment within BCCER.

**Mitigation Measure #7: BIO-5:** *Staging areas:* Do not stage equipment, materials, or crews in areas infested with invasive plant species where there is a risk of spread to areas of low infestation.

**Mitigation Measure #8: CUL-1:** *Unrecorded Resources:* Procedures for post-approval discovery of cultural resources will be followed as outlined in *Archaeological Review Procedures for CAL FIRE Projects* (Foster and Pollack 2010 pg. 17-18).

If a cultural resource is discovered within a project area after the project has been approved, the following procedures apply:

1. Project activities within 100 feet of the newly discovered cultural resource shall be immediately halted.
2. The appropriate CAL FIRE Archaeologist shall be immediately notified.
3. The CAL FIRE Archaeologist shall evaluate the new discovery and develop appropriate protection measures.
4. The CAL FIRE Archaeologist shall investigate how the project was reviewed for cultural resources to determine if the cultural resource should have been identified earlier.
5. The CAL FIRE Archaeologist shall ensure that the newly discovered site is recorded and its discovery and protection measures are documented in the project files.
6. If the newly discovered site is a Native American Archaeological or Cultural Site (defined in the Forest Practice Rules), the CAL FIRE Archaeologist shall notify the appropriate Native American tribal group and the NAHC, if appropriate.

**Mitigation Measure #9: CUL-2:** ***Follow-up Surveys:*** An archaeological survey was conducted and no sites were identified. However, there were areas within the project area where heavy fuel loading hindered the survey effort. Areas have been identified within the Archaeological Survey Report where follow up surveys will be conducted following treatments. An intensive survey (0 – 10 m transects) of inaccessible areas that become accessible following prescribed fire operations will be surveyed by a professional archaeologist or a surveyor with a CAL FIRE Archaeological Training Certificate within one year post-fire. An Archaeological Survey Report in CAL FIRE format will be developed and submitted to CAL FIRE for review and approval.

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**Mitigation Measure #10: CUL-3:** ***Historic Roads and Trails:*** Roads and trails that currently overlie historic linear sites may continue to be used as transportation routes without notification. However, if there are activities that will change the morphology of the existing road or trail (that is overlaying a historic linear site), these activities need to be reviewed by an archaeologist.

**Mitigation Measure #11: GEO-1:** *Prescribed fire control line construction:* Fire control lines are a concern for hydrology and soil quality risks, whether put in by hand or using mechanical means. They will be rehabilitated for drainage using best management practices (BMPs). Fire line construction will be in accordance with slope restrictions (Mitigation Measure #12) and Water Protection BMPs (Mitigation Measure #13).

**Mitigation Measure #12: GEO-2:** *Slope restrictions:* Ground-based equipment would be restricted to slopes less than 35 percent. Exceptions may be made for short pitches of 100 feet slope distance, up to 50 percent slope.

**Mitigation Measure #13: HYD-1:** *Project Best Management Practices (BMPs):* Protect water quality through the use of best management practices (BMPs) to prevent water quality degradation and to meet state water quality objectives relating to non-point sources of pollution. Best management practices utilized for this project are procedures and techniques that are incorporated in project actions and have been determined by the State of California to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

The standard best management practices for protecting water quality include:

- Keep mechanical equipment and refueling, cleaning, of lubricating of equipment a prescribed distance from designated watercourses.
- Limit operation of road based equipment when soils are saturated and excessive damage can occur.
- To maintain soil productivity, minimize erosion, and minimize ash, sediment, nutrients, and debris from entering water bodies.
- Keep pile burning a prescribed distance from designated watercourses.
- Broadcast (prescribed) burning would be allowed within stream course protection zones, but there would be no ignitions in riparian vegetation. Fire may back through this zone.

**Mitigation Measure #14: FIRE-1:** *Prescribed burn plan:* Mitigation measures within the prescribed burn plan will include:

- Burning can be scheduled for fall months into winter. Pile burning may occur during the spring months with the approval of the project area supervisor. The actual burn days will be dependent upon ARB Forecasts and National Weather Service (NWS) forecasts that are consistent with the burn prescription. There is no limitation on the time of day of burning.
- The Cohasset RAWS station will be used for pre and post-ignition weather data collection for the project. During burning, belt weather kits or electronic weather meters (Kestrels) will be used to collect and monitor weather conditions.
- Temperature, relative humidity, and wind speed/direction data will be collected during

burning. Weather data will be collected every hour and information will be recorded along with fire behavior details.

- Weather data will be sampled at least three days prior to and three days after burning. Post burn sampling may be more or less depending on burn down and predicted weather.
- Request NWS spot forecasts at least three days before and three days after burn is completed. Post-burn forecasts are especially important for early fall when post-burn winds could cause control problems.
- No burning will be conducted if Red Flag Warnings or Watches are in place or being discussed. Ridge top winds in excess of 20 mph should be watched closely, especially during the early fall and late spring periods.
- Forecasts must be watched for any mention of east or northeast winds.

## 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 Aesthetics, Agriculture Resources, Cultural Resources, Energy, Geology and Soils, Land Use Planning, Mineral Resources, Noise, Population and Housing, Public Facilities, Recreation, Tribal Cultural Resources, and Utilities.

2. The proposed project will have a less than significant impact on Greenhouse Gas Emissions, Hazards and Hazardous Materials, Transportation, and Wildfire.

3. Mitigation is required to reduce potentially significant impacts related to Air Quality and Biological Resources.

The Initial Study-Environmental Checklist included in this document discusses the results of resource-specific environmental impact analyses that were conducted by the Department. This initial study revealed that potentially significant environmental effects could result from the proposed project. However, CAL FIRE revised its project plans and has developed mitigation measures that 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

The environmental factors checked below would be potentially affected by this project involving at least one impact that is a potentially significant impact as indicated by the checklist on the following pages.

## *Environmental Factors Potentially Affected*

| | | |
|---|---|---|
| ☐ Aesthetics | ☐ Greenhouse Gas Emissions | ☐ Public Services |
| ☐ Agriculture Resources | ☐ Hazards & Hazardous Materials | ☐ Recreation |
| ☒ Air Quality | ☐ Hydrology and Water Quality | ☐ Transportation |
| ☒ Biological Resources | ☐ Land Use and Planning | ☐ Tribal Cultural Resources |
| ☐ Cultural Resources | ☐ Mineral Resources | ☐ Utilities and Service Systems |
| ☐ Energy | ☐ Noise | ☐ Wildfire |
| ☐ Geology and Soils | ☐ Population and Housing | ☐ 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 would be prepared.

☒ I find that although the proposed project COULD have a significant effect on the environment, there WOULD 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 would 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Timothy C. Keesey, Conservation Project Coordinator
Butte County Resource Conservation District

4/28/2020
Date

## *Environmental Checklist and Discussion*

### AESTHETICS

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Except as provided in Public Resources Code § 21099, would the project have a substantial adverse effect on a scenic vista? | ☐ | ☐ | ☐ | ☒ |

The combination of fuel and vegetation changes within and surrounding the project area during the past century has resulted in a landscape that is less resilient to wildland fire, drought, insects, and disease. The lack of management activities has contributed to the current condition. During treatment activities and immediately afterward, changes to the visual quality of the landscape may be observable. However, the area will not be 100% cleared through burn operations and unburned areas will be left to provide textural variety.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Except as provided in Public Resources Code § 21099, would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | ☐ | ☐ | ☐ | ☒ |

Proposed treatments are intended to improve heterogeneity across the landscape with respect to density, species, and reduced fuels and will benefit the visual objectives in the project area. A variety of plant communities varying in size, age, and structure provide diversity in the visual character of the area. Reducing the possibility of stand replacing fires, disease or insect mortality, and improving the resiliency of the vegetation to climate change would improve and maintain the aesthetic integrity of the project area.

Reducing the competition between vegetation would enhance the long-term aesthetics by promoting healthy stands of hardwoods, brush, grasslands, and riparian areas. Effects from the proposed activities would only serve to enhance and benefit the resources in the area, including visual quality, and reduce the possibility of losing the entire area again to wildfire. The project area is not visible from any scenic highway or designated scenic vista point.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Except as provided in Public Resources Code § 21099, in non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? | ☐ | ☐ | ☐ | ☒ |

Portions of the project area could be visible to members of the public standing on the other side of the Reserve property, about 1.5 miles away, but the project will not substantially degrade the

aesthetic quality of the view.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Except as provided in Public Resources Code § 21099, would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | ☐ | ☐ | ☐ | ☒ |

A faint temporary glow could be created by the project on some nights (because of prescribed burning), but due to the remote location, the fire will not be visible from any publicly accessible road or dwelling.

## AGRICULTURAL RESOURCES

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project is not located on land identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland).

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract? | ☐ | ☐ | ☐ | ☒ |

The project is not agricultural land or under a Williamson Act contract. The entire BCCER property is zoned RC, or Resource Conservation.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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))? | ☐ | ☐ | ☐ | ☒ |

The project is also not on land zoned for timber production.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Would the project result in the loss of forest land or conversion of forest land to non-forest use? | ☐ | ☐ | ☐ | ☒ |

The 322-acre project site is mostly chaparral, dominated by *Ceanothus* and *Arctostaphylos* spp. with *Garrya* and *Lepechinia* also important. Black oak forms small groves in damper draws. Blue

oak is also present. The ground cover is a diverse mix of annual and perennial grasses and wildflowers, mostly native. As such, the area is not currently being used to generate agriculture/forest resources. The proposed action is intended to remove enough encroaching brush and chaparral to achieve a healthy and resilient landscape reflected in a fine grain mosaic of shrubs interspersed with grasslands and oak woodlands that is reflective of traditional knowledge and historic photographs of this area. It is intended that by facilitating this vegetation composition and structure will achieve a dynamic ecological community that is fire resistant and adaptive to future environmental change (i.e., warmer and drier conditions or climate extremes). This should result in healthier stands of oak/gray pine woodlands due to reduced competition with brush that are less likely to succumb to a future wildfire due to reduced fuels and lower burn severity. These changes could result in more forestland (oak/pine woodland) in the project area, but not less.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project takes place entirely onsite and requires no improvement or expansion of auxiliary facilities; therefore, the project has no foreseeable indirect, offsite, or cumulative impacts that could degrade or convert forestlands or agricultural lands.

## AIR QUALITY

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project conflict with or obstruct implementation of the applicable air quality plan? | ☐ | ☒ | ☐ | ☐ |

Project prescribed burning would produce PM10. Prescribed burning is regulated by the Butte County Air Quality Management District (BCAGMD) in compliance with the state smoke management plan, Title 17. Prescribed burn projects must submit a Smoke Management Plan to BCAQMD for review and approval. The plan is developed to minimize air quality impacts of the project. Burning is done on approved burn days as determined by BCAQMD. This process ensures that there are not any significant smoke impacts to public health from the project.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project 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? | ☐ | ☐ | ☒ | ☐ |

The air in Butte County does not meet the State or federal health based standards for ozone or fine particulate matter (PM2.5). Throughout the Northern Sacramento Valley Air Basin the major contributor to air pollution is the motor vehicle.

Federal standards have been established for seven pollutants:

1. Carbon monoxide

2. Lead
3. Nitrogen dioxide
4. Ozone
5. Respirable particulate matter less than 10 microns in diameter (PM10)
6. Fine particulate matter less than 2.5 microns in diameter (PM2.5), and
7. Sulfur dioxide

California state standards exist for all of these, plus four more:

1. Sulfates
2. Hydrogen sulfide
3. Vinyl chloride (chloroethene), and
4. Visibility reducing particles

**Table 1: Butte County – State and Federal Ambient Air Quality Attainment Status:**

| Pollutant | State Designation | Federal Designation |
|---|---|---|
| 1-hour ozone | Nonattainment | — |
| 8-hour ozone | Nonattainment | Nonattainment |
| Carbon monoxide | Attainment | Attainment |
| Nitrogen Dioxide | Attainment | Attainment |
| Sulfur Dioxide | Attainment | Attainment |
| 24-Hour PM10 | Nonattainment | Attainment |
| 24-Hour PM2.5 | No Standard | Attainment |
| Annual PM10 | Attainment | No Standard |
| Annual PM2.5 | Nonattainment | Attainment |

Source: Butte County AQMD 2018

There are no class I airsheds within the project area.

Effects to air quality and visibility could result from prescribed burning; and a very small increase in air pollutants could result from equipment use under the proposed action.

Effects to air quality could result from fugitive dust caused by project implementation. Best management practices (BMPs) will be implemented in order to minimize impacts. Fugitive dust generally quickly settles back down to the ground and typically does not spread far downwind.

Potential adverse effects from equipment used in project implementation would be very small as the equipment would mostly operate in remote areas that are not occupied. Limited amounts of equipment would be used over a broad area and equipment emissions would disperse quickly.

Effects to visibility from project prescribed burning would be temporary and minimized by burning only during designated burn days when adequate weather conditions would disperse smoke quickly. Most prescribed burning would occur on a single day or over several days. Fire managers are

required by the air district to plan for controlling smoke emissions through contingency planning as part of the smoke management plans.

Project emissions would temporarily increase air pollutants in the airshed and Butte County. However, their direct, indirect and cumulative effects would be regulated by the BCAQMD in order to prevent adverse impacts and exceedances of health standards. The proposed prescribed fire treatments would reduce future potential wildfire smoke.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Would the project expose sensitive receptors to substantial pollutant concentrations? | ☐ | ☐ | ☐ | ☒ |

Due to the above factors and the remoteness of the location, the project will not expose sensitive receptors to substantial pollutant concentrations.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? | ☐ | ☐ | ☐ | ☒ |

The project will not result in emissions other than those mentioned above.

## BIOLOGICAL RESOURCES

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 Wildlife or the U.S. Fish and Wildlife Service? | ☐ | ☒ | ☐ | ☐ |

The project area is located at the Big Chico Creek Ecological Reserve (BCCER). BCCER is within the traditional homelands of Yana and Konkow people who lived within and surrounding the property. Their traditional cultural practices included burning, coppicing, and digging; all of which are an integral process within this landscape, but perhaps most important was burning. Due to selective pressures of this activity, the ecosystems within this landscape were largely shaped by the patterning of fire spatially and temporally across the seasons and years, thereby selecting species that are resilient to fire. Beginning in the 1840's cattle ranches and homesteads were established within the area, and their land use practices also shaped the ecosystems. Fire continued to be utilized by these settlers, but for more limited reasons (e.g., rangeland maintenance and forage production). This different application of fire coupled with more intensive use has altered the native vegetation and ecosystem dynamics. For instance, the change in fire regime and practice has led to habitat conversion (e.g., valley oak woodlands converting to canyon live oak dominated forests, and the expansion of chaparral). Some of these changes can be observed through comparison of historic Wieslander Vegetation Type Mapping project's vegetation surveys and photographs. The concomitant effects of grazing and fire has also enabled the establishment, and in

some cases dominance, of non-native vegetation (e.g., yellow star thistle [*Centauria solstitialis*]). Shifts in policy ultimately led to the curtailment of prescribed fire within this landscape, with some of the last large prescribed fires occurring in the vicinity of lower Musty Buck Ridge in the late 1980's. With the absence of prescribed fire, wildfire (both natural and human caused) has had varying footprints within BCCER. Specifically, the Musty fire in 1999 burned extensively through BCCER with variable intensity and severity.

Since establishment of BCCER much has been done to enhance the ecosystems through vegetation management activities including reintroduction of native grasses, establishment of shaded fuel breaks along most interior roads and trails, and prescribed fire. BCCER was identified as an ongoing fire and fuels reduction project in the Butte County Community Wildfire Protection Plan and Butte Unit Plan beginning in 2005. In 2010, the activities evolved from fuels reduction to the implementation of an annual prescribed fire program, which has led to approximately 200 acres per year of grassland, meadows, oak woodlands, and other habitats being sustainably managed with fire to ensure ecological resiliency while reducing wildland fire risk.

***Botanical Resources:*** The vegetation communities of the proposed project area are diverse. In 2008, a graduate study characterizing the dominant vegetation classes of the BCCER was completed and the resulting GIS data shows that oak woodlands compose the dominant over-story in the majority of communities found within the proposed project area (Figure 2). However, common shrub species are found in association with this area including toyon (*Heteromeles arbutifolia),* manzanita (*Arctostaphylos spp.),* deer brush (*Ceanothus spp.),* coffeeberry (*Rhamnus californica*), and poison oak (*Toxicodendron diversilobum).*

While most of the species found in the shrub layer are native species, the herbaceous layer is generally dominated by non-native species. Some of the common non-native species include yellow starthistle (*Centaurea solstitialis),* hedgehog dogtail (*Cynosurus echinatus),* wild oats *(Avena fatua),* filaree *(Erodium spp.),* ripgut brome *(Bromus spp.),* and common hedge-parsley *(Torilis arvensis).* Meanwhile, common native species include purple needlegrass (*Nassella pulchra),* blue wild rye (*Elymus glaucus),* deergrass (*Muhlenbergia rigens),* and gum plant *(Grindelia camporum*). Generally, these native species respond positively to prescribed fire (Hankins 2015).

***Wildlife Resources:*** BCCER was created to protect habitat for spring run Chinook salmon, and most of the stewardship actions involved in managing BCCER are ultimately linked to conservation of that species. This stewardship approach also benefits many other terrestrial and aquatic species. As a protected area with ongoing stewardship and research activities occurring, the knowledge of species occurrences across BCCER is well known. While a great diversity of wildlife utilize BCCER, a review of a species list generated through the ECOS website maintained by the U.S. Fish and Wildlife Service (USFWS), suggested multiple species potentially occurring in the project area. Based on known species occurrences spring run Chinook salmon, steelhead, and valley elderberry longhorn beetle are known from, or expected to occur at BCCER. Critical habitat for spring run Chinook Salmon and Steelhead also exist within BCCER. BCCER is situated within the range of the East Tehama Deer Herd, and is of management concern to the California Department of Fish and Wildlife (CDFW). This is the state's largest migratory herd of deer and its numbers have diminished over the previous few decades. The Butte County 2030 General Plan places the BCCER within the critical winter habitat zone on its maps for the herd. Through existing stewardship activities BCCER provides excellent habitat for both resident and migratory deer.

Some additional animal species observed on the site include: American black bear *(Ursus americanus)*, mountain lion (*Felis concolor)*, gray fox *(Urocyon cinereoargenteus)*, jackrabbit *(Lepus californicus)*, wild turkey *(Meleagris gallopavo)*, California quail *(Callipepla californica)*, and bobcat (*Lynx rufus)*.

***Sensitive Biological Resources:*** The Wildlife Survey Report (*Appendix B*) and Botanical Survey Report (*Appendix C*) conducted for this project are summarized in this section. The purpose of the report is to assess the effects of the project on several categories of sensitive species. This includes federally threatened, endangered, proposed, and candidate species, as well as California threatened, endangered, species of special concern, and rare plant species. Species listed as endangered by the U.S. Fish and Wildlife Service (Federal) and California Department of Fish and Wildlife (State) are species currently in danger of extinction throughout all or a significant portion of their range. Species listed as threatened are likely to become endangered within the foreseeable future throughout all or a significant portion of their range. A proposed species is any species that is proposed in the Federal Register to be listed as a threatened or endangered species under the Endangered Species Act (50 CFR 402.03). A candidate species is a species for which the U.S. Fish and Wildlife Service has on file enough information to warrant or propose listing as endangered or threatened. California species of special concern are wildlife species at risk of becoming threatened or endangered. The California Native Plant Society (CNPS) has developed an inventory of rare plants that is widely accepted as the standard for information on the rarity and endangerment status of California flora.

The biological survey reports considered all of the federal and state threatened endangered, proposed, candidate or sensitive species that could potentially occur within the project area. After reviewing the California Natural Diversity Database and available endangered species data from the USFWS and CDFW and comparing this with records maintained by the CSUC Ecological Reserves, 6 plants and 14 animals are known or expected to be present within project area as identified in Table 1 (Wildlife) and Table 2 (Botanical). Of these species, the most likely to be encountered in the project area is the Valley elderberry longhorn beetle. Two species on the Table 2 Botanical target list below were found to be present in the project area. Several healthy populations of *Erythranthe glaucescens* (CNPS rank 4.3) were found around vernal ridge top seeps and in sunny, exposed portions of the Walker Creek headwaters creeks. *Polygonum bidwelliae* (CNPS rank 4.3) was found throughout the project area in places where ridge top soils were thin, volcanic, and sun-exposed.

**Table 2: Wildlife species known or expected to occur within the project area**

| Species | Status | Habitat | Potential for Occurrence | Impact |
|---|---|---|---|---|
| **Insects** | | | | |
| Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* | **FT** | This species lives out its entire life cycle on elderberry plants. | There is the potential for this species to be present on the site as a large elderberry shrub is present within the proposed area. However, unpublished data (Hankins) suggest the species will benefit from prescribed burning activities. Fire is unlikely to consume elderberry shrubs unless they are senescent. Beetles occur on living shrubs. Elderberry generally responds vigorously to fire by germination and sprouting. | **Possible** |

| | | | | |
|---|---|---|---|---|
| **Fishes** | | | | |
| Steelhead trout<br>*Oncorhynchus mykiss irideus* | **FT** | This salmonid is an anadromous species that fulfills part of its life-cycle in freshwater streams and rivers and part in the ocean. | Although this species is found at the Big Chico Creek Ecological Reserve, there is no potential for this project to have an effect on it because the project is not close to the stream. | **None** |
| Chinook salmon -- spring-run<br>*Oncorhynchus tshawytscha* | **FT, ST** | This salmonid is an anadromous species that fulfills part of its life-cycle in freshwater streams and rivers and part in the ocean. | Although this species is found at BCCER, there is no potential for this project to have an effect on it because the project is not close to the stream. | **None** |
| Hardhead<br>*Mylopharodon conocephalus* | **FS, CSC** | This species generally occurs in large undisturbed streams throughout the Sacramento-San Joaquin River system. | This species was formerly the most abundant large fish at the Ecological Reserve, but is believed to be absent due to CDFW rotenone treatments in 1986. | **None** |
| **Amphibians** | | | | |
| Western spadefoot<br>*Spea hammondii* | **CSC** | This species frequents open grasslands or woodlands and spawns in seasonal ponds or streams. | This species has not been observed at BCCER, but it has been observed in other areas of Big Chico Creek Watershed. It is possible that the project area may contain habitat for the species, but given the life history of the species, it is unlikely to be adversely impacted. | **Possible** |
| Foothill yellow-legged frog<br>*Rana boylii* | **ST (Cand.), FS** | They inhabit partially shaded, rocky perennial streams and their life cycle is synchronized with the seasonal timing of streamflow conditions. They breed in streams with riffles containing cobble-sized or larger rocks as substrate. These frogs need perennial water where they can forage through the summer and fall months. | Field surveys identified no suitable habitat within the project area. | **Unlikely** |
| **Reptiles** | | | | |
| Western pond turtle<br>*Actinemys marmorata* | **CSC, FS** | This species lives in and near large slow-water pools where basking spots are available. Eggs are laid uphill of the water up to 100 yards away. | Although this species is found at BCCER, it is unlikely to be encountered in the project area because of its distance from Big Chico Creek and lack of suitable nest sites. Its habitat preference and life history make adverse impacts unlikely unless it is dispersing through the project area.<br>. | **Unlikely** |

| | | | | |
|---|---|---|---|---|
| **Birds** | | | | |
| California spotted owl<br>*Strix occidentalis occidentalis* | **CSC, FS** | This species is closely related to the Northern spotted owl and has a similar life history utilizing mature forests for habitat. | This species has been observed at the BCCER, but not within the project area. While suitable habitat exists, the primary use of this area would be for foraging outside of the breeding season. | **Possible** |
| Yellow-breasted chat<br>*Icteria virens* | **CSC** | This species is a migrant bird which winters in Mexico and Guatemala. It utilizes dense shrubs in riparian forest to lay and hatch its young. | The species may occur in the Ecological Reserve; however it is more likely to be encountered in the riparian zone which the project area does not include. | **Unlikely** |
| Bald eagle<br>*Haliaeetus leucocephalus* | **SE** | Bald eagles occupy various woodland, forest, grassland, and wetland habitats. Large nests are normally built in the upper canopy of large trees, typically conifers. | This species may occasionally transit through BCCER typically during winter and spring. There is potential for the species to roost and forage within BCCER during these periods, but it is unlikely to nest within the reserve. The proposed activity will provide improved foraging conditions. No adverse impacts are likely. | **None** |
| **Mammals** | | | | |
| Townsend's big-eared bat<br>*Corynorhinus townsendii* | **CSC, FS** | This species is most commonly found in coniferous forests and although they are not quite as sensitive to human disturbance as the pallid bat, prolonged disturbance will cause the bat to vacate its roost | There is the potential for this species to be present in the project area. Smoke impacts may cause bats to flush from their roost sites, but is temporal in nature. No adverse impacts are likely. | **Possible** |
| Pallid bat<br>*Antrozous pallidus* | **CSC, FS** | This species frequents dry rocky areas and is very sensitive to human disturbance | There is the potential for this species to be present in the project area. Smoke impacts may cause bats to flush from their roost sites, but is temporal in nature. No adverse impacts are likely. | **Possible** |
| Sierra Nevada mountain beaver<br>*Aplodontia rufa californica* | **CSC** | Not related to true beavers, this nocturnal rodent prefers moist cool forests. | Although this species has not been observed at BCCER, it is found nearby and could utilize the area. Based on the species preferred habitat, it is not likely to be affected by the current project | **Unlikely** |

Table 2: Status Codes
**FE –** Federally endangered
**FT** – Federally threatened
**FC** – Federal candidate
**FS** – Federally sensitive
**ST** – State threatened
**SE –** State endangered
**CSC** – CA species of special concern

**Table 3: Botanical species known or expected to occur within the project area**

| Scientific Name | Plant Communities | Blooming Period | Elevation Range (ft) | CNPS List |
|---|---|---|---|---|
| *Allium sanbornii var. sanbornii* | Serpentine outcroppings | May-Sept | 900 - 4200 | 4.2 |
| *Arctostaphylos mewukka ssp. truei* | Chaparral, forest openings | Feb-June | 900 - 4050 | 4.2 |
| *Astragalus pauperculus* | Open, vernally moist, volcanic clay | March-June | 120 - 3600 | 4.3 |
| *Balsamorhiza macrolepis* | Open grassy or rocky sites, valleys | March-June | 0 - 4200 | 1B.2 |
| *Brodiaea sierrae* | Open areas in chaparral, foothill woodland (dry meadows), generally on soils derived from basic and ultramafic intrusive rocks | June-July | 540 - 3000 | 4.3 |
| *Bulbostylis capillaris* | Open damp/dry sandy-gravelly soil | June-Aug | 900 - 6600 | 4.2 |
| *Calycadenia oppositifolia* | Grassland, grassy openings in oak woodland | Apr-Jul | 150 - 2700 | 4.2 |
| *Calystegia atriplicifolia spp. buttensis* | Dry rocky places in open forest, chaparral | May-July | 1800 - 3600 | 4.2 |
| *Campylopodiella stenocarpa* | Unknown | | unknown - unknown | 2B.2 |
| *Cardamine pachystigma var. dissectifolia* | Shady grassy woodlands on serpentine | Feb-Apr | 1600 - 3400 | 1B.2 |
| *Carex xerophila* | serpentine outcroppings | Mar-Jun | 1350 - 2300 | 1B.2 |
| *Castilleja rubicundula var. rubicundula* | Grassland | Apr-Jun | 0 - 2700 | 1B.2 |
| *Chlorogallum grandiflorum* | Woodlands and openings, usually in southern and central Sierras | May-Jun | 900 - 1500 | 1B.2 |
| *Clarkia gracilis ssp. albicaulis* | Grasslands at about 1500’ | May-Jun | 1500 - 1500 | 1B.2 |
| *Clarkia mildrediae ssp. mildrediae* | yellow pine forest | June-Aug | 1350 - 5100 | 1B.3 |
| *Clarkia mosquinii* | Dry, rocky places, probably foothill woodland | May-Jul | 540 - 3600 | 1B.1 |
| *Claytonia parviflora ssp. grandiflora* | Vernally moist, often disturbed sites | Feb-Apr | 450 - 3600 | 4.2 |
| *Cryptantha rostellata* | Open, rocky, dry sites, sparse grassland, chaparral, foothill woodland | Apr-Jun | 120 - 2400 | 4.2 |
| *Cypripedium fasciculatum* | Mesic to moist, shady conifer forest | Mar-Aug | 300 - 6000 | 4.2 |
| *Erigeron petrophilus var. sierrensis* | Rocky foothills to montane forest, sometimes on serpentine | Jun-Oct | 900 - 5700 | 4.3 |
| *Eriogonum umbellatum var. ahartii* | Serpentine outcroppings | Jun-Sept | 1200 - 3000 | 1B.2 |
| *Erythranthe glaucescens (formerly Mimulus)* | Seeps, streambanks | Mar-Jun | 0 - 1800 | 4.3 |
| *Fritillaria eastwoodiae* | Grassland and oak woodland | Mar-Jun | 0 - 4500 | 3.2 |
| *Fritillaria pluriflora* | Extremely heavy soils like adobe, including on serpentine | Feb-Apr | 0 - 2700 | 1B.2 |
| *Githopsis pulchella ssp. serpentinicola* | Serpentine, Ione formation, and similar | May-Jun | 900 - 1920 | 4.3 |
| *Hesperevax caulescens* | Shrink-swell clay in vernal pools, and sometimes serpentine | Mar-Jun | 0 - 900 (1500) | 4.2 |
| *Imperata brevifolia* | Springs,wet meadows, floodplains | Sept-May (cool season) | 0 - 1500 | 2B.1 |
| *Juncus leiospermus var. leiospermus* | Vernal pools and vernally moist places | Apr-Jun | 940 - 1500 | 1B.1 |
| *Layia septentrionalis* | Serpentine or sandy soils | Apr-May | 300 - 2700 | 1B.2 |
| *Leptosiphon ambiguus* | Grassy areas on serpentine | Mar-Jun | 0 - 3000 | 4.2 |
| *Lilium humboldtii ssp. humboldtii* | Dry wooded areas | May-Jul | (600) 1800 - 3300 | 4.2 |
| *Mielichhoferia elongata* | Rocks containing copper | not known - | not known | 4.3 |
| *Monardella venosa* | Grassland, openings in chaparral | Jun-Jul | 150 - 1200 | 1B.1 |
| *Navarretia heterandra* | Heavy soil, vernal pools, wet or drying flats | Apr-Jun | 0 - 3300 | 4.3 |
| *Navarretia subuligera* | Open, rocky, wet places | Apr-Jun | 450 - 3300 | 4.3 |
| *Packera eurycephala var. lewisrosei* | Serpentine and other rocky places | Mar-Jul | 300 - 4500 | 1B.2 |
| *Paronychia ahartii* | Vernal pool edges but also well-drained rocky slopes, volcanic uplands | Mar-Jun | 0 - 1500 | 1B.1 |

| | | | | |
|---|---|---|---|---|
| *Piperia michaelii* | Shady areas in woodland and chaparral | Apr-Aug | 0 - 2100 | 4.2 |
| *Polygonum bidwelliae* | Thin volcanic soils esp. on ridges | Apr-Jul | 180 - 3600 | 4.3 |
| *Rhynchospora capitellata* | Wet meadows, fens, seeps, marshes | Mar-Jun | 0 - 6000 | 2B.2 |
| *Rupertia hallii* | Woodland openings | Jun-Aug | 0 - 6750 | 1B.2 |
| *Sidalcea gigantea* | Moist to wet forested slopes, seeps, stream margins, meadows, mid to upper conifer forest | June-Aug | (1920) 2700 - 4950 | 4.3 |
| *Sidalcea robusta* | Dry banks in transition from blue oak woodland to upslope mixed woodland | Jun | 300 - 1200 | 1B.2 |
| *Tuctoria greenei* | Vernal pools | May-July | 0 - 3150 | 1B.1 |

**CNPS – California Native Plant Society rare plant codes:**

**Rareness:**

1B: Plants rare, threatened, or endangered in CA and elsewhere
2B: Plants rare, threatened, or endangered in CA, but common elsewhere
3: Review plants about which more information is needed.
4: Watch list plants of limited distribution

**Threat Ranks:**

.1 – Seriously threatened in CA
.2 – Moderately threatened in CA
.3 – Not very threatened in CA

## ***Wildlife Resources***

***Direct and Indirect Effects Common to All Wildlife Species:*** All proposed treatments could result in disturbance from human presence, prescribed fire and noise. The duration of disturbance, caused by the presence of people and machinery, may cause disturbance to wildlife accustomed to lower levels of activity. Mechanized equipment may generate noise sufficient to disturb nesting wildlife and could cause nest site abandonment if conducted without restrictions. Therefore, standard management requirements include limited operating periods when disturbance to wildlife is identified as a concern. Direct disturbance, including mortality to individual animals addressed in this report is unlikely, due to survey efforts for selected species and incorporation of limited operating periods where appropriate. If presently unknown wildlife are discovered prior to or during implementation and species identified warrants a limited operating period, protections would be implemented.

***Cumulative Effects Common to All Wildlife Species:*** The existing condition reflects the changes of all activities that have occurred in the past. The analysis of cumulative effects evaluates the impact on sensitive species from the existing condition within the analysis area. Overall, for all species, cumulative effects could occur with the incremental loss of the quantity and/or quality of habitat.

A near absence of landscape level, low- intensity surface fires contributed to increased stand densities of brush making these areas more susceptible to high intensity wildfire and subsequent conversion to a habitat less suitable for wildlife. These habitat shifts affect species abundance and diversity of the landscape. The proposed project will produce a mosaic of habitats suitable for a higher diversity of species

***Species Specific Determinations – Wildlife:*** Implementing the project may have a temporary impact on species such as the Valley Elderberry Longhorn Beetle (VELB) and the foothill yellow-legged frog (FYLF). However, in the case of the elderberry shrub (*Sambucus nigra*), which provides habitat for the VELB, long-term observation indicates that elderberry exhibits enhancement from the addition of fire, and therefore positive impacts rather than adverse.

The impact to FYLF is expected to be less than significant because the species' life history requires more water than is present at the project area currently.

*Cumulative effects to Wildlife Resources:* The primary activity that may affect wildlife species on BCCER involve the manipulation of habitat conditions through hand thinning, prescribed fire, and grazing to improve native species habitat, reduce the risk of high intensity catastrophic wildfire, and restore the role of traditional cultural prescribed fire on the landscape.

The proposed action represents the minority of total effects from all other actions in combination. Small-magnitude short-term contributions from the project contribute to potential long-term benefits. It is assumed that present and future actions on all lands can, at times, produce negative impacts to aquatic biological resources. There is no expectation that any known thresholds for analysis species would be exceeded by the cumulative effects from all actions.

A long-term benefit to aquatic habitat is anticipated as the area trends toward pre-fire conditions.

***Botanical Resources***

***Direct and Indirect Effects:*** Direct effects occur when plants are physically impacted by management activities. Proposed activities may affect rare plants by physical damage from prescribed burning indirect effects are those that are separated from an action in either time or space. Habitat components including soils, shading, and species composition of the plant and pollinator community may directly and indirectly be altered by the proposed actions. These effects can be beneficial or detrimental to rare plants, and may include increased soil erosion, increased light reaching the ground, introduction or promotion of conditions favorable for non-native invasive plants, effects to pollinator species, or other changes to rare plant habitats. The project carries a risk of spreading or introducing noxious weeds; however, the risk is significantly reduced by implementing the project mitigation measures for preventing and controlling these invasive species. Noxious weeds are not expected to increase in areas from disturbed treatment areas or roads and trails due to this project.

***Species Specific Determinations – Botany:*** Two species on the target list above were found to be present in the project area. Several healthy populations of *Erythranthe glaucescens* (CNPS rank 4.3) were found around vernal ridge top seeps and in sunny, exposed portions of the Walker Creek headwaters creeks. *Polygonum bidwelliae* (CNPS rank 4.3) was found throughout the project area in places where ridge top soils were thin, volcanic, and sun-exposed. **Mitigation Measure #4: BIO-2:** *Botanical Resources - Erythranthe glaucescens and* **mitigation measure #5: BIO-3:** *Botanical Resources - Polygonum bidwelliae* detailed on page 11 have been developed to protect these botanical resources.

***Cumulative effects – Botanical Resources*:** The additive effects of past actions (wildfires, wildfire suppression, timber harvest, nonnative plant introductions and livestock grazing) have shaped the present landscape and corresponding populations of rare plants. However, data describing the past distribution and abundance of rare plant species is extremely limited, making it impossible to quantify the effects of historic activities on the resources and conditions that are present today.

Undoubtedly, some plant species have always been rare due to particular ecological requirements or geographic isolation. It is also likely that past actions have caused some species to become rarer and encouraged others to become more common. Therefore, in order to incorporate the contribution of past activities into the cumulative effects, this analysis uses the current abundance and distribution of rare plant species as a baseline for the existing condition shaped by the impacts of past actions.

Past, present and future activities have and will continue to alter rare plant populations and their habitats to various degrees. On BCCER these management activities include goat grazing for fuel reduction, wildfire, fire suppression, prescribed fire, and road maintenance. However, the approach taken in this analysis is that, if direct and indirect adverse effects on rare plant species in the analysis area are minimal or would not occur, then they would not contribute substantially to cumulative effects on the species. In addition, the effects of future projects would likely be minimal or similar to those described in this analysis if existing management objectives and policies (such as field surveys, protection of known rare species locations and noxious weed mitigations) remain in place.

For sensitive plant species, when the effects of these past, present and reasonably foreseeable future actions are combined with the effects predicted for the current proposed action, the total would still be minor and insignificant, with the possibility of some individuals being impacted, but no downward trends expected for any occurrences.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 Wildlife or the U.S. Fish and Wildlife Service? | ☐ | ☐ | ☒ | ☐ |

The project area contains ephemeral streams that eventually flow into Mud Creek and its associated riparian habitat. Ephemeral drainages will be protected through project design such as using backing fire to descend slowly into drainages.

Two habitat communities identified as sensitive by the California Department of Fish and Wildlife are found at Big Chico Creek Ecological Reserve: Great Valley Mixed Riparian Forest and Valley Oak Riparian Forest, and both are known to respond positively to prescribed fire (Hankins 2013, 2015). The former is not found within the project area and the latter has been adversely affected by the exclusion of fire. It is believed that the reintroduction of fire into this habitat community will enhance its overall health by reducing competition from more aggressive species, such as canyon live oak (*Quercus chrysolepis*).

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | ☐ | ☒ | ☐ | ☐ |

The project area does encompass some seasonal wetlands, such as volcanic ridge top seeps and vernally wet areas and the springs around the headwaters of Walker Creek. However, **Mitigation Measure #13: HYD-1:** *Project Best Management Practices (BMPs)*detailed on page 11 involving the protection of water resources will eliminate any potentially significant effects to vernal wetlands, seeps and watercourses in the project area.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☒ | ☐ |

The proposed project area lies within the Butte County General Plan Critical Winter Habitat of the East Tehama Deer Herd. The Butte County 2030 General Plan (Butte County 2018) addresses biological resources on lands within the county's jurisdiction. Of the goals found within the plan, Goal COS-10 is applicable to this project: "Facilitate the survival of deer herds in winter and critical winter migratory deer herd ranges." As stated previously, the CDFW and Butte County have identified the critical winter range to include the BCCER. Consequently, Policy COS-P10.1 applies:

> Clustered development projects that are designed to accommodate herd migration patterns shall be allowed and encouraged, with remaining areas protected under conservation easements, within the Winter and Critical Winter Deer Herd Migration Area Overlays in order to protect migratory deer herd ranges.

The proposed project does not conflict with the local policy. The policy was drafted to influence development projects to accommodate the herd's needs, and this project is not development, and it is likely to enhance habitat for the herd. Although the herd uses the area, any adverse impact from the implementation of the project will be temporary in nature. However, the expected positive impacts include enhanced forage and open understory, enhancing habitat for the herd in the long-term.

There could be short-term, transient impacts on chaparral-nesting songbirds but these are expected to be less than significant due to the small size of the project area relative to the abundant chaparral habitat in the area.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | ☐ | ☐ | ☐ | ☒ |

See answer to question d) regarding the East Tehama Deer Herd. Butte County has no oak or native tree protection ordinance save during property development (construction); this project does not involve property development, rezoning, or construction

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

*Natural Community Conservation:* Although not yet approved and implemented the Butte Regional Conservation Plan is a Natural Community Conservation Plan that seeks to identify specific habitat types within the region that hold unique value for conservation. Crucial habitat types identified by the plan that are present in the BCCER include: grassland without vernal pools, blue oak woodland, mixed oak woodland, emergent wetland, chaparral, conifer dominated forest, and valley oak riparian forest. Even though some identified crucial habitats do exist at BCCER, the reserve lies outside the boundary of the proposed plan.

## CULTURAL RESOURCES

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5? | ☐ | ☐ | ☐ | ☒ |

The project is located in the ancestral home of Yana (i.e., Yahi) and Kojomkawi (*i.e.*, Konkow) speaking people represented today by several bands within the county and surrounding areas. Local Indigenous peoples frequently burned creating a fire resistant and resilient landscape that was fire-maintained by low to moderate intensity fires that self regulated.

The project is located between the Magalia and Butte Creek historic gold mining districts. A historic trail depicted on the 1895 Chico Sheet runs through the project area. The Big Chico Creek Flume is within 1 mile of the project site. An archaeological records search from the Northeast Center of the California Historical Resources Information System and a field survey were conducted and no archaeological sites were identified within the project area. A confidential Archaeological Survey Report has been developed for this project (*See Appendix D*). The project area vicinity is considered to be extremely sensitive for prehistoric, protohistoric, and/or historic cultural resources.

*Direct and Indirect Effects:* Direct effects to cultural resources are those that physically alter, damage, or destroy all or part of a resource; alter characteristics of the surrounding environment that contribute to the resource's significance; introduce visual or audible elements out of character with the property or that alters its setting; or resource neglect to the extent that it deteriorates or is destroyed. The proposed action does not have the potential to directly affect cultural resources within the proposed project area as none were identified within the project area during surveys. If there are unanticipated discoveries, all work in the area will stop.

*Cumulative Effects*: Successful utilization of standard protection measures will result in no significant cumulative impacts to heritage resources within the project area.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5? | ☐ | ☐ | ☐ | ☒ |

See answer above to question (a).

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Would the project disturb any human remains, including those interred outside of formal cemeteries? | ☐ | ☐ | ☐ | ☒ |

No formal or informal cemeteries were identified within the project area by surveys or consultation with local tribes. If there are unanticipated discoveries, all work in the area will stop pending an investigation by a qualified archaeologist and consultation with local tribes.

## ENERGY

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? | ☐ | ☐ | ☐ | ☒ |

The project is in a remote location and will require transport of personnel and equipment to the project site. The project will not result in wasteful or inefficient energy use because equipment can be securely left on site overnight and between project phases, saving on travel fuel. The project is likely to result in slowing the rate of wildfire spread and providing a defensible ridge top where crews can stop fire before it spreads between the communities or Cohasset and Forest Ranch; therefore, the project could reduce the overall amount of energy and fuel spent combating wildfires. The project will not violate or obstruct any State or local renewable energy or energy efficiency plan; all operations will comply with law.

There will be minimal impact to energy resources from this project and potentially energy savings resulting from a reduction in wildfire fighting energy needs due to the resulting fuel break.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? | ☐ | ☐ | ☐ | ☒ |

The project will not violate or obstruct any State or local renewable energy or energy efficiency plan; all operations will comply with law.

## GEOLOGY AND SOILS

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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.) | ☐ | ☐ | ☐ | ☒ |

The Big Chico Creek watershed is located in a region that includes the interface between the Sierra Nevada Range to the south, and the remnant volcanic flows of the Cascade Range to the north. Big Chico Creek originates in volcanic rocks, referred to as the Tuscan Formation. The Tuscan Formation, about 4 million years old, is the dominant geologic formation in the watershed as it is the most recent layer of material deposited on the landscape.

The soils within the vicinity of the project area, derived over time from the parent geologic material, are loamy through moderately fine texture and range from moderately deep (42 – 48") with a few areas along the

cliff on the east side of the project area where soil depth can be 0-9". The soils in the project area are dominated by four different soil classifications (NRCS 2019):

**Table 4: Soil Classifications within the project area.**

| Soil # | Soil Classification | Acres in Project Area | Percentage of Project Area |
|---|---|---|---|
| 624 | Ultic Haploxeralfs, mesic – Rockstripe Complex 2 to15% | 155 | 44.7% |
| 625 | Ultic Haploxeralfs, mesic – Rockstripe Complex 15 to 30% | 119 | 34.2% |
| 626 | Ultic Haploxeralfs, mesic – Rockstripe- Rock Outcrop, Cliffs 30 to 50% | 72 | 20.7% |
| 627 | Rockstripe-Ultic Haploxeralfs-Rock Outcrop 70 to 100% | 2 | .5% |
| | **TOTAL** | **348** | **100%** |

A significant portion of the soil profile includes weathered volcanic rock and breccia. Soil texture is primarily well-drained gravelly loams. Erosion hazard rating is "low" for slopes under 30% and "moderate" for slopes under 50%, and "high" for slopes over 50%. Approximately .5% of the property has slopes over 50%. There are no known geologic hazards that would limit operation in the project area.

Although the project is in a seismically active area (as is true for all of Northern California), the project does not include any blasting, new construction, or any other impact strong enough to influence seismic activity.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking? | ☐ | ☐ | ☐ | ☒ |

Although the project is in a seismically active area (as is true for all of Northern California), the project does not include any blasting, new construction, or any other impact strong enough to influence seismic activity.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction? | ☐ | ☐ | ☐ | ☒ |

Although the project is in a seismically active area (as is true for all of Northern California), the project does

not include any blasting, new construction, or any other impact strong enough to influence seismic activity.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides? | ☐ | ☐ | ☒ | ☐ |

The project consists of burning and some light shrub removal and grading; these light land management operations are unlikely to increase the risk of landslide in the area. Small landslides and slumps are a normal part of the local landscape. The remote location further decreases the impact of any possible landslide.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) Would the project result in substantial soil erosion or the loss of topsoil? | ☐ | ☐ | ☒ | ☐ |

Erosion is sometimes increased after a fire, including after prescribed fire. However, because prescribed fires on the project are likely to be relatively small and patchy, erosion impacts should be less than significant. Furthermore, any post-fire erosion impacts from the project are expected to be less significant than impacts from the no-project alternative, i.e., catastrophic wildfire consuming close to 100% of the accumulated chapparal fuels on the project site.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| f) 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? | ☐ | ☐ | ☐ | ☒ |

The project consists of burning and some light shrub removal and grading; these light land management operations are unlikely to increase the risk of landslide in the area. Small landslides and slumps are a normal part of the local landscape. The remote location further decreases the impact of any possible landslide.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| g) 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 direct or indirect risks to life or property? | ☐ | ☐ | ☐ | ☒ |

There is no building construction involved with this project.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| h) 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? | ☐ | ☐ | ☐ | ☒ |

The project does not involve the installation of septic tanks or alternative waste water disposal systems.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| i) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | ☐ | ☐ | ☐ | ☒ |

There are no known unique paleontological resources/sites or unique geologic features within the project area.

## GREENHOUSE GAS EMISSIONS

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | ☐ | ☐ | ☒ | ☐ |

Three of the most important greenhouse gases (GHG) resulting from human activity are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). They are produced by both natural processes and human activity. Greenhouse gases play a role in the natural environment by absorbing the sun's heat. As the suns energy radiates back from the Earth's surface toward space, these gases trap the heat in the atmosphere keeping the planet's surface warmer than it would otherwise be. Increases of atmospheric greenhouse gases result in additional warming of the Earth's atmosphere.

Burning of vegetation as proposed in this project will result in greenhouse gas emissions. The annual averaged emissions of CO2 from wildfires in California are significant (24 million metric tons CO2 per year; equivalent to 6% of the fossil fuel burning (FFB) emissions annually). This ratio is subject to substantial variation. Whereas ffb emissions are fairly constant throughout the year, one bad wildfire month during the year can result in the majority of the CO2 emission resulting from wildfires for the year. For example, 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 and 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.

Historic pictures and accounts indicate that the project area at the time of European settlement in the 19$^{th}$ and early 20$^{th}$ century was more of an open oak woodland where periodic wildfire (and fires started by indigenous peoples) could creep through the understory at low intensity. The project area today is characterized by evergreen schlerophyll shrubs in genera such as *Adenostoma, Ceanothus*, and *Arctostaphylos*, that now dominate many sites a low to middle elevations throughout California. Noted for its intense fire behavior, these sites have been classified as an intermediate fire return interval system (FRI of 20-100 years) that typically burns in stand-replacing crown fires (Conrad and Weise 1998).

Plants in this ecosystem are adapted to this fire regime. Fire adaptations include vigorous stump sprouting and dormant seeds that build up during non-fire years and require fire for scarification. Many of the shrubs promote fire through production of dead highly flammable branches and production of resins on their leaves.

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. Through burning, these nutrients are

recycled back in to the soil. After fires, 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, shrubs once again dominate the ecosystem. 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 like those in the project area is about 15 to 20 tons per acre (Bolsinger 1989). The carbon component of the biomass accounts for about 50% of the mass. Therefore, the biomass contains 7.5 to 10 tons per acre of carbon (27.5 to 36.7 tons per acre CO2 equivalent) in biomass. At some point the carbon stored in the biomass 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 over time 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 for 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 resequestered by the remaining vegetation and new vegetation following the burn. This has the potential to reuse the massive increase in short term emissions from wildfire and spread 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 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 gases and particulate matter (Mader 2007).

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 wildlife habitat improvement or range improvement. 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 reduced number of acres or fire intensity will have benefits to other resources, including environmental resources, public health, and public and firefighter safety.

Carbon dioxide equivalent (CO2e) is a metric used to compare the emissions from various greenhouse gases based upon their global warming potential.

Effects to greenhouse gases and carbon sequestration could result from prescribed burning; and a very small increase could result from equipment use under the proposed action. GHG calculations are displayed below:

**Green House Gas - General Information Calculations**

| | |
|---|---|
| **Project Name** | Big Chico Creek Ecological Reserve - Unit 7 |
| **Project Acres** | 348 |
| **Total Project Days** | 115 |

**Exhaust CO2 Emissions**

| | |
|---|---|
| Total Round Trip Miles | 35.00 |
| # of Chainsaws | 3.00 |
| # of Chippers | 0.00 |
| Diesel kilograms/Gal | 10.15 |
| Gas Kilograms/Gal | 8.91 |
| Pounds of CO2/Kilogram | 2.20 |
| One Chipper Gas Gal/Day | 10.00 |
| Crew Bus MPG | 8.00 |
| Chainsaw Gas Gal/Day/Saw | 1.50 |
| Conversion Factor Pounds to Tons | 2000.00 |
| Conversion Factor Tons of Biomass to Tons of CO2 | 1.65 |
| Crew Bus Total Miles | 4025.00 |
| Total Gal of Diesel Needed | 503.13 |
| Total Kilograms of Diesel Produced | 5106.72 |
| Diesel Total Pounds of CO2 Produced | 11258.37 |
| Diesel Total Tons CO2 | 5.63 |
| Chainsaws Total Gal Gas Needed | 518.00 |
| Chipper Total Gal Gas Needed | 0.00 |
| Total Kilograms of Gas Produced | 4615.38 |
| Gas Total Pounds of CO2 Produced | 10175.16 |
| Gas Total Tons of CO2 Produced | 5.09 |

**Smoke or Decay CO2 Emissions**

| | |
|---|---|
| Est. Biomass Tons Per Acre Removed (Fuel Model) | 6 |
| Biomass Total Tons Removed | 2088 |
| Total Tons of CO2 | 3445.2 |

**Final Outputs**

| | |
|---|---|
| Total Tons of CO2 for Project | 3455.92 |
| Sequestration Rate 2 - 6 Tons/Ac/Yr | 1.5 |
| Total Sequestration Rate/Yr. | 1914.00 |
| Years Required for Complete Sequestration | 1.81 |

Prescribed burning would produce a project total of approximately 3,445 tons of CO2 equivalent. This amount would be 0.000008 percent of the CA Air Resources Board approved 2020 emissions limit of 427 million metric tonnes of CO2. Prescribed burning in the project area would reduce the potential of high-intensity wildfires for several years and correspondingly reduce potential adverse smoke events.

After project treatments are completed approximately 8,039 tons of carbon would remain sequestered below and above ground in the project area. In addition, prescribed fire treatments would accelerate carbon sequestration within the project over the long term.

***Cumulative effects:*** Cumulative effects include a discussion of the combined, incremental effects of human activities. For greenhouse gas emissions and carbon sequestration, the area for consideration is the airshed and at the county level. Past and present emission producing activities and carbon sequestration are considered as the current condition of the air and carbon resource. Project emissions would temporarily increase greenhouse gas emissions in the airshed and Butte County. However, their direct, indirect and cumulative effects would be regulated by the Butte County Air Quality Management District in order to prevent adverse impacts and exceedances of health standards. The proposed prescribed fire treatments would reduce future potential wildfire smoke and greenhouse gas emissions, and reduce potential loss of sequestered carbon.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | ☐ | ☐ | ☐ | ☒ |

The Butte County Climate Action Plan (CAP) outlines an action strategy for reducing GHG emissions 16.5% below 2006 levels by 2020. It applies across the unincorporated areas of Butte County, which means it applies on the project area. The project does not conflict with or obstruct the implementation of any of the Plan's action items regarding either GHG reductions or climate change adaptation. CAP adaptation measure A.2 calls on the county to "identify fuel reduction and fuel break sites in addition to those listed in the LHMP"; this project does so.

## HAZARDS AND HAZARDOUS MATERIALS

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | ☐ | ☐ | ☒ | ☐ |

Project operations would involve the routine transportation, use, or disposal of gasoline, oil and diesel used in the power equipment and as a fuel for torches. Operations will follow all applicable state and federal laws.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☒ | ☐ |

All personnel will wear the appropriate personal protection equipment. Equipment used on this project will not be serviced in locations where grease, oil, or fuel could pass into a watercourse. The project does not present any unusual risks because all fuels will be handled safely and in accordance with standard best practices. Furthermore, even in a worst-case spill scenario, the impacts of a spill of 10-100 gallons of diesel

or gasoline, the maximum likely to be present on site at any time, in a remote area far from sensitive perennial water resources and even farther from any human habitation are not likely to be significant.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project is not within ¼ mile of a school.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project is not located on a hazardous materials site.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 or excessive noise for people residing or working in the project area? | ☐ | ☐ | ☐ | ☒ |

The project is not inside the Airport Overlay for any airport under the Butte County General Plan, and it is not within 2 miles of any airport.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☐ | ☒ |

The project does not interfere with an evacuation plan because the project will never block or close any public road, and because, in the case of an emergency requiring evacuation, only a few people would be on the project site, so their evacuation would only add one or two vehicles to the remote rural roads that service the area. This increase in evacuation traffic would be insignificant. The project is intended to slow future wildfire rate of spread, giving Cohasset and Forest Ranch residents ***more*** time to evacuate during any future wildfire event.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires? | ☐ | ☐ | ☒ | ☐ |

The project involves some prescribed fire, i.e., intentional fire ignition. However, the ignitions will take place under such controlled conditions and with such advanced levels of professional supervision that the

risk of wildfire escape is not significant. While about 1-1.5% of prescribed fires do escape control, the vast majority of human-caused wildfires do not start as prescribed fires. Furthermore, the project will decrease future wildfire hazards. This is because the thinner, patchier fuel profile post-project is expected to slow future wildfire rate of spread, ***decreasing*** the exposure of people and structures to risks from wildfire.

## HYDROLOGY AND WATER QUALITY

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? | ☐ | ☐ | ☒ | ☐ |

The project area is within the Mud Creek watershed (HUC 10 - 1802015706) and Big Chico Creek Watershed (HUC 10 – 1802015705), within the Big Chico Creek – Sacramento River watershed (HUC 8-18020157). The project watershed is functioning properly and exhibits high geomorphic, hydrologic and biotic integrity relative to its natural potential condition. The drainage network is generally stable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses. The beneficial uses for the watershed identified within the Central Valley Regional Water Quality Control's Basin Plan (CVRWQCB 2016) for the Sacramento River Basin and San Joaquin River Basin, include:

- AGR – Irrigation and Stock Watering
- REC 1 – Water Contact Recreation, Canoeing and Rafting
- REC 2 – Other Non-contact Water Recreation
- WARM – Warm Freshwater Habitat
- COLD – Cold Freshwater Habitat
- MIGR – Habitat suitable for salmon and steelhead Migration
- SPWN – Habitats suitable for reproduction and early development of salmon and steelhead
- WILD – Support terrestrial or wetland ecosystems

No municipal watersheds occur within the project area. Presently, there are no domestic or municipal uses of surface water within the project area.

Big Chico Creek is on the 303(d) list for California impaired waters for mercury from an unknown source. A segment of Mud Creek near the Sacramento River is on the 303(d) list for Toxicity (CVRWCQB 2016). Project activities will not result in additional impacts to these listings.

There are two intermittent Class 3 watercourses within the project area. Effects to watershed resources could include sedimentation. Proposed hand-based activities such as hand-thinning, hand-piling and hand-grubbing have a negligible footprint and therefore are not included in this analysis. Effects to water quality from sedimentation are typically short in duration and maybe noticeable within the first year post treatment and/or after the first annual peak storm event.

Prescribed fires can temporarily increase the amount of silt running into creeks, but because of the project's remoteness from perennial streams that support fish, the siltation impacts will be less than significant. The

project has been designed with a 100'+ buffer to any perennial stream, and backing fire will be used into ephemeral drainages to reduce the intensity of fire, and thus of siltation, in drainages. No discernible direct or indirect effects to water quality would be expected as live vegetation within the buffer would be left to function as a sediment filter strip. Mechanical equipment will not be allowed within 50' of the two watercourses so any fuel spills will not reach surface waters.

*Cumulative effects***:** Direct and indirect effects from proposed vegetation treatments are minimal and short in duration, and therefore long term cumulative effects are not expected.

Implementing best management practices and project mitigation measures such as streamside equipment exclusion zones would effectively protect streams from excessive project generated sediment, assuring that cumulative effects of the project do not adversely affect beneficial uses of water.

The design of this project is such that minimal effects to hydrology resources would be expected from the proposed action as discussed above. Possible effects to water quality and riparian areas depend upon the extent and intensity of the treatments particularly those involving ground disturbances. Potential effects on water quality and cumulative watershed effects may include increases in sediment delivered to streams. Some of the riparian areas may be lightly burned, but the effect should not be significant. Although a short-term degradation could occur, reintroduction of fire into this landscape and movement toward a more natural fire regime would have a long-term benefit. Mitigation measures and best management practices all contribute to the prevention of sediment delivery to streams and impacts to riparian areas. The amount of actual sediment delivery is expected to be negligible. Therefore streams, water bodies and riparian areas are expected to experience minimal, short-term and negligible effects.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? | ☐ | ☐ | ☐ | ☒ |

The project involves no on-site water pumping and the off-site water pumping to fill water tender trucks will not be significant.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 or through the addition of impervious surfaces, in a manner which would result in substantial on- or off-site erosion or siltation? | ☐ | ☐ | ☐ | ☒ |

The project will not alter drainage patterns or streamcourses or install any new impervious surfaces.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a | ☐ | ☐ | ☐ | ☒ |

manner which would result in on- or off-site flooding?

The project will not alter drainage patterns or streamcourses or install any new impervious surfaces.

e) 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 through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would 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?

| Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☒ |

The project will not alter drainage patterns or streamcourses or install any new impervious surfaces.

f) 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 through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would impede or redirect flows

| Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☒ |

The project will not alter drainage patterns or streamcourses or install any new impervious surfaces.

g) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

| Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☒ |

The project is not in a flood hazard, tsunami, or seiche zone.

h) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

| Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|
| ☐ | ☐ | ☐ | ☒ |

The project does not obstruct implementation of a water quality control plan or sustainable groundwater management plan.

## LAND USE AND PLANNING

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project physically divide an established community? | ☐ | ☐ | ☐ | ☒ |

There is no established community in, or close to, the project site.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? | ☐ | ☐ | ☐ | ☒ |

Project activities will not alter any existing land use. The project complies with zoning and plan designations as documented in the Butte County General Plan (2010).

The project site is located on lands zoned and designated under the Butte County General Plan for Resource Conservation (RC). The purpose of the RC zone is to protect and preserve natural, wilderness, and scientific study areas that are critical to environmental quality within Butte County. Standards for the RC zone are intended to protect sensitive natural resources and to provide limited recreational and commercial recreational uses for the enjoyment of Butte County residents and visitors. Permitted land uses in the RC zone include livestock grazing and limited recreational and commercial recreational uses that do not detract from the area's value for habitat, open space, or research.

## MINERAL RESOURCES

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project site does not contain any known mineral resources of value or of local importance.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project does not change the future availability of any mineral resources.

## NOISE

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards? | ☐ | ☐ | ☐ | ☒ |

The project is within a natural setting. There are no airstrips near the project area. There are no sources of noise in or near the project area. The Noise Element of the Butte County General Plan (Butte County General Plan 2030, p. 11-6) does not place any limits on temporary noise-producing land management activities that are father than 1000' from a residence.

Project implementation will require equipment use. Once the work is complete, the project site will return to its natural state with no new sources of noise other than those already existing. There will be temporary noise during project implementation, but the project noise should dissipate before reaching local communities.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels? | ☐ | ☐ | ☐ | ☒ |

The land management activities contemplated in the project description will not generate groundborne noise or vibrations.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) For a project located within the vicinity of a private airstrip or 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? | ☐ | ☐ | ☐ | ☒ |

The project is not within an airport land use plan overlay or within 2 miles of any airport.

## POPULATION AND HOUSING

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project induce substantial unplanned 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)? | ☐ | ☐ | ☐ | ☒ |

There are no houses near the project site and no proposed activities that would directly or indirectly promote population growth in the area.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? | ☐ | ☐ | ☐ | ☒ |

The proposed project activities will not result in the displacement of people or housing

## PUBLIC SERVICES

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 fire protection? | ☐ | ☐ | ☐ | ☒ |

The project is within a natural setting. No public services are available in the area and the project will not impact existing fire protection services.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) 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 police protection? | ☐ | ☐ | ☐ | ☒ |

The project is within a natural setting. No public services are available in the area and the project will not impact existing police protection services.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) 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 schools? | ☐ | ☐ | ☐ | ☒ |

The project is within a natural setting. No public services are available in the area and the project will not impact existing school services.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) 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 parks? | ☐ | ☐ | ☐ | ☒ |

The project is within a natural setting. No public services are available in the area and the project will not impact existing park services.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) 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 other public facilities? | ☐ | ☐ | ☐ | ☒ |

The project is within a natural setting. No public services are available in the area and the project will not impact existing public facilities.

## RECREATION

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

All public access to BCCER is walk-in only from the gated area off of Hwy 32 unless granted access otherwise. Hiking, flower, and wildlife observing are compatible with the educational goal of the reserve. It is the policy of the BCCER to allow recreational activities that are compatible with BCCER's primary goals of preservation, research, and education. Pets are not allowed within the Reserve.

Hunting by humans has been part of the reserve ecosystem since pre-contact times. Currently the reserve conducts limited, lottery-based, hunt programs for deer and turkey in specific zones only. Big Chico Creek in the reserve (and most of Upper Bidwell Park) is open to fishing with single-hook artificial lures and zero limit from Nov. 1 through April 30. Only artificial lures with barbless hooks may be used. (Refer to CDFW Fishing Regulations). Closure during spring, summer, and fall protects highly vulnerable populations of spring-run Chinook salmon, foothill yellow-legged frogs, and western pond turtles and reduces trampling when riparian vegetation is actively growing. Swimming at the reserves is prohibited to protect sensitive

aquatic species, including Western pond turtles, Spring-run Chinook salmon, foothill yellow-legged frogs, and riparian habitat.

The project area is within a portion of the park that is hard to access by recreationists because it is on the opposite side of Big Chico Creek from the parking area. The project area is not accessible to the public without special permissions to allow access through neighboring properties to the north. Therefore, the impacts of any increases in recreational use of the project area are expected to be insignificant.

The proposed vegetation treatments may indirectly affect the recreation setting within the project area by changing the scenic qualities within the treatment areas. The prescribed burning activities would create blackened areas on the landscape. These effects would be short term.

Other long-term benefits of the proposed action, including a more diverse, resilient and sustainable ecosystem, and reduction in the risk of negative impacts from severe wildfire, have the potential to indirectly benefit recreation by helping to maintain the settings and opportunities currently valued by the public for recreation within BCCER. Studies suggest that less intense fires may have beneficial economic effects on outdoor recreation, whereas intense fires may have detrimental effects (Vaux, Gardner and Mills 1984).

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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? | ☐ | ☐ | ☐ | ☒ |

The project does not include, construct, or expand any recreational facilities.

## TRANSPORTATION

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? | ☐ | ☐ | ☐ | ☒ |

There are seasonal private roads within the project area that are accessed through locked property gates and are used only by BCCER staff, contractors, and researchers granted permission to access the property. The project does not alter any existing roadways. Because of locked gates, these internal roads have no users other than BCCER staff and contractors. Therefore, this project will have no impact on traffic circulation patterns.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3(b)? | ☐ | ☐ | ☒ | ☐ |

While this project will require some vehicle miles traveled, the increase will be temporary and project-focused and will not exceed a threshold of significance. The project will not result in any sustained change in vehicle miles traveled in the region.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | ☐ | ☐ | ☐ | ☒ |

The project does not include any alteration in the design or use of existing transportation systems.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Would the project result in inadequate emergency access? | ☐ | ☐ | ☐ | ☒ |

No road, including internal roads, will be altered in such a way as to decrease emergency access.

## TRIBAL CULTURAL RESOURCES

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k)? | ☐ | ☐ | ☐ | ☒ |

The Cal FIRE Native American contact list (Cal FIRE 2019) identifies the following Tribes and tribal groups as having aboriginal ties to, and interest in, projects that occur in Butte County:

- Berry Creek Rancheria of Maidu Indians,
- Butte Tribal Council,
- Enterprise Rancheria of Maidu Indians,
- Greenville Rancheria of Maidu Indians,
- Maidu Cultural and Development Group,
- Mechoopda Indian Tribe of Chico Rancheria,
- Mooretown Rancheria

These Tribes and groups have sacred sites that are not always identified through archaeological surveys, including cemeteries, places of prayer, and unique geologic features that are important to their creation stories and history. Scoping letters, including a description of the proposed action, request for confidential

comments, and an internet link with additional project information was mailed and emailed to the Tribes and groups listed above, as well as the Native American Heritage Commission (NAHC) on July 22, 2019. One comment was received was from NAHC with information regarding additional tribal groups that should be contacted when the CEQA Initial Study is ready for public review per AB52 – *Native American Tribal Consultation, Amendments to the CEQA* . These Tribal and tribal groups, in addition to those listed above, include:

- Konkow Valley Band of Maidu
- Tsi Akim Maidu
- United Auburn Indian Community of the Auburn Rancheria

A second letter was sent to the Tribal groups on CAL FIRE's Native American contact list (1-1-2020) along with the additional Tribal groups identified by NAHC on February 29, 2019 requesting information regarding tribal cultural resources within or adjacent to the project area. One letter was received from the Butte Tribal Council stating that the project was not within their Tribal territory. A third letter was sent to the Mechoopda Indian Tribe of Chico Rancheria on April 24, 2020 informing them of the project and their right to request consultation. The Tribe responded on April 27th that they were aware of the project and were not interested in consulting. BCCER regularly collaborates with Tribes and tribal groups on traditional cultural burns within BCCER. One of BCCER's main goals is to provide for the safe and permanent re-introduction of prescribed and cultural fire as a stewardship tool.

No tribal cultural resources that would be impacted by the proposed project, such as artifacts or cultural sites, have been identified within the project area. The project will enhance living cultural resources (e.g. plants and animals). Mitigation measures identified in Section #5 Cultural Resources would be employed and applied to all cultural resources within the project area, including those identified by Tribes as significant. The project would have a positive indirect effect on cultural resources because of reduced potential for high intensity wildfire.

| | | | | |
|---|---|---|---|---|
| b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
| | ☐ | ☐ | ☐ | ☒ |

California Native American tribe.

No tribal cultural resources that would be impacted by the proposed project, such as artifacts or cultural sites, have been identified within the project area. The project will enhance living cultural resources (e.g. plants and animals). **Mitigation measure #8: CUL-1 (Unrecorded Resources)**, **mitigation measure #9: CUL-2: (Follow-up Surveys)**, and **mitigation Measure #10: CUL-3 (Historic Roads and Trails)** described on page 11 will be employed and applied to all cultural resources within the project area, including those identified by Tribes as significant, the project would have a positive indirect effect on cultural resources because of reduced potential for high intensity wildfire.

## UTILITIES AND SERVICE SYSTEMS

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? | ☐ | ☐ | ☐ | ☒ |

The project area is within a natural setting with no utilities or public service systems.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? | ☐ | ☐ | ☐ | ☒ |

The project is a restoration project that will not affect utilities in this uninhabited area.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) 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? | ☐ | ☐ | ☐ | ☒ |

The project area is within a natural setting with no utilities or public service systems.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? | ☐ | ☐ | ☐ | ☒ |

The project will not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? | ☐ | ☐ | ☐ | ☒ |

The project will comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

## WILDFIRE

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan? | ☐ | ☐ | ☒ | ☐ |

Historic pictures and accounts indicate that the project area at the time of European settlement in the 19th and early 20th century was more of an open oak woodland where periodic wildfire (and fires started by indigenous peoples) could creep through the understory at low intensity. The project area today is characterized by evergreen schlerophyll shrubs in genera such as *Adenostoma, Ceanothus*, and *Arctostaphylos*, that now dominate many sites at low to middle elevations throughout California. Noted for its intense fire behavior, these sites have been classified as an intermediate fire return interval system (FRI of 20-100 years) that typically burns in stand-replacing crown fires (Conrad and Weise 1998).

Plants in this ecosystem are adapted to this fire regime. Fire adaptations include vigorous stump sprouting and dormant seeds that build up during non-fire years and require fire for scarification. Many of the shrubs promote fire through production of dead highly flammable branches and production of resins on their leaves.

Prescribed burning, in this project, will be used to reduce the fuel load of ground fuels, 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 effectiveness of fire suppression.

Through prescribed fire, land managers can have a say in the timing and intensity of the fire. 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, there are other objectives such as wildlife habitat improvement, range improvement, enhancement of the Reserves appearance, and improved visitor safety by reducing the amount of dead and dying vegetation. If a wildfire does happen to enter an area that was treated, the wildfire may be contained sooner with reduced area burned at high intensity. The reduced number of acres or fire intensity will have benefits to other resource, including environmental resources, public health, and public and firefighter safety.

The project places such small and incidental demands on local roads and fire protection services that it will not substantially impair an adopted emergency response plan or emergency evacuation plan.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? | ☐ | ☐ | ☐ | ☒ |

The desired fire intensity is low to moderate. A prescribed burn plan will be developed for this project prior to implementation that outlines the parameters (timing, weather, fuel moisture, etc.) necessary to implement the project to ensure that the fire remains low to moderate intensity and does not escape the project perimeter as well as identify protocols should the fire escape. All prescribed fire activities carry a risk of fire escape, but the project design has reduced this risk below a significant level. By conducting burns in the off-season and with highly trained fire professionals on site, the project reduces the risk of wildfire below the level of risk associated with the no-project alternative. Spotting outside of fire lines should not be a problem with correct firing methods and weather patterns as prescribed in the burn plan. Tree ringing (clearing fuel away from the base of trees) in advance of burning will reduce tree mortality and spotting potential. Perimeter fire lines (roads and existing trails) will be in place and black line will be added to strengthen control lines as needed. Furthermore, by reducing fuels while leaving slope and other factors unchanged, the project will reduce, not exacerbate the effects of any future wildfire.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? | ☐ | ☐ | ☒ | ☐ |

The project will require some road maintenance, which comes with an extremely small incidental fire risk. Most project personnel will be trained fire professionals, which reduces the risk that the project will start an uncontrolled wildfire.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? | ☐ | ☐ | ☒ | ☐ |

All prescribed fire carries some risk of increased runoff and siltation during subsequent storms, but the project's remote location and buffers to perennial streams reduce the hazard of runoff/flooding and landslides resulting from the prescribed fire component of the project. Furthermore, by reducing the likely severity of future fires, the project reduces the future flooding/landslide hazard to people and structures downstream, compared to the no-project alternative.

## MANDATORY FINDINGS OF SIGNIFICANCE

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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, substantially 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? | ☐ | ☐ | ☒ | ☐ |

The project is an ecological enhancement project intended to increase habitat suitability for a wide range of native species while reducing invasive species. The project restores regular, low-intensity fire to a landscape that has been fire-excluded for over twenty years; the intentional reintroduction of patchy fire is expected to promote biodiversity as it has done on countless other sites across California. The project will result in some species being less abundant and some being more abundant, but these shifts in abundance will be within the natural range of variation and will not lead to listing of any species. Careful study has resulted in a project design extremely unlikely, in the opinion of wildlife and botany specialists, 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 to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal.
The project, with mitigations incorporated, will reintroduce a Native American land management tool to the landscape and not eliminate any important examples of the major periods of California history or prehistory.

As stated above, all prescribed fire carries some risk of (1) wildfire escape, and (2) increased runoff and siltation during subsequent storms. Design features incorporated into this project reduce these risks below a level of significance. For example, the project's remote location and buffers to perennial streams reduce the hazard of runoff/flooding and landslides resulting from prescribed fires. Furthermore, by reducing the likely severity of future fires, the project reduces the future flooding/landslide hazard to people and structures downstream, compared to the no-project alternative. As another example, by conducting burns in the off-season and with highly trained fire professionals on site, the project reduces the risk of wildfire below the level of risk associated with the no-project alternative.

With the implementation of mitigation measures included in the Initial Study, the proposed project would not degrade the quality of the environment; result in an adverse impact on fish, wildlife, or plant species including special status species, or prehistoric or historic cultural resources.

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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.)

The project is part of a wider program of fire reintroduction across the Reserve, across Butte County, and across the Sierra Nevada. Wide-scale reintroduction of prescribed fire is a stated goal of the State of California, as expressed in mandates of the California Board of Forestry and Fire Protection, CAL FIRE, the Sierra Nevada Conservancy, the Department of Conservation, and numerous other agencies. The cumulative effects of this wide-scale prescribed fire reintroduction will be, overall, ecologically positive. Cumulative negative impacts could include that some species will be less abundant, some drainages could experience transient peaks in siltation, and some air quality impacts could be felt by sensitive populations. However, these impacts will be less than significant when compared to the likely catastrophic wildfire impacts of ***not*** reintroducing prescribed fire.

Individual impacts are limited with this project and cumulatively are not considerable when viewed in connection to past or future projects.

| c) Would the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly? | Potentially Significant Impact | Less Than Significant with Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| | ☐ | ☐ | ☒ | ☐ |

This project does not have environmental effects which will cause substantial adverse effects on human beings.

# APPENDIX A

## *Mitigation Monitoring and Reporting Plan*

In accordance with CEQA Guidelines § 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. CAL FIRE is the lead agency for the above-listed project and has developed this MMRP as a part of the final IS-MND supporting the project. This MMRP lists the mitigation measures developed in the IS-MND that 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.

**Mitigation Measure #1: *AGR-1* Tree protection:** Conifer and oak trees will be protected through use of a cool prescription and/or chaparral understory will be cleared around trees for protection. Fire will be maintained at a low intensity that is not expected to harm trees.
**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, Big Chico Creek Ecological Reserve (BCCER) Staff, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #2: *AIR-1 Permits:*** Mitigation measures include complying with air quality permits issued by BCAQMD for all prescribed burning. A Smoke Management Plan would be required prior to any prescribed fire. The smoke management plan is reviewed and approved by BCAQMD.
**Schedule**: Prior to project implementation
**Responsible Party**: Terra Fuego, BCCER and the BCAQMD
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #3: *BIO-1 Terrestrial wildlife BMPs*:** Best Management Practices will be applied for protecting wildlife and wildlife habitat, including:

- **New wildlife findings:** In the event of a verified threatened, endangered or sensitive species occurrence prior to or during project implementation, the appropriate limited operating periods would apply. Other mitigations may take place as agreed upon in consultation with CDFW.
- **Snags:** Retain snags when possible for wildlife habitat.

- **Structure trees:** Retain and protect high value wildlife habitat trees (trees with multiple tops, broken tops, rot, cavities, and other formations) that create structure for nests and dens.
- **Prescribed fireline construction (machine):** There will be no mechanical fireline construction within 50' of watercourses or springs.
- **Pile burning:** No pile burning will be done within 50 feet of watercourse or springs.
- **Gas Powered Equipment:** No fueling of gas powered equipment will occur within 100 feet of a watercourse or spring.

**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #4:** ***BIO-2*** *Erythranthe* ***glaucescens:*** Populations will be flagged and no pile-burning or grading on top of known populations of *Erythranthe glaucescens* (Shield-bracted monkeyflower). Broadcast fire will be fine.

**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #5:** ***BIO-3 Polygonum bidwelliae*** *Polygonum bidwelliae* (Bidwell's knotweed) is not expected to be negatively affected by either broadcast fire or scattered burn piles. Populations will be flagged and no new soil will be pushed in to these areas during grading or scraping roads.
**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #6:** ***BIO-4*** **Noxious Weeds:** Prevent spread of invasive species with equipment: Use contract clauses to require that the activities of contractors are conducted to prevent and control the introduction, establishment, and spread of aquatic and terrestrial invasive species. For example, where determined to be appropriate, use agreement clauses to require contractors to abide by vehicle and equipment cleaning requirements/standards prior to using the vehicle or equipment within BCCER.
**Schedule**: Prior to and during project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #7:** ***BIO-5*** **Staging areas:** Do not stage equipment, materials, or crews in areas infested with invasive plant species where there is a risk of spread to areas of low infestation.

**Schedule**: Prior to and during project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #8: *CUL-1* Unrecorded sites:** Procedures for post-approval discovery of cultural resources will be followed as outlined in *Archaeological Review Procedures for CAL FIRE Projects* (Foster and Pollack 2010 pg. 17-18).

If a cultural resource is discovered within a project area after the project has been approved, the following procedures apply:

1. Project activities within 100 feet of the newly discovered cultural resource shall be immediately halted.
2. The appropriate CAL FIRE Archaeologist shall be immediately notified.
3. The CAL FIRE Archaeologist shall evaluate the new discovery and develop appropriate protection measures.
4. The CAL FIRE Archaeologist shall investigate how the project was reviewed for cultural resources to determine if the cultural resource should have been identified earlier.
5. The CAL FIRE Archaeologist shall ensure that the newly discovered site is recorded and its discovery and protection measures are documented in the project files.
6. If the newly discovered site is a Native American Archaeological or Cultural Site (defined in the Forest Practice Rules), the CAL FIRE Archaeologist shall notify the appropriate Native American tribal group and the NAHC, if appropriate.

**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #9: *CUL-2* Dense Vegetation:** An archaeological survey was conducted and no sites were identified. However, there were areas within the project area where heavy fuel loading hindered the survey effort. Areas have been identified within the Confidential Archaeological Addendum where follow up surveys will be conducted following treatments. An intensive survey (0 – 10 m transects) of inaccessible areas that become accessible following prescribed fire operations will be surveyed by a professional archaeologist or a surveyor with a CDF Archaeological Training Certificate within one year post-fire. A Archaeological Survey Report in CAL FIRE format will be developed and submitted to CAL FIRE for review and approval.
**Schedule**: During and following project implementation
**Responsible Party**: Terra Fuego, BCCER Staff, Professional Qualified Archaeologist (if needed).
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #10: *CUL-3* Roads and Trails:** Roads and trails that currently overlie historic linear sites may continue to be used as transportation routes without notification. However, if there are activities that will change the morphology of the existing road or trail (that is overlaying a historic linear site), these activities need to be reviewed by an archaeologist.
**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors, Professional Qualified Archaeologist (if needed).
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #11: *GEO-1* Prescribed fire control line construction:** Fire control lines are a concern for hydrology and soil quality risks, whether put in by hand or using mechanical means. They need to be rehabilitated for drainage using best management practices (BMPs). Fireline construction should be in accordance with all equipment restrictions.
**Schedule**: Following project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #12: *GEO-2* Slope restrictions:** Ground-based equipment would be restricted to slopes less than 35 percent. Exceptions may be made for short pitches of 100 feet slope distance, up to 50 percent slope.
**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure #13: *HYD-1 Hydrology Best Management Practices (BMPs):*** Protect water quality through the use of best management practices (BMPs) to prevent water quality degradation and to meet state water quality objectives relating to non-point sources of pollution. Best management practices utilized for this project are procedures and techniques that are incorporated in project actions and have been determined by the State of California to be the most effective, practicable means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

The standard best management practices for protecting water quality, include:

- Keep mechanical equipment and refueling, cleaning, of lubricating of equipment a prescribed distance from designated watercourses
- Limit operation of road based equipment when soils are saturated and excessive damage can occur.
- To maintain soil productivity, minimize erosion, and minimize ash, sediment, nutrients, and debris from entering water bodies.

- Keep pile burning a prescribed distance from designated watercourses.

Broadcast (prescribed) burning would be allowed within streamcourse protection zones, but there would be no ignitions in riparian vegetation. Fire may back through this zone.
**Schedule**: During project implementation
**Responsible Party**: Terra Fuego, BCCER, and project contractors
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

**Mitigation Measure:** ***FIRE-1 Prescribed burn plan:*** Mitigation measures within the prescribed burn plan will include:

- Burning can be scheduled for fall months into winter. Pile burning may occur during the spring months with the approval of the project area supervisor. The actual burn days will be dependent upon ARB Forecasts and National Weather Service (NWS) forecasts that are consistent with the burn prescription. There is no limitation on the time of day of burning.
- The Cohasset RAWS station will be used for pre and post-ignition weather data collection for the project. During burning, belt weather kits or electronic weather meters (Kestrels) will be used to collect and monitor weather conditions.
- Temperature, relative humidity, and wind speed/direction data will be collected during burning. Weather data will be collected every hour and information will be recorded along with fire behavior details.
- Weather data will be sampled at least three days prior to and three days after burning. Post burn sampling may be more or less depending on burn down and predicted weather.
- Request NWS spot forecasts at least three days before and three days after burn is completed. Post-burn forecasts are especially important for early fall when post-burn winds could cause control problems.
- No burning will be conducted if Red Flag Warnings or Watches are in place or being discussed. Ridge top winds in excess of 20 mph should be watched closely, especially during the early fall and late spring periods.

Forecasts must be watched for any mention of east or northeast winds.
**Schedule**: Prior to project implementation
**Responsible Party**: Terra Fuego and BCCER in coordination with CAL FIRE
**Verification of Compliance**:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

A copy of the completed MMRP will be forwarded to: CAL FIRE Environmental Protection Program, P.O. Box 944246, Sacramento, CA 94244.

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# Appendix B
# Wildlife Survey Report

# Wildlife Survey Report
# Big Chico Creek Ecological Reserve (BCCER)
# Prescribed Fire Program (PFP) Unit 7
# Butte County, CA

**Prepared For:**

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**Prepared By:**

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**December 2019**

## I. Summary

A wildlife survey to evaluate the presence of federal and/or state endangered, threatened, and special status wildlife species or the habitats that support those species was conducted on three dates during March – May 2019 on +/-322 acres of the Big Chico Creek Ecological Reserve (BCCER) in Butte County, CA. No endangered, threatened or special status wildlife species were detected on or adjacent to the property. Suitable habitat is present in the project area for the Western spade foot toad and the valley elderberry longhorn beetle. However, proposed project activities will not significantly impact these habitats and species, if present, and may potentially improve habitat conditions for these species and other sensitive species discussed in this report.

## II. Introduction:

Wildlife surveys were initiated on three dates between March and May 2019 for federal and/or state endangered, threatened, and special status wildlife species or the habitats that support those species on 322 acres of the BCCER, a 3,950 acre ecological reserve of diverse canyon and ridge habitats, including 4.5 miles of Big Chico Creek. The BCCER is owned by Chico State Enterprises, a 501(c)(3) auxiliary organization of California State University, Chico. The survey was initiated to determine the effects of a proposed prescribed fire on these species. The project is located in T23N, R2E, portions of Sections 14, 22, and 23 MDM (*See* Figures 1 and 2). Elevations range from 1,400 feet on the south end of the project to 2,040 feet on the north end of the project. The project area falls within the Paradise West USGS 7.5'topographic quadrangle map. The project is on Musty Buck Ridge west of Big Chico Creek and is within the Mud Creek watershed (HUC 10 - 1802015706) and Big Chico Creek Watershed (HUC 10 – 1802015705), within the Big Chico Creek – Sacramento River watershed (HUC 8- 18020157). The project area is accessed via the township of Cohasset on private seasonal roads. There are two Class III ephemeral watercourses that originate within the project area and run from east to west.

## III. Methods:

Tim Keesey performed the survey. Mr. Keesey has a background in Wildlife Biology with a Bachelor of Science Degree in Biology (1994) and a Bachelor of Science Degree in Environmental Studies (1994) from the University of California, Santa Cruz with an emphasis in Conservation Biology. Mr. Keesey has conducted wildlife and botanical surveys for a variety of clients in California, Nevada, and Hawaii (*See* Attachment A.-Qualifications).
A 3-mile search was conducted of the California Department of Fish and Wildlife's (CDFW's) Natural Diversity Database (CNDDB), and the U.S. Fish and Wildlife Service (USFWS) was contacted and species lists provided for the project area and Butte County to develop a list of target species that may occur in the area (*See* Attachment B – CDFW CNDDB 3-mile search map and Attachment C – USFWS Species Lists). The project area was characterized using the California Wildlife Habitat Relationships (CWHR) system and compared to listed and special status species potentially occurring in the project area.

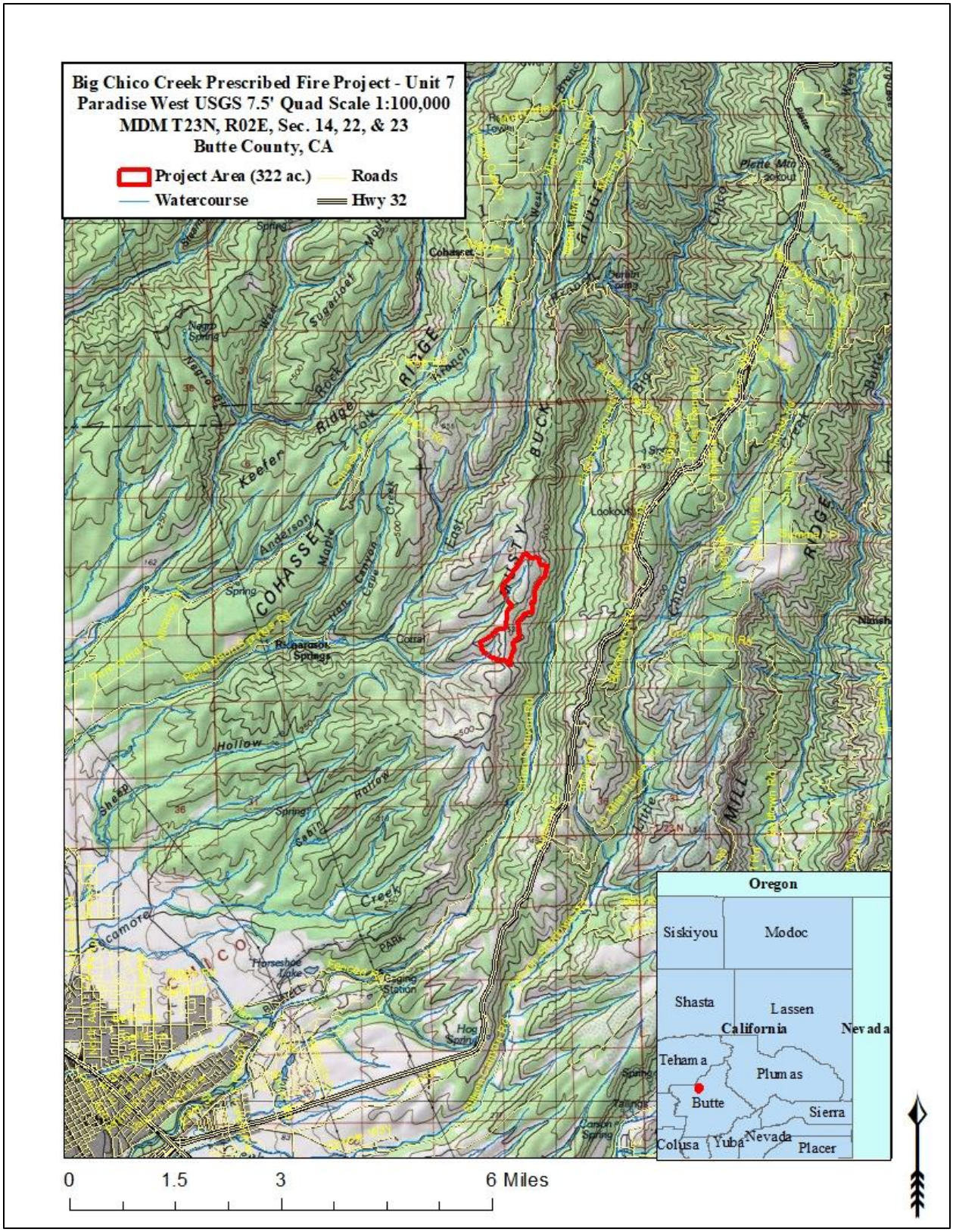


**Figure 1: Project Location in relation to the City of Chico and Butte County.**

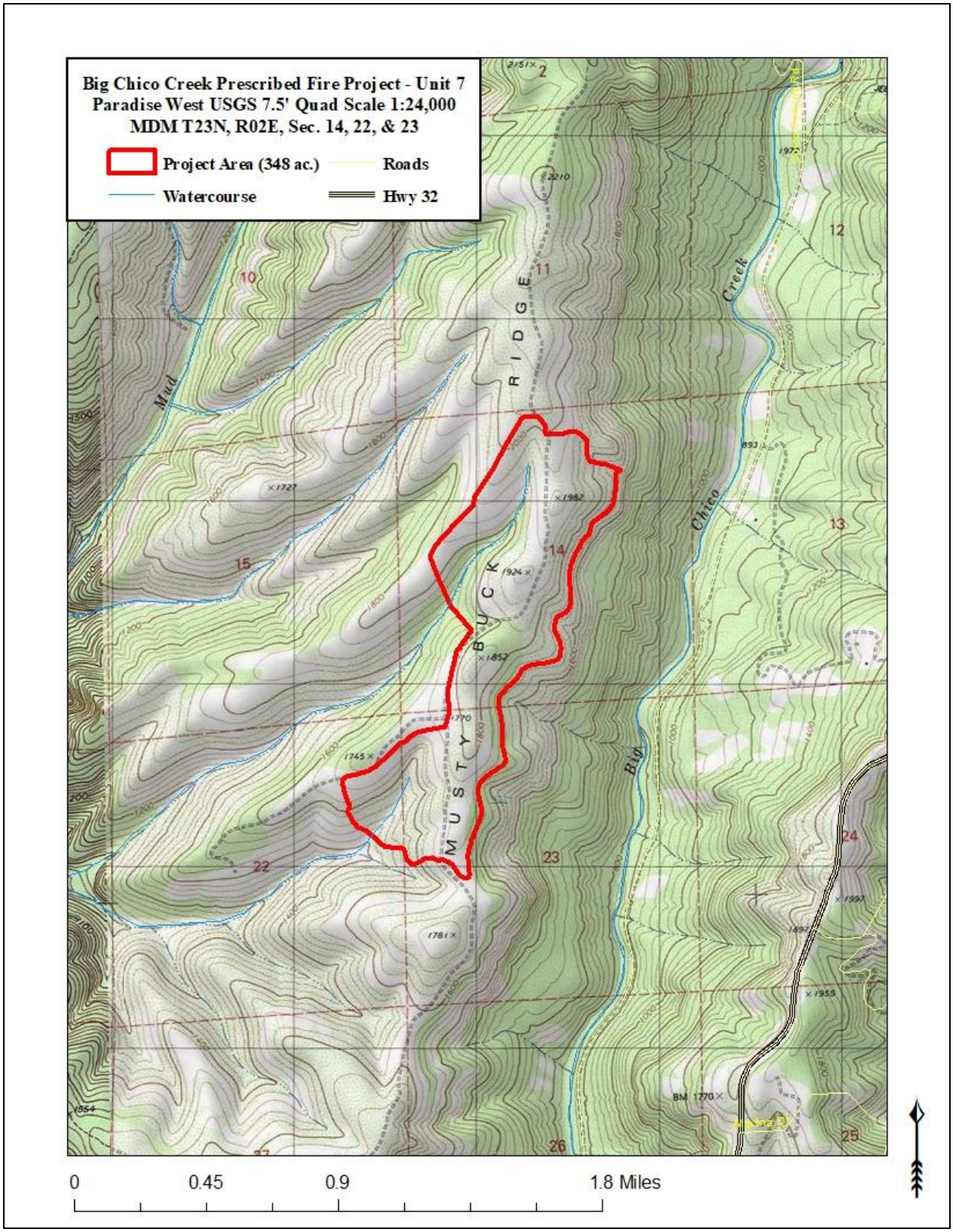


**Figure 2: Project Location**

Surveys were conducted by walking over all accessible areas within the project boundary. Many areas were inaccessible due to thick brush and steep slopes. Special attention was given to areas around watercourses, springs, meadow habitats, and rock outcrops adjacent to the proposed treatment area as many of the species identified by the CNDDB inventories required these habitats. Survey dates and times are summarized below in Table 1.

**Table 1: Survey dates and times.**

| Date | Time | Hours |
|---|---|---|
| 2-6-2019 | 0900 – 1700 | 8 |
| 3-15-2019 | 0830 – 1700 | 8.5 |
| 5-10-2020 | 0830 – 1700 | 8.5 |

## IV. **Results**

Searches of CDFW CNDDB, USFWS, and analysis of project habitat based on the CWHRS resulted in a list of 19 species with potential to occur within the project area. Table 2 summarizes these species habitat preference, likelihood of occurring in the project area, and potential impact from proposed project activities.

Approximately 50% of the project is moderately sloped (2 – 15%), a third with slopes of 15-30%, 20% with slopes of 30-50%, and a small portion (.5%) with steep slopes greater than 50%. The soils within the vicinity of the project area, derived over time from the parent geologic material of weathered volcanic rock and breccia. Soil texture is primarily well-drained gravelly loams and range from moderately deep (42 – 48") with a few areas along the cliff on the east side of the project area where soil depth can be 0-9".

The majority of the project area consists of Mixed Chaparral (MCH) habitat as characterized by the California Wildlife Habitat Relationships (CWHR) system. Post European settlement changes in land use, including livestock grazing and fire suppression has altered the native vegetation and ecosystem dynamics. For instance, the change in fire regime and practice has led to habitat conversion (e.g., valley oak woodlands converting to canyon live oak dominated forests, and the expansion of chaparral). There are still some scattered oaks and gray pines representing the dominant over-story in the proposed project area. Common shrub species include toyon (*Heteromeles arbutifolia),* manzanita (*Arctostaphylos spp.),* deer brush (*Ceanothus spp.),* coffeeberry (*Rhamnus californica*), and poison oak (*Toxicodendron diversilobum).*

While most of the species found in the shrub layer are native species, the herbaceous layer is generally dominated by non-native species. Some of the common non-native species include yellow starthistle (*Centaurea solstitialis),* hedgehog dogtail (*Cynosurus echinatus),* wild oats *(Avena fatua),* filaree *(Erodium spp.),* ripgut brome *(Bromus spp.),* and common hedge-parsley *(Torilis arvensis).* Meanwhile, common native species include purple needlegrass (*Nassella pulchra),* blue wild rye (*Elymus glaucus),* deergrass (*Muhlenbergia rigens),* and gum plant *(Grindelia camporum*). Generally, these native species respond positively to prescribed fire (Hankins 2015).

**Table 2: Special status wildlife species with potential to occur within the project area.**

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| **Insects** | | | | | | | |
| *Desmocerus californicus dimorphus* | Valley elderberry longhorn beetle | FT | - | - | This species lives out its entire life cycle on elderberry plants. | Y | There is the potential for this species to be present on the site as elderberry shrubs are present within the proposed area. However, unpublished data (Hankins) suggest the species will benefit from prescribed burning activities. Fire is unlikely to consume elderberry shrubs unless they are senescent. Beetles occur on living shrubs. Elderberry generally responds vigorously to fire by germination and sprouting. The project area is outside the designated critical habitat for this species. |
| **Crustaceans** | | | | | | | |
| *Branchinecta conservatio* | Conservancy Fairy Shrimp | FE | | | Inhabits rather large, moderately turbid cool-water vernal pools which fill with water in the rainy season, then slowly dry up from their outer, more shallow edges to their deeper areas in the center. | N | No suitable habitat within the project area. Outside the designated critical habitat for this species. |

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| *Lepidurus packardi* | Vernal Pool Tadpole Shrimp | FE | | | Inhabits vernal pools in grasslands of the Central Valley | N | No suitable habitat within the project area. Outside the designated critical habitat for this species |
| **Fishes** | | | | | | | |
| *Oncorhynchus mykiss irideus* | Steelhead trout | FT | - | - | This salmonid is an anadromous species that fulfills part of its life-cycle in freshwater streams and rivers and part in the ocean. | N | Although this species is found at the Big Chico Creek Ecological Reserve, there is no potential for this project to have an effect on it because the project is not close to the stream. |
| *Oncorhynchus tshawytscha* | Chinook salmon -- spring-run | FT | ST | - | This salmonid is an anadromous species that fulfills part of its life-cycle in freshwater streams and rivers and part in the ocean. | N | Although this species is found at BCCER, there is no potential for this project to have an effect on it because the project is not close to the stream. |
| *Mylopharodon conocephalus* | Hardhead | FS | - | SSC | This species generally occurs in large undisturbed streams throughout the Sacramento-San Joaquin River system. | N | This species was formerly the most abundant large fish at the Ecological Reserve, but is believed to be absent due to CDFW rotenone treatments in 1986. |
| *Hypomesus transpacificus* | Delta smelt | FE | - | - | Endemic to the upper Sac.-San Joaquin Estuary of CA, it mainly inhabits the freshwater -saltwater mixing zone of the estuary, except during its spawning season, when it migrates upstream to fresh water following winter "first-flush" flow events (around March to May). | N | Project area is outside the range and designated critical habitat for this species |

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| **Amphibians** | | | | | | | |
| *Rana boylii* | Foothill yellow-legged frog | FS | ST (Candidate) | - | Inhabit partially shaded, rocky perennial streams and their life cycle is synchronized with the seasonal timing of streamflow conditions. They breed in streams with riffles containing cobble-sized or larger rocks as substrate. These frogs need perennial water where they can forage through the summer and fall months. | N | Field surveys identified no suitable habitat within the project area. |
| *Rana draytonii* | California Red-legged frog | FT | - | SSC | Found mainly near quiet, permanent pools of streams, marshes, and occasionally ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover; highly aquatic; Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Breeding habitat is in permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps; prefers shorelines with extensive vegetation; eggs are deposited in permanent pools attached to emergent veg. | N | Field surveys identified no suitable habitat within the project area. Project area is outside the designated critical habitat. |

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| *Spea hammondii* | Western spadefoot | - | - | CSC | This species frequents open grasslands or woodlands and spawns in seasonal ponds or streams. | Y | This species has not been observed at BCCER, but it has been observed in other areas of Big Chico Creek Watershed. It is possible that the project area may contain habitat for the species, but given the life history of the species, it is unlikely to be adversely impacted. |
| **Reptiles** | | | | | | | |
| *Emys marmorata* | Western pond turtle | FS | - | SSC | Associated with permanent or nearly permanent water in a wide variety of habitat types; require basking sites such as partially submerged logs, rocks, floating vegetation, or open mud banks. Eggs are laid uphill of the water up to 100 yards away. | N | Although this species is found at BCCER, it is unlikely to be encountered in the project area because of its distance from Big Chico Creek and lack of suitable nest sites. Field surveys identified no suitable habitat within the project area. |
| *Thamnophis gigas* | Giant Garter Snake | FT | ST | - | Historically found throughout the Sacramento and San Joaquin valleys; Primarily associated with marshes and sloughs, less with slow-moving creeks, and absent from larger rivers; extremely aquatic, rarely found away from water, and forages in the water for food. | N | No suitable habitat. Found at lower elevations on the valley floor (0-400 ft. elevation). Project area is outside the designated critical habitat. |

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| **Birds** | | | | | | | |
| *Strix occidentalis occidentalis* | California spotted owl | FS | - | SSC | This species is closely related to the Northern spotted owl and has a similar life history utilizing mature forests for nesting habitat. | M | This species has been observed at the BCCER, but not within the project area. While suitable habitat exists, the primary use of this area would be for foraging outside of breeding season. |
| *Icteria virens* | Yellow-breasted chat | - | - | SSC | This species is a migrant bird which winters in Mexico and Guatemala. It utilizes dense shrubs in riparian forest to lay and hatch its young. | M | The species may occur in the Ecological Reserve; however it is more likely to be encountered in the riparian zone which is marginally represented in the project area. |
| *Haliaeetus leucocephalus* | Bald eagle | Delisted (FE) | SE | - | Bald eagles occupy various woodland, forest, grassland, and wetland habitats. Large nests are normally built in the upper canopy of large trees, typically conifers. These trees, along with snags for hunting, are usually near large bodies of water with fish, their preferred food. | M | This species may occasionally transit through BCCER typically during winter and spring. There is potential for the species to roost and forage within BCCER during these periods, but it is unlikely to nest within the reserve. The proposed activity will provide improved foraging conditions. No adverse impacts are likely. |

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| *Coccyzus americanus* | Yellow-billed cuckoo | Threatened | Endangered | - | Wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. | N | No habitat. Project area outside proposed critical habitat. |
| **Mammals** | | | | | | | |
| *Antrozous pallidus* | Pallid Bat | - | - | SSC | Variety of habitats, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging. | M | There is the potential for this species to be present in the project area. Smoke impacts may cause bats to flush from their roost sites, but is temporal in nature. No adverse impacts are likely. |
| *Corynorhinus townsendii* | Townsend's big-eared bat | - | - | SSC | Found in all but subalpine and alpine habitats, and may be found at any season throughout its range; most abundant in mesic habitats. Maternity roosts found in caves, tunnels, mines, and buildings. | M | There is the potential for this species to be present in the project area. Smoke impacts may cause bats to flush from their roost sites, but is temporal in nature. No adverse impacts are likely. |

| Scientific Name | Common Name | Federal Status | State Status | CDFW Status | Habitat | Habitat in Project Area | Impact |
|---|---|---|---|---|---|---|---|
| *Aplodontia rufa californica* | Sierra Nevada mountain beaver | | | SSC | Not related to true beavers, this nocturnal rodent prefers moist cool deciduous and coniferous forests. Burrows usually consist of a network of tunnels built in deep soil. Burrow entrances often contain clumps of wilted vegetation which the animal likely uses as a kind of food cache as well as a source of nesting material. . | N | Although this species has not been observed at BCCER, it is found nearby and could utilize the area. Based on the species preferred habitat, it is not likely to be affected by the current project |

Table 2: Status Codes
**Federal Status: FE –** Federally endangered**; FT** – Federally threatened**; FC** – Federal candidate**; FS** – Federally sensitive
**State Status: ST** – State threatened; **SE –** State endangered
**CDFW Status: CSC** – CA species of special concern
**Habitat in Project Area: Y** – Habitat present; **M** – Habitat marginally present; **N** – Habitat not present

No species on the list above were found to be present in the project area.

## V. Discussion

Suitable habitat exists within and adjacent to the project area for Western spade foot toad and the valley elderberry longhorn beetle. However, project activities are not likely to significantly impact these habitats or these species, if present, and will potentially improve habitat conditions. The project area historically was a mosaic of different habitats, including oak woodland, pockets of chaparral, and open grasslands that provided for a diversity of wildlife species. Land management post-European settlement, including large scale livestock grazing and fire suppression, has resulted in a mono-culture of chaparral, with decreased woodlands and grasslands. Project activities will be a step toward restoring the historic mosaic and improving wildlife habitat in the project area.

## VI. References:

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U.S. Department of Agriculture (USDA). 2016. Foothill Yellow-Legged Frog Conservation Assessment. Pacific Southwest Research Station General Technical Report PSW-GTR-248. Pg 203. https://www.fs.fed.us/psw/publications/documents/psw_gtr248/psw_gtr248.pdf

USDA Web Soil Survey. 2019. Web Soil Survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm . (Accessed: April 2018)

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# Attachment A: Qualifications

**TIMOTHY C. KEESEY**
Ecologist

### *Summary*

Twenty years experience in biological consulting and ecological research

### *Employment History*

Independent Consultant
Chico, CA
1999-Present, Ecologist

Susanville Indian Rancheria
Susanville, CA
2001-2011, Natural Resources Director

California Dept. of Fish and Game
Wendel, CA
2000-2006, Scientific Aid

Lassen National Forest
Susanville, CA
2000-2001, Biological Technician

Chico Research Foundation
Redding, CA
2000-2001, Biological Technician

KEA Environmental
Sacramento, CA
1998-2000, Biologist II

Jones & Stokes
Sacramento, CA
2000, Wildlife Biologist

Hubbs SeaWorld Research Institute
San Diego, CA
1998, Biological Technician

Sequoia and Kings Canyon National Park
Three Rivers, CA
1996-1997, Biological Technician

### *Education*

B.S., Biology
B.S., Environmental Studies
Univ. of California, Santa Cruz, 1994

### Certifications

Certified by CalFIRE to conduct Archaeological Surveys for Timber Harvest Plans (THPs)

Tim Keesey has twenty years of work experience in biology and environmental studies. His diverse background includes independent consulting, private-sector consulting, and employment with the California Department of Fish and Wildlife, Lassen National Forest, Sequoia National Park, and the Susanville Indian Rancheria (SIR), a Tribal Government.

Mr. Keesey has extensive experience in Ecological Research, Grant Writing, Project Management, Forestry, Environmental Compliance, Conservation Planning and GIS Mapping applications. During his 10 years as the Natural Resources Director at the Susanville Indian Rancheria (SIR), Tim managed an eighteen member staff and secured over $5 million for tribal environmental and cultural programs. He also developed SIR's GIS geodatabase.

Mr. Keesey currently works for several clients throughout northern California, Nevada, and Hawaii. He is a Lassen Land and Trails Trust Board President, a member of the Lassen County Resource Advisory Committee (RAC), and a member of the California Licensed Foresters Association (CLFA)

**Mr. Keesey's Representative Projects:**

## Ecology

**Cradle Valley Timber Harvest Plan (THP) –** Conducted wildlife and botanical surveys for 160 acre THP near Cradle Valley in Plumas County, including Willow Flycatcher and Great Gray Owl protocol surveys. *Susanville Indian Rancheria.*

**Rosenberg Non-Industrial Timber Harvest Plan (THP) –** Conducted wildlife and botanical surveys for 475-acre THP near Upper Stephens Meadow in Lassen County, CA. *Deas Trust.*

**Hungry Creek Timber Harvest Plan (THP) Willow Flycatcher Survey –** Conducted willow flycatcher protocol survey for 160-acre THP along Hungry Creek in Plumas County, CA. *Hungry Creek LLC*.

**Susanville Indian Rancheria Fuel Reduction and Watershed Restoration Project –** Conducted wildlife and botanical surveys for a 600-acre grant funded fuel reduction project north of Susanville to fulfill Bureau of Indian Affairs (BIA) National Environmental Policy Act (NEPA) requirements . *Susanville Indian Rancheria.*

**Susanville Indian Rancheria (SIR) Environmental Documents** – Conducted wildlife and botanical surveys and facilitated the development of NEPA/CEQA and Phase I and II documents for SIR Fee-to Trust applications, Casino Expansions, Tribal Housing Projects, Community Development Projects, Forest Thinning and Fuel Reduction Projects, and water and wastewater projects. *Susanville Indian Rancheria*

**Stewardship Plan and Community Assessment for the Susanville/Archery Children's Wildland Urban Interface (WUI) Fuel Treatment Project** – Conducted wildlife and botanical surveys and developed plan used for NEPA compliance to implement fuel reduction projects around the City of Susanville. *Lassen County Fire Safe Council*

**Stewardship Plan and Community Assessment for the Janesville Wildland Urban Interface (WUI) Fuel Treatment Project** – Conducted wildlife and botanical surveys and developed plan used for NEPA compliance to implement fuel reduction projects around the Janesville Township. *Lassen County Fire Safe Council/*

**Stewardship Plan and Community Assessment for the Lake Forest Wildland Urban Interface (WUI) Fuel Treatment Project** – Conducted wildlife and botanical surveys and developed plan used for NEPA compliance to implement fuel reduction projects around the Lake Forest residential area west of Susanville, CA. *Lassen County Fire Safe Council*

**Stewardship Plan and Community Assessment for the Clear Creek Wildland Urban Interface (WUI) Fuel Treatment Project** – Conducted wildlife and botanical surveys and developed plan used for CEQA/NEPA compliance to implement fuel reduction projects around the Clear Creek residential area south of Westwood, CA. *Lassen County Fire Safe Council*

**Stewardship Plan and Community Assessment for the Kramer Ranch Wildland Urban Interface (WUI) Fuel Treatment Project** – Conducted wildlife and botanical surveys and developed plan used for CEQA/NEPA compliance to implement fuel reduction projects Kramer Ranch north of Bieber, CA.. *Lassen County Fire Safe Council*

**Stewardship Plan and Community Assessment for the Little Valley Wildland Urban Interface (WUI) Fuel Treatment Project** – Conducted wildlife and botanical surveys and developed plan used for CEQA/NEPA compliance to implement fuel reduction projects around the Little Valley residential area east of Fall River Mills, CA. *Lassen County Fire Safe Council*

**Stewardship Plan for the South Ash Valley Ranch** – Conducted wildlife and botanical surveys and developed plan used for CEQA/NEPA compliance to implement sagebrush restoration projects on the Ash Valley Ranch southeast of Adin, CA. *Pit RCD*

**Stewardship Plan for the South Knob Ranch** – Conducted wildlife and botanical surveys and developed plan used for CEQA/NEPA compliance to implement sagebrush restoration projects on the South Knob Ranch southeast of Adin, CA. *Pit RCD*

**Stewardship Plan for the McClelland Ranch** – Conducted wildlife and botanical surveys and developed plan used for CEQA/NEPA compliance to implement sagebrush restoration projects on the McClelland Ranch southeast of Adin, CA. *Pit RCD*
Clear Creek

**Hayden Hill Gold Mine Revegetation Assessment (1999 – 2013)** – Designed and implemented revegetation assessment study for mine revegetation project. Conducted botanical field surveys and data collection, analyzed collected data and wrote assessment of mine rehabilitation progress. *Kinross Gold Mining Inc.*

**Vegetation Monitoring of Landscape Scale Western Juniper (*Juniperus occidentalis*) Treatments in Lassen County, CA –** Collected pre and post treatment botanical data along line transects to monitor the effects of western juniper removal on plant richness, density and percent cover. Developed poster presentation depicting the results of the study for the 2009 Soil and Water Conservation Society Annual Conference in Deerborn, MI and oral presentation for the 2010 International Soil Conservation Organization Conference in Santiago, Chile. *Lassen County Fire Safe Council/Pit Resource Conservation District (RCD)*

**South Ash Valley Riparian Monitoring Project (2010 – present) -** Developed a pilot study to investigate the effects of landscape scale western juniper (*Juniperus occidentalis*) removal on soil moisture, vegetative productivity and botanical composition within riparian/meadow habitats. *Lassen County Fire Safe Council/Pit Resource Conservation District (RCD)*

**Lassen County Sage Grouse Radio telemetry Project** – Trapped and radio collared sage grouse, monitored seasonal distribution of radio collared sage grouse, and collected botanical data on sage grouse nesting areas to be used in a study of nesting habitat selection. *California Dept.of Fish and Game.*

**Alturas Intertie Project, California and Nevada** – Verified plant community delineations, conducted botanical surveys along the 165 mile power line corridor to determine seed mixes, seeded in various plant communities, and conducted construction monitoring, and erosion control monitoring. *Sierra Pacific Power Company*

**Naval Petroleum Reserve Oil Exploration Biological Monitoring** - Performed pre-activity surveys for endangered, threatened and sensitive species on the Naval Petroleum Reserve in Taft, CA. Species included the blunt nosed leopard lizard, San Joaquin kit fox, San Joaquin antelope ground squirrel, giant kangaroo rat, American badger, burrowing owl, and *Eriastrum hooverii* (Hoover's wooly star). *U.S. Navy*

**Annual Lassen County Sage Grouse Population Census** – Conduct seasonal sage grouse lek counts. *California Department of Fish and Game*

**Pine Creek Eagle Lake Trout Radio telemetry Project** – Monitor the movement of radio implanted Eagle Lake Rainbow Trout up the Pine Creek watershed to the native spawning grounds. *Pine Creek CRMP*

**AT&T Co-Axial Cable Removal Red Bluff to Mineral, CA** - Performed pre-construction raptor surveys. *AT&T*

**Lassen National Forest Wildlife Surveys** - Endangered, threatened, sensitive, and migratory bird surveys including northern goshawk, bald eagle, great gray owl, willow flycatcher, sand hill crane, bats, buffleheads, deer, antelope, and other waterfowl. Coordinated with the silvicultural department in the field to review nest sites and propose mitigation. *Lassen National Forest, Eagle Lake Ranger District*

**Alturas Intertie Raptor and Corvid Study** - Study of raptor and corvid nesting and perching behavior on the Alturas Intertie Power line. *Chico Research Foundation*

**Alturas Intertie Bird Mortality Study** - Survey of dead/injured birds and survey of effectiveness of flight deterrents along the Alturas Intertie Power line. *Sierra Pacific Power*

**Skyline West Wildlife Surveys** - Conducted wildlife surveys for biological assessments of alternative routes for the Susanville by-pass. *Lassen County*

**Tuscarora Natural Gas Pipeline Lateral from Wendel to Susanville** – Conducted wildlife surveys for Tuscarora natural gas pipeline lateral. *City of Susanville*

**Williams Telecom Fiber Optic Cable Installation, Sacramento to Pittsburg, CA** – Construction monitoring of fiber optic cable installation project. *California Public Utilities Commission (CPUC)*

**Miramar Marine Base California Gnatcatcher Surveys** - Monitored the nesting success of endangered California gnatcatchers on the Miramar Marine Base, as part of a study to determine

the effects of noise pollution from fighter jets and training activities on gnatcatcher breeding success. *U.S. Marine Corps*

**Temecula Housing Development Wildlife Surveys** – Conducted surveys for *Plantago sp.* to delineate Quino checkerspot habitat and surveys for California gnatcatchers. *Environmental Trust*

**Temecula Golf Course Specimen Tree Mapping** - Performed pre-construction tree marking surveys on *Quercus agrifolia (*Coast Live Oak), as part of a biological assessment to determine necessary mitigation for a proposed golf course. *Temecula Golf Course*

**Fire Effects Analysis of Small and Medium Montane Mammal Populations** - Performed capture-recapture surveys for small mammals on Sequoia National Park to document long-term changes in rodent populations and their habitat following prescribed fire under known conditions. Performed serendipitous surveys to inventory small mammal species and medium sized forest carnivores and determine their relative abundance within both common and unique habitats throughout Sequoia National Park to facilitate large-scale assessment of potential fire effects. *Sequoia National Park*

## Environmental Compliance (NEPA/CEQA)

**Diamond Mountain Watershed Restoration and Wildland Urban Interface (WUI) Project CEQA Initial Study:** Developed the CEQA Initial Study for a 8,195 acre fuel reduction project on the Diamond Mountains in Lassen County on Lassen National Forest managed lands. – *Lassen County Fire Safe Council (2018)*

**Honey Lake Valley Resource Conservation District Environmental Documents – -** Facilitate the development of CEQA documents for RCD Watershed Restoration Projects. *Honey Lake Valley RCD. (2011 – 2016)*

**Susanville Indian Rancheria (SIR) Environmental Documents** - Facilitate the development and review of NEPA/CEQA and Phase I and II documents for SIR Fee-to Trust applications, Casino Expansion, Tribal Housing Program, Community Development Projects, Forest Thinning and Fuel Reduction Projects, and water and wastewater projects. *Susanville Indian Rancheria (2001 – 2011)*

## Forestry

**Schroeder Forest Management Plan (FMP):** Developed a CALFIRE California Forest Improvement Project (CFIP) Forest Management Plan for a 287-acre private landownership in the Big Chico Creek watershed – *Butte County Resource Conservation District (RCD)2017-18*

**Motorway Timber Harvest Plan (THP):** Assisted with the development and layout of the Motorway THP (THP # 2-15-037-LAS), a 161 acre timber harvest in Lassen County, CA. *Phil Nemir Forestry and Appraisal.*

**Pecks Valley THP:** Assisted with the development and layout of the Pecks Valley THP (THP #2-17-010-PLU), a 256 acre timber harvest in Plumas County, CA. *Phil Nemir Forestry and Appraisal.*

**Walton Homestead THP:** Assisted with the development and layout of the Walton Homestead THP (THP #2-17-081-LAS), a 499 acre timber harvest in Lassen County, CA. *Phil Nemir Forestry and Appraisal.*

**Non-Industrial Timber Management Plan (NTMP) Timber Harvests**: Assist with layout and implementation of timber harvest on several NTMP's in Lassen County including Hulsman Ranch NTMP #2-95NTMP-012), Rosenburg NTMP #2-09NTMP-001-LAS-#2, Mountain Meadow Ranch NTMP #2-06NTMP-002-LAS, and Nagel Family NTMP #2-01NTMP-004-2-LAS. *Phil Nemir Forestry and Appraisal.*

**Martinetti Ranch Forest Inventory Report**: Assisted with collection of cruise data and GIS mapping for the development of the Martinetti Ranch Forest Inventory Report for a Forestry appraisal in Sierra County, CA. *Phil Nemir Forestry and Appraisal.*

**Hulsman Ranch Forest Inventory Report**: Assisted with collection of cruise data and GIS mapping for the development of the Hulsman Ranch Forest Inventory Report for the 1,687 acre Hulsman Ranch NTMP. *Phil Nemir Forestry and Appraisal.*

## Grant Acquisition and Management

**North Butte County Road Inventory and Improvement Project –** Secured $425,000 from the State Water Resources Control Board – Timber Restoration Fund to inventory and assess the impact of 62 miles of natural surface roads in North Butte County, CA on water quality and design and implement a pilot project on 4 miles of road to demonstrate how proper road design can reduce erosion and protect water quality for beneficial uses. *Butte County RCD.*

**Susan River Watershed Coordinator –** Implemented California Department of Conservation (DOC) Watershed Coordinator grant to assess, plan, and implement project to benefit the Susan River Watershed. *Honey Lake Valley RCD.*

**Lahontan Basins Integrated Regional Water Management Plan (LBIRWMP)** – Developed and submitted successful $427,816 grant application to the Department of Water Resources to develop an Integrated Regional Water Management Plan for the Lahontan Basins Region and coordinated the management and implementation of the grant. *Honey Lake Valley RCD.*

**Susanville Indian Rancheria (SIR) Environmental Protection Department (EPD) -** Obtained $2.25 million between 10/2002 and present in U.S. Environmental Protection Agency (EPA) funding through the General Assistance Program (GAP); Clean Water Act §106 Program; Clean Water Act §319 Program; Non-Agricultural Integrated Pest Management Program; and Resource Conservation Fund to develop and implement a variety of environmental programs including environmental assessment and planning; public water system compliance with the Safe Drinking Water Act; Integrated Solid Waste Management Planning; water pollution prevention; household

hazardous waste collection, recycling and compost programs, renewable energy and energy conservation assessments, and noxious weed inventory and treatment. *Susanville Indian Rancheria.*

**Re-establishment of Wild Eagle Lake Rainbow Trout –**Obtained and managed $200,000 in funding from the U.S. Fish and Wildlife Service (USFWS) Tribal Wildlife Grant to study the migration and spawning of Eagle Lake Rainbow Trout in Pine Creek. *Susanville Indian Rancheria*

**Current and Historic Distribution of Freshwater Mussels within Five Watersheds** - Obtained and implemented $250,000 U.S. Fish and Wildlife Service (USFWS) Tribal Wildlife Grant in collaboration with the Lassen National Forest and the Confederated Tribes of the Umatilla Indian Reservation to investigate the Current and Historic Distribution of Freshwater Mussels within the Ancestral Homelands of the Tribes and Bands associated with the SIR. *Susanville Indian Rancheria.*

**Cradle Valley Indigenous Landscape Enhancement Project (CVILEP) -** Obtained and implemented $402,000 in funding for the Cradle Valley Indigenous Landscape Enhancement Project from: the Plumas County Resource Advisory Committee through Title II of the Secure Rural Schools Act ($122,450); Natural Resource Conservation Service (NRCS) Wetland Reserve Program ($120,000); USFWS Tribal Landowner Incentive Program (TLIP) ($22,500); North Cal-Neva Resource Conservation and Development Council (RC&D) ($5,000); the Plumas National Forest through the California Fire Safe Council Clearinghouse ($84,000); and $48,000 in NRCS EQIP funds to restore and protect 160 acres through forestry, livestock, and watershed management projects. *Susanville Indian Rancheria.*

**Susanville Indian Rancheria Fuel Reduction and Watershed Restoration Project -**Obtained and implemented $264,000 Bureau of Indian Affairs (BIA) Hazardous Fuels Reduction (HFR)/Wildland Urban Interface (WUI) grant in collaboration with the Lassen County Fire Safe Council to remove encroaching western juniper and woody debris from 675 acres of sagebrush steppe and black oak woodland in order to restore the habitats to pre-settlement conditions and remove dangerous fuel loads from the WUI North of the City of Susanville. *Susanville Indian Rancheria.*

**SIR Housing Water and Sewer Infrastructure Improvement Project -** Obtained $240,000 from the Indian Health Service (IHS) through the Sanitary Deficiency System (SDS) to restore failing water and sewer infrastructure serving 95 tribal households. *Susanville Indian Rancheria.*

**Northeastern California NAGPRA Coalition -** Obtained and managed $217,000 from the National Park Service to develop the Northeastern California Tribal NAGPRA Coalition to collaborate and consult regarding sacred site protection and the repatriation of Native American human remains and artifacts. To date, fifteen tribes with the Northeastern California and Western Nevada have officially joined the Coalition. *Susanville Indian Rancheria.*

**SIR Tribal Youth Conservation Crew (TYCC)** – Established and obtained $275,000 for the Tribal Youth Conservation Crew (TYCC) between 2003 and present from the Lassen County

Resource Advisory Committee through Title II of the Secure Rural Schools Act and the California Indian Manpower Consortium (CIMC) to train tribal youth to implement a variety of natural resource management projects on lands managed by the Lassen National Forest, including: clean up of illegal dumpsites; duck box maintenance; aspen regeneration; forest health studies; trail maintenance; campsite clean up; archaeological investigation; and cultural resource monitoring. *Susanville Indian Rancheria.*

**SIR Native Language Program** - Assisted in acquiring $75,000 through the Administration for Native Americans (ANA) to begin a Native Language program for the four tribes of the Susanville Indian Rancheria. *Susanville Indian Rancheria.*

**SIR Integrated Resource Management Plan -** Acquired and implemented $50,000 Bureau of Indian Affairs (BIA) Integrated Resource Management Planning (IRMP) grant to solicit input from tribal members and several tribal focus groups to develop a long-range land use plan for SIR's tribal properties. *Susanville Indian Rancheria.*

## Conservation Planning

**Elk Valley Rancheria, California Integrated Resource Management Plan (IRMP)/Environmental Assessment (EA)** – Solicited input from the Elk Valley Rancheria, California Tribal Government, Tribal membership, and Tribal staff to develop a long range plan for Tribal properties and analyzed the environmental impacts in accordance with the National Environmental Policy Act (NEPA) – *Elk Valley Rancheria, California.*

**Makai Ranch Agricultural Feasibility Study –** Developed Agricultural Feasibility Study for a 160-acre agricultural property on the North Shore of Oahu to meet requirements of the City and County of Honolulu Department of Planning and Permitting. *Makai Ranch*

**Strategy and Plan for the Cooperative Sagebrush Steppe Restoration Initiative (CSSRI): Restoring the Sagebrush Sea and Eastside Forest in Northeastern California** - Development of a comprehensive plan for Lassen County and ten specific plans identifying areas where removal of invasive juniper from sagebrush steppe and eastside pine forest habitat would benefit wildlife species, sage grouse in particular. *Lassen County Fire Safe Council/Pit Resource Conservation District (RCD)*

**Makai Ranch Conservation Plan –** Developed Conservation Plan on 160 acre agricultural parcel on the North Shore of Oahu, HI. *Makai Ranch.*

**Conservation Strategy for the Eagle Lake Rainbow Trout (*Oncorhynchus mykiss aquilarum*) Lassen County, California –** Working with the U.S. Fish and Wildlife Service, Lassen National Forest, California Department of Fish and Wildlife, and the U.C. Cooperative Extension – Lassen County to develop a conservation strategy for the Eagle Lake Rainbow Trout in order to restore native spawning and rearing. *Honey Lake Valley RCD.*

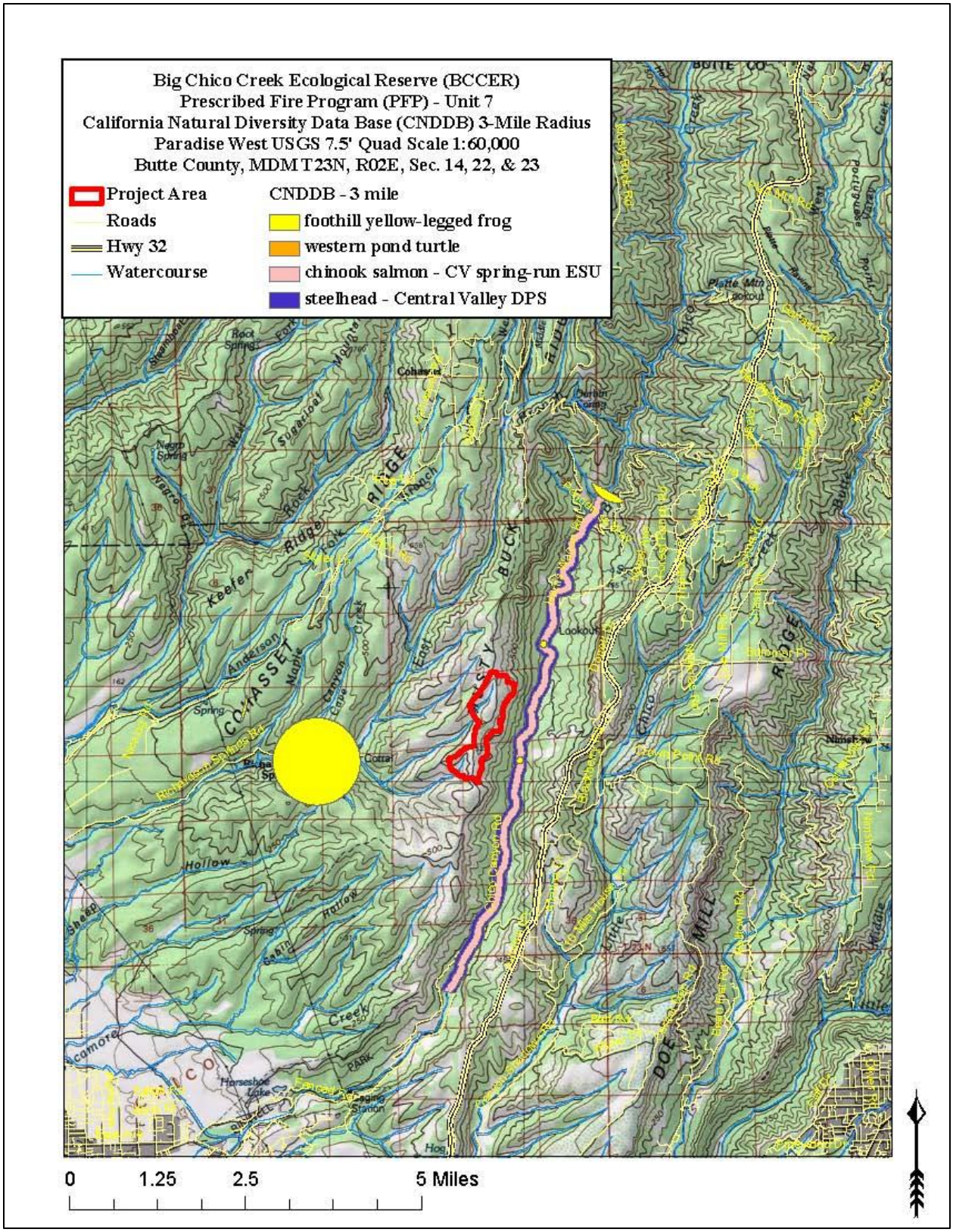
**Kunia Loa Ridge Farms Conservation Plan –** Developed Conservation Plan on 854.23 acre agricultural parcel in Kunia, Oahu which was divided into 99 smaller farm plots ranging from 5 to 26 acres to assist farmers in identifying agricultural practices based on Natural Resource

Conservation Service (NRCS) Standards and Guidelines that are compatible with the soil types present on their individual farm plots in order to reduce soil erosion and loss and improve water quality and quantity within riparian areas by reducing sedimentation from erosion. *C & C Farmlands LLC*

**Kamehameha Schools Punalu´u Agricultural Lands Soil and Water Conservation Plan Punalu´u, O´ahu´ -** Developed Conservation Plan on 550 acre agricultural parcel to assist farmers in identifying agricultural practices based on Natural Resource Conservation Service (NRCS) Standards and Guidelines that are compatible with the soil types present on their individual farm plots in order to reduce soil erosion and loss and improve water quality and quantity within riparian areas by reducing sedimentation from erosion. – *Kamehameha Schools*

**NRCS General Technical Note and Producer Manual - Planning and Implementation of Western Juniper Control** – Collaborated with the Cooperative Sagebrush Steppe Restoration Initiative and the University of California, Cooperative Extension – Lassen County to develop a Natural Resource Conservation Service (NRCS) General Technical Note regarding the planning and implementation of western juniper control projects. *Lassen County Fire Safe Council/Pit Resource Conservation District (RCD)*

# Attachment B: CDFW CNDDB 3-Mile Radius Map


Big Chico Creek Ecological Reserve (BCCER)
Prescribed Fire Program (PFP) - Unit 7
California Natural Diversity Data Base (CNDDB) 3-Mile Radius
Paradise West USGS 7.5' Quad Scale 1:60,000
Butte County, MDM T23N, R02E, Sec. 14, 22, & 23
Project Area
Roads
Hwy 32
Watercourse
CNDDB - 3 mile
foothill yellow-legged frog
western pond turtle
chinook salmon - CV spring-run ESU
steelhead - Central Valley DPS
0
1.25
2.5
5 Miles

# Attachment C: USFWS Species List

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: January 30, 2020
Consultation Code: 08ESMF00-2020-SLI-0920
Event Code: 08ESMF00-2020-E-02919
Project Name: Big Chico Creek Ecological Reserve (BCCER) Prescribed Fire Program (PFP) Unit 7

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

# Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Sacramento Fish And Wildlife Office**
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

## Project Summary

Consultation Code: 08ESMF00-2020-SLI-0920

Event Code: 08ESMF00-2020-E-02919

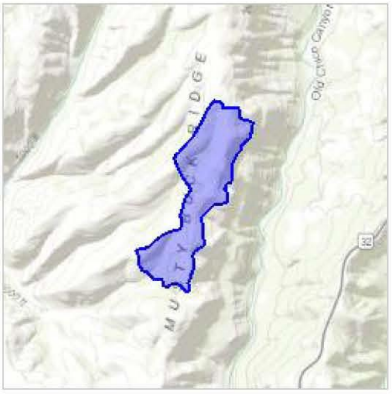
Project Name: Big Chico Creek Ecological Reserve (BCCER) Prescribed Fire Program (PFP) Unit 7

Project Type: VEGETATION MANAGEMENT

Project Description: Prescribed Fire on 322 acres of the Big Chico Creek Ecological Reserve

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/39.845578900520465N121.72497130901769W



Counties: Butte, CA

## Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Reptiles

| NAME | STATUS |
|---|---|
| Giant Garter Snake *Thamnophis gigas*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/4482 | Threatened |

### Amphibians

| NAME | STATUS |
|---|---|
| California Red-legged Frog *Rana draytonii*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2891<br>Species survey guidelines:<br>https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf | Threatened |

### Fishes

| NAME | STATUS |
|---|---|
| Delta Smelt *Hypomesus transpacificus*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/321 | Threatened |

## Insects

| NAME | STATUS |
|---|---|
| Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/7850<br>Habitat assessment guidelines:<br>https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf | Threatened |

## Crustaceans

| NAME | STATUS |
|---|---|
| Conservancy Fairy Shrimp *Branchinecta conservatio*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/8246 | Endangered |
| Vernal Pool Tadpole Shrimp *Lepidurus packardi*<br>There is **final** critical habitat for this species. Your location is outside the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2246 | Endangered |

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

# Appendix C

# Botany Survey Report

# Botanical Survey Report
# Big Chico Creek Ecological Reserve, North Rim, VMP Unit 7

**Bidwell's knotweed (Polygonum bidwelliae), a CNPS 4.3-ranked plant, and allies. P. bidwelliae needs thin volcanically derived ridgetop soils. Photo Credit: Wolfy Rougle.**

**PREPARED FOR:**
TERRA FUEGO, 1100 FORTRESS ST. CHICO CA

**PREPARED BY:**
BUTTE COUNTY RESOURCE CONSERVATION DISTRICT
150 CHUCK YEAGER WAY, OROVILLE, CA 95965
(530) 693-3173 * BCRCD@CARCD.ORG

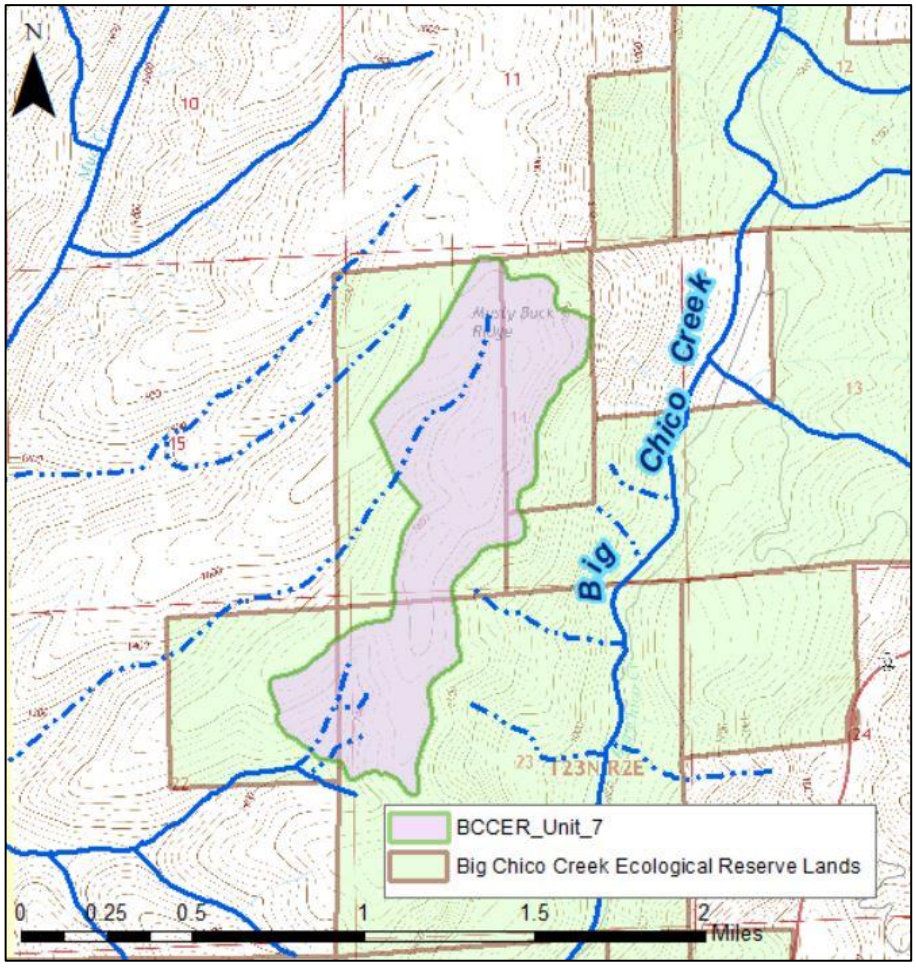
**MAY-JULY 2019**

# I. SUMMARY

A survey for evaluating the impacts to special status native plant populations and natural communities was conducted in May 2019 on a 322-acre prescribed fire and fuels reduction unit on the Musty Buck Ridge portion of Big Chico Creek Ecological Reserve in Forest Ranch, CA in Butte County, CA. 2 special status plant species were found in the project area; several populations of each were found. The project impacts on the special status plant populations are expected to be less than significant after mitigation.

# II. INTRODUCTION:

In May 2019, a survey was initiated at the request of prescribed fire nonprofit Terra Fuego by the Butte County Resource Conservation District (BCRCD) for rare, threatened, and endangered plants across the prescribed fire unit. The unit is located within portions of T23N, R2E, Sections 14, 22, & 23 (*See* map below). Elevations on the unit range from 1,440 to 1,960 feet. The project area is covered by the Paradise West USGS 7.5' topographic quadrangle map. The project is located entirely on land zoned RC (for Resource Conservation) and owned by CSU, Chico Research Foundation.



## III. Methods:

Wolfy Rougle, Botanist/ Environmental Specialist, performed the survey, which was carried out according to California Department of Fish and Wildlife *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2018). Ms. Rougle is a conservation profesional who has conducted botanical surveys and vegetation assessments for clients in Butte County (*See* Section VII.-Qualifications). Ms. Rougle consulted with expert botanists at the CSU, Chico Herbarium and consulted the existing plant list for the Big Chico Creek Ecological Reserve.

Searches were made of the California Department of Fish and Wildlife's Natural Diversity Database (CNDDB) to develop a list of target species that may occur in the area. The searches covered the following nine quad map areas:

1. Campbell Mound
2. Cohasset
3. Stirling City
4. Richardson Springs
5. Paradise West
6. Paradise East
7. Chico
8. Hamlin Canyon
9. Cherokee

Surveys were conducted on three days in mid-May in a late floral year. Surveys were conducted by walking over the entire project area, logging a total of about 26 miles on foot across the 348-acre unit. All habitats were explored, but special attention was paid to areas where special-status plants are most likely to be found, such as springs and seeps, vernally moist areas, the ephemeral creek drainages, meadows and openings, rock outcroppings, roads, and basalt flats (lava cap). To make the best use of limited resources, some areas of extremely dense brush were not surveyed, because no special-status plants that would be blooming in May are likely to be found there. Survey dates and times are summarized below.

**Table 1. Visits to project area.**

| Date | Personnel | Visit | Time | Area(s) surveyed |
|---|---|---|---|---|
| 5-10-19 | W. Rougle | 1 | 0900 - 1700 | Southern 1/3 of unit- Walker Creek headwaters and southe part of main ridge |
| 5-11-19 | W. Rougle | 1 | 0900 – 1700 | Northern 2/3 of unit, areas E of Musty Buck Rd |
| 5-12-19 | W. Rougle | 1 | 0900-1700 | Northern 2/3 of unit, areas W of Musty Buck Rd |
| 5-13-19 | W. Rougle | 1 | 0930-1000 | Revisit meadowfoam patch on SE part of unit |

# IV. RESULTS

A search of the CNDDB resulted in a list of 56 species as shown in the table below.

**Table 2. Rare, threatened, or endangered plants found on the project area's USGS 7.5-minute quad and its 8 adjacent quads.**

| Scientific Name | Common Name | Family | Rare Plant Rank |
|---|---|---|---|
| Allium jepsonii | Jepson's onion | Alliaceae | 1B.2 |
| Allium sanbornii var. sanbornii | Sanborn's onion | Alliaceae | 4.2 |
| Arctostaphylos mewukka ssp. truei | True's manzanita | Ericaceae | 4.2 |
| Astragalus pauperculus | depauperate milk-vetch | Fabaceae | 4.3 |
| Azolla microphylla | Mexican mosquito fern | Azollaceae | 4.2 |
| Balsamorhiza macrolepis | big-scale balsamroot | Asteraceae | 1B.2 |
| Brodiaea sierrae | Sierra foothills brodiaea | Themidaceae | 4.3 |
| Bulbostylis capillaris | thread-leaved beakseed | Cyperaceae | 4.2 |
| Calycadenia oppositifolia | Butte County calycadenia | Asteraceae | 4.2 |
| Calystegia atriplicifolia ssp. buttensis | Butte County morning-glory | Convolvulaceae | |
| Campylopodiella stenocarpa | flagella-like atractylocarpus | Dicranaceae | 2B.2 |
| Cardamine pachystigma var. dissectifolia | dissected-leaved toothwort | Brassicaceae | 1B.2 |
| Carex xerophila | chaparral sedge | Cyperaceae | 1B.2 |
| Castilleja rubicundula var. rubicundula | pink creamsacs | Orobanchaceae | 1B.2 |
| Chlorogallum grandiflorum | Red Hills soaproot | Agavaceae | 1B.2 |
| Clarkia gracilis ssp. albicaulis | white-stemmed clarkia | Onagraceae | 1B.2 |
| Clarkia mildrediae ssp. mildrediae | Mildred's clarkia | Onagraceae | 1B.3 |
| Clarkia mosquinii | Mosquin's clarkia | Onagraceae | 1B.1 |
| Claytonia palustris | marsh claytonia | Montiaceae | 4.3 |
| Claytonia parviflora ssp. grandiflora | stream-bank spring beauty, or large- | Montiaceae | 4.2 |
| Cryptantha rostellata | red-stemmed cryptantha | Boraginaceae | 4.2 |
| Cypripedium fasciculatum | clustered lady's-slipper | Orchidaceae | 4.2 |
| Erigeron petrophilus var. sierrensis | northern Sierra daisy | Asteraceae | 4.3 |
| Eriogonum umbellatum var. ahartii | Ahart's buckwheat | Polygonaceae | 1B.2 |
| Erythranthe glaucescens (formerly Mimulus) | Shield-bracted monkey-flower | Plantaginaceae | 4.3 |
| Euphorbia hooveri | Hoover's spurge | Euphorbiaceae | 1B.2 |
| Frangula purshiana ssp. ultramafica | Caribou coffee-berry | Rhamnaceae | 1B.2 |
| Fritillaria eastwoodiae | Butte County fritillary | Liliaceae | 3.2 |
| Fritillaria pluriflora | adobe-lily | Liliaceae | 1B.2 |
| Githopsis pulchella ssp. serpentinicola | serpentine bluecup | Polemoniaceae | 4.3 |
| Hesperevax caulescens | hogwallow starfish | Asteraceae | 4.2 |
| Hesperocyparis bakeri | Baker cypress | Cupressaceae | 4.2 |
| Hibiscus lasiocarpos var. occidentalis | woolly rose-mallow | Limnanthaceae | 1B.2 |
| Imperata brevifolia | California satintail | Poaceae | 2B.1 |
| Juglans hindsii | Northern California black walnut | Juglandaceae | 1B.1 |
| Juncus leiospermus var. leiospermus | Red Bluff dwarf rush | Juncaceae | 1B.1 |
| Layia septentrionalis | Colusa layia | Asteraceae | 1B.2 |
| Leptosiphon ambiguus | serpentine lepto-siphon | Polemoniaceae | 4.2 |
| Lilium humboldtii ssp. humboldtii | Humboldt lily | Liliaceae | 4.2 |
| Limnanthes floccosa ssp. californica | Butte County meadowfoam | Limnanthaceae | 1B.1 |

| | | | |
|---|---|---|---|
| Mielichhoferia elongata | elongate copper moss | Mniaceae | 4.3 |
| Monardella venosa | veiny monardella | Lamiaceae | 1B.1 |
| Navarretia heterandra | Tehama navarretia | Polemoniaceae | 4.3 |
| Navarretia subuligera | Awl-leaved navarretia | Polemoniaceae | |
| Packera eurycephala var. lewisrosei | Lewis Rose's ragwort | Asteraceae | 1B.2 |
| Paronychia ahartii | Ahart's paronychia | Asteraceae | 1B.1 |
| Penstemon personatus | closed-throated beard-tongue | Plantaginaceae | 1B.2 |
| Piperia michaelii | Michael's rein-orchid | Orchidaceae | 4.2 |
| Polygonum bidwelliae | Bidwell's knotweed | Polygonaceae | 4.3 |
| Quercus dumosa | Nuttall's scrub oak | Fagaceae | 1B.1 |
| Rhynchospora californica | California beaked-rush | Cyperaceae | 1B.1 |
| Rhynchospora capitellata | brownish beaked-rush | Cyperaceae | 2B.2 |
| Rupertia hallii | Hall's rupertia | Fabaceae | 1B.2 |
| Sidalcea gigantea | Giant checker-bloom | Malvaceae | 4.3 |
| Sidalcea robusta | Butte County checker-bloom | Malvaceae | 1B.2 |
| Stuckenia filiformis ssp. alpina | slender-leaved pondweed | Potamogetonaceae | 2B.2 |
| Tuctoria greenei | Greene's tuctoria | Poaceae | 1B.1 |

Based on research in the Jepson eFlora, the following 10 spp. were removed from consider-ation because their elevation range the project area's (1,440 – 1,960'; 500' buffer each side).

**Table 3. Plants excluded from consideration due to their elevation range**

| Scientific Name | Common Name | Elev. low (feet) | Elev. high (feet) |
|---|---|---|---|
| *Claytonia palustris* | marsh claytonia | 3000 | 7500 |
| *Euphorbia hooveri* | Hoover's spurge | 0 | 750 |
| *Frangula purshiana ssp. ultramafica* | Caribou coffee-berry | 2600 | 6400 |
| *Hesperocyparis bakeri* | Baker cypress | 3300 | 5600 |
| *Hibiscus lasiocarpos var. occidentalis* | woolly rose-mallow | 0 | 300 |
| *Juglans hindsii* | Northern California black | 0 | 900 |
| *Limnanthes floccosa ssp. californica* | Butte County meadowfoam | 0 | 300 |
| *Penstemon personatus* | closed-throated beard-tongue | 3150 | 5600 |
| *Quercus dumosa* | Nuttall's scrub oak | 0 | 600 |
| *Rhynchospora californica* | California beaked-rush | 0 | 600 |

The following 2 species were removed from consideration due to the absence of their required habitat in the project area.

**Table 4. Plants excluded from consideration due to their habitats**

| Scientific Name | Common Name | Required habitat not present in project area |
|---|---|---|
| *Azolla microphylla* | Mexican mosquito fern | Ponds and streams |
| *Stuckenia filiformis ssp. alpina* | slender-leaved pondweed | Shallow, clear water of lakes and drainage ditches |

The revised list of 44 target species is shown in the following table. For these species, descriptions, illustrations, and photographs from the references below were reviewed to update familiarity (*See* Section VI. References).

**Table 5. Rare, threatened, or endangered plant species potentially present in project area.**

| Scientific Name | Plant Communities | Blooming Period | Elevation Range (ft) | CNPS List |
|---|---|---|---|---|
| *Allium jepsonii* | Open, serpentine or volcanic slopes, flats | Apr-Aug | 900 - 1800 | 1B.2 |
| *Allium sanbornii var. sanbornii* | Serpentine outcroppings | May-Sept | 900 - 4200 | 4.2 |
| *Arctostaphylos mewukka ssp. truei* | Chaparral, forest openings | Feb-June | 900 - 4050 | 4.2 |
| *Astragalus pauperculus* | Open, vernally moist, volcanic clay | March-June | 120 - 3600 | 4.3 |
| *Balsamorhiza macrolepis* | Open grassy or rocky sites, valleys | March-June | 0 - 4200 | 1B.2 |
| *Brodiaea sierrae* | Open areas in chaparral, foothill woodland (dry meadows), generally on soils derived from basic and ultramafic intrusive rocks | June-July | 540 - 3000 | 4.3 |
| *Bulbostylis capillaris* | Open damp/dry sandy-gravelly soil | June-Aug | 900 - 6600 | 4.2 |
| *Calycadenia oppositifolia* | Grassland, grassy openings in oak woodland | Apr-Jul | 150 - 2700 | 4.2 |
| *Calystegia atriplicifolia spp. buttensis* | Dry rocky places in open forest, chaparral | May-July | 1800 - 3600 | 4.2 |
| *Campylopodiella stenocarpa* | Unknown | | unknown - unknown | 2B.2 |
| *Cardamine pachystigma var. dissectifolia* | Shady grassy woodlands on serpentine | Feb-Apr | 1600 - 3400 | 1B.2 |
| *Carex xerophila* | serpentine outcroppings | Mar-Jun | 1350 - 2300 | 1B.2 |

| | | | | |
|---|---|---|---|---|
| *Castilleja rubicundula var. rubicundula* | Grassland | Apr-Jun | 0 - 2700 | 1B.2 |
| *Chlorogallum grandiflorum* | Woodlands and openings, usually in southern and central Sierras | May-Jun | 900 - 1500 | 1B.2 |
| *Clarkia gracilis ssp. albicaulis* | Grasslands at about 1500’ | May-Jun | 1500 - 1500 | 1B.2 |
| *Clarkia mildrediae ssp. mildrediae* | yellow pine forest | June-Aug | 1350 - 5100 | 1B.3 |
| *Clarkia mosquinii* | Dry, rocky places, probably foothill woodland | May-Jul | 540 - 3600 | 1B.1 |
| *Claytonia parviflora ssp. grandiflora* | Vernally moist, often disturbed sites | feb-apr | 450 - 3600 | 4.2 |
| *Cryptantha rostellata* | Open, rocky, dry sites, sparse grassland, chaparral, foothill woodland | apr-jun | 120 - 2400 | 4.2 |
| *Cypripedium fasciculatum* | Mesic to moist, shady conifer forest | mar-aug | 300 - 6000 | 4.2 |
| *Erigeron petrophilus var. sierrensis* | Rocky foothills to montane forest, sometimes on serpentine | Jun-Oct | 900 - 5700 | 4.3 |
| *Eriogonum umbellatum var. ahartii* | Serpentine outcroppings | Jun-Sept | 1200 - 3000 | 1B.2 |
| *Erythranthe glaucescens (formerly Mimulus)* | Seeps, streambanks | Mar-Jun | 0 - 1800 | 4.3 |
| *Fritillaria eastwoodiae* | Grassland and oak woodland | Mar-Jun | 0 - 4500 | 3.2 |
| *Fritillaria pluriflora* | Extremely heavy soils like adobe, including on serpentine | Feb-Apr | 0 - 2700 | 1B.2 |
| *Githopsis pulchella ssp. serpentinicola* | Serpentine, Ione formation, and similar | May-Jun | 900 - 1920 | 4.3 |
| *Hesperevax caulescens* | Shrink-swell clay in vernal pools, and sometimes serpentine | Mar-Jun | 0 - 900 (1500) | 4.2 |
| *Imperata brevifolia* | Springs,wet meadows, floodplains | Sept-May (cool season) | 0 - 1500 | 2B.1 |
| *Juncus leiospermus var. leiospermus* | Vernal pools and vernally moist places | Apr-Jun | 940 - 1500 | 1B.1 |
| *Layia septentrionalis* | Serpentine or sandy soils | Apr-May | 300 - 2700 | 1B.2 |

| | | | | |
|---|---|---|---|---|
| *Leptosiphon ambiguus* | Grassy areas on serpentine | Mar-Jun | 0 - 3000 | 4.2 |
| *Lilium humboldtii ssp. humboldtii* | Dry wooded areas | May-Jul | (600) 1800 - 3300 | 4.2 |
| *Mielichhoferia elongata* | Rocks containing copper | | not known - not known | 4.3 |
| *Monardella venosa* | Grassland, openings in chaparral | Jun-Jul | 150 - 1200 | 1B.1 |
| *Navarretia heterandra* | Heavy soil, vernal pools, wet or drying flats | Apr-Jun | 0 - 3300 | 4.3 |
| *Navarretia subuligera* | Open, rocky, wet places | Apr-Jun | 450 - 3300 | 4.3 |
| *Packera eurycephala var. lewisrosei* | Serpentine and other rocky places | Mar-Jul | 300 - 4500 | 1B.2 |
| *Paronychia ahartii* | Vernal pool edges but also well-drained rocky slopes, volcanic uplands | Mar-Jun | 0 - 1500 | 1B.1 |
| *Piperia michaelii* | Shady areas in woodland and chaparral | Apr-Aug | 0 - 2100 | 4.2 |
| *Polygonum bidwelliae* | Thin volcanic soils esp. on ridges | Apr-Jul | 180 - 3600 | 4.3 |
| *Rhynchospora capitellata* | Wet meadows, fens, seeps, marshes | Mar-Jun | 0 - 6000 | 2B.2 |
| *Rupertia hallii* | Woodland openings | Jun-Aug | 0 - 6750 | 1B.2 |
| *Sidalcea gigantea* | Moist to wet forested slopes, seeps, stream margins, meadows, mid to upper conifer forest | June-Aug | (1920) 2700 - 4950 | 4.3 |
| *Sidalcea robusta* | Dry banks in transition from blue oak woodland to upslope mixed woodland | Jun | 300 - 1200 | 1B.2 |
| *Tuctoria greenei* | Vernal pools | May-July | 0 - 3150 | 1B.1 |

Two species on the target list above were found to be present in the project area. Several healthy populations of *Erythranthe glaucescens* (CNPS rank **4.3**) were found around vernal ridgetop seeps and in sunny, exposed portions of the Walker Creek headwaters creeks. *Polygonum bidwelliae* (CNPS rank **4.3**) was found throughout the project area in places where ridgetop soils were thin, volcanic, and sun-exposed. For more details, see attached Map and Discussion.

***Other plants in the project area*** Several vegetation types exist on the unit. About half the unit is either manzanita-whitethorn chaparral mized with *Garrya* and other native shrubs with scattered blue and black oaks, or a mixed oak woodland composed of black and live oak, *Umbellularia californica*, and

*Fraxinus dipetala* with other species. About half is open and characterized by thick mixed annual grassland dominated by *Bromus spp.* and *Cynosurus*. In openings, basalt lava cap communities support native ephemeral annuals. Several small seeps and springs are scattered across the project area and several ephemeral streams originate in the project area. However, no perennial water source currently exists on the unit.

The following is a partial list of plant taxa that were found in the project area. + indicates a non-native species and ^ indicates a species not on the "Checklist of Vascular Plant Species Occurring Within the BCCER."

*Achillea millefolium*
*Aesculus californica*
*Agrostis exerata or Alopecurus saccatus?*
*Aira caryophyllea+*
*Allium amplectens*
*Allium membranaceum*
*Anthriscus caucaulis+*
*^Aphyllon fasciculatum*
*Arctostaphylos manzanita*
*Arctostaphylos viscida*
*Aristolochia californica*
*Avena barbata+*
*Avena sativa+*
*Briza maxima+*
*Briza minor+*
*Brodiaea elegans*
*Brodiaea minor*
*Bromus carinatus*
*Bromus hordeaceus+*
*Bromus laevipes*
*Bromus madritensis+*
*Bromus sterilis*
*Calochortus luteus*
*Calochortus monophyllus*
*Calochortus superbus*
*Calycadenia fremontii*
*Calycadenia truncata*
*Castilleja affinis ssp. affinis*
*Castilleja attenuata*
*Ceanothus cuneatus*
*Ceanothus integerrimus*
*Centaurea solstitialis+*
*Centaurium tenuiflorum +*
*Cercis occidentalis*
*Chlorogalum pomeridianum*
*Chorizanthe stellulata*
*Clarkia purpurea ssp. viminea*
*Clematis ligustifolia*
*Cynosurus echinatus +*
*Dichelostemma capitatum*
*Dichelostemma volubile*
*Elymus caput-medusae+*
*Elymus glaucus*
*Epilobium pallidum*
*Eriodictyon californica*
*Eriogonum nudum*
*Eriophyllum lanatum*
*Erodium spp. +*
*Erythranthes glaucescens* **(CNPS 4.3)**
*Festuca microstachys*
*Festuca myuros +*
*Festuca temulenta +*
*Frangula purshiana*
*Fraxinus dipetala*
*Fritillaria recurva*
*Galium spp.*
*Garrya fremontii*
*Geranium molle+*
*Githopsis pulchella ssp. campestris*
*Gnaphalium sp.*
*Hesperevax acaulis ssp. acaulis*
*Hordeum murinum+*
*Juncus bufonius*
*Kickxia elatine*
*Lactuca serriola +*
*Leontodon saxatilis +*
*Lepechinia calycina*
*^Limnanthes alba ssp. alba*
*Lithospermum californicum*
*Lomatium utriculatum*
*Lonicera interrupta*
*Lupinus bicolor*

*Lysimachia arvensis*
*Madia subspicata*
*Marah fabacea*
*Medicago polymorpha+*
*Melica californica*
*Micropus californicus*
*Monardella sp., not M. venosa*
*Muhlenbergia rigens*
*Navarretia pubescens*
*Nemophila heterophylla*
*Pellaea andromedifolia*
*Pentagramma triangularis*
*Petrorhagia dubia+*
*Photinia serratifolia*
*Pinus ponderosa*
*Pinus sabiniana*
*Polygonum bidwelliae* **(CNPS 4.3)**
*Polypogon sp.+*
*Prunus* sp. (waif) +
*Prunus subcordata*
*Quercus douglasii*
*Quercus kelloggii*
*Quercus wislizeni var. wislizeni*
*Rhamnus illicifolia*
*Sambucus nigra ssp. caerulea*
*Sanicula bipinnatifida*
*Sanicula crassicaulis*
*Scutellaria sp.*
*Sedella pumila*
*Sidalcea asprella ssp. asprella*
*Sidalcea hartwegii*
*Solanum parishii*
*Sonchus oleraceus+*
*Stellaria media+*
*Tauschia hartwegii*
*Torilis arvensis+*
*Toxicodendron diversilobum*
*Trifolium arvense+*
*Triteleia laxa*
*Umbellularia californica*
*Vicia sativa+*
*Vicia villosa+*
*Vitis californica*

# v. DISCUSSION

Although there may be short term effects to vegetation in the project area as a result of the project, the cumulative and long-term effects are expected to be positive. Furthermore, the effects on sensitive botanical resources will be less than significant if the mitigation measures below are adopted.

**Table 6. Mitigation measures.**

| Species | Condition of population | Mitigation suggestions | Legal status |
|---|---|---|---|
| *Erythranthe glaucescens* (Shield-bracted monkeyflower) | Several small and self-sustaining populations containing tens of individuals. | Do not pile-burn or grade on top of known populations. Broadcast fire will be fine. | **CNPS 4.3**: Mitigation not required by law but recommended to achieve ecological objectives of project |
| *Polygonum bidwelliae* (Bidwell's knotweed) | Many small and self-sustaining populations ranging from tens to hundreds of individuals. | This species is not expected to be negatively affected by either broadcast fire or scattered burn piles. However, if the project includes road improvement and expansion elements, mitigation measures may need to be incorporated. On the unit, *P. bidwelliae* currently utilizes existing roads for habitat because it prefers exposed, gravelly basalt soils where there is little competition from annual grasses. When grading or scraping roads, try not to bury areas of exposed basalt gravel under new soil. Instead, push soil onto areas of already-deep soils. | **CNPS 4.3**: Mitigation not required by law but recommended to achieve ecological objectives of project |

# VI. REFERENCES CONSULTED: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California Department of Fish and Wildlife (CDFW). 2019a. QuickView Tool. Biogeographic Information and Observation System (BIOS). Available: https://apps.wildlife.ca.gov/bios/?tool=cnddbQuick (Accessed: May 20, 2019).

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# VII. QUALIFICATIONS

**Wolfy Rougle**
Botanist/Environmental
Specialist/Grant Writer/GIS

Wolfy Rougle has 15 years of work experience as a plant identification specialist. Her background includes work as an educator and consultant in wild edible and medicinal plant identification, a variety of field surveys and mapping projects, and employment with the Butte County Resource Conservation District. Ms. Rougle is skilled at identifying and keying terrestrial plants in the California floristic province.

**Ms. Rougle's Representative Projects:**

**Botanical Surveys and Research**

**Cottonwood Vernal Pools Easement Monitoring –** Conducted photomonitoring and residual dry matter tests, performed invasive weed inspections, and developed general conditions reports for a 534-acre vernal pools conservation easement property near Shippee, CA in unincorporated Butte County. *Butte County Resource Conservation District, June 2017-present.*

**Granite Basin OHV Project –** Conducted botanical surveys and facilitated the development of NEPA/CEQA documents for a 15-mile OHV trails connectivity project on the Plumas National Forest, Feather River Ranger District. *Butte County Resource Conservation District, 2018.*

**Upper Bidwell Park Trails** – Conducted botanical surveys and facilitated the development of CEQA documents for two unauthorized trails under consideration for addition to the official trail system. *Butte County Resource Conservation District, 2019.*

**Cohasset Ridge Vegetation Management Program** – Conducted botanical surveys and facilitated the development of CEQA documents for a roughly 1200-acre prescribed fire and fuels reduction project on various private parcels on Cohasset Ridge. *Butte County Resource Conservation District under contract with CAL FIRE, 2019.*

**Forbestown Fuel Break VMP Project**– Conducted botanical surveys for properties enrolled in the Forbestown FuelBreak, one of the Governor's 35 fast-tracked priority fuels reduction projects. *Butte County Resource Conservation District under contract with CAL FIRE, 2019.*

**Loafer Creek botanical monitoring** – Assisted DWR staff in conducting botanical surveys and compiling plant lists for parts of the Loafer Creek recreational lands around Lake Oroville, CA. *Butte County Resource Conservation District under contract with CAL FIRE, 2019.*

**Education**
B.S., International Agricultural Development
Univ. of California, Davis, 2005
M.P.A. (Master's in Public Administration)
C.S.U., Chico, in progress (expected graduation Dec. 2019).

**Certifications**
CEQA Practice Certificate,
U.C. San Diego Extension, in progress (expected graduation Dec. 2019)

# Appendix D

# Archaeological Survey Report
# (Confidential)