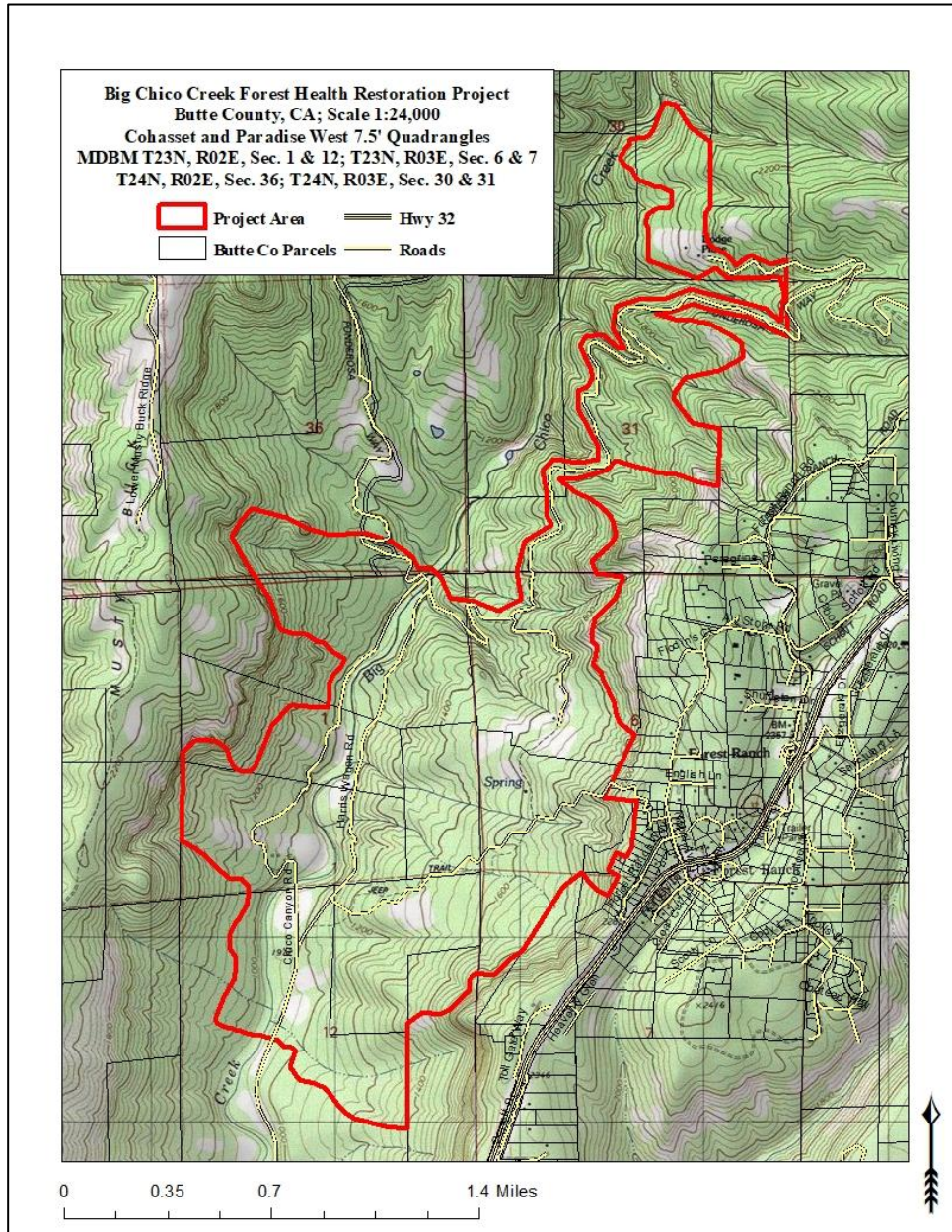


**Initial Study-Mitigated Negative Declaration
for the proposed
Big Chico Creek
Forest Health Restoration Project
Butte County, California**



Prepared by:

Butte County Resource Conservation District (BCRCD)
150 Chuck Yeager Way, Suite A, Oroville, CA 96130
(530) 693-3173, tim@bcrd.org

April 2020

Contents

MITIGATED NEGATIVE DECLARATION	1
Introduction and Regulatory Context	1
Stage of CEQA Document Development	1
Introduction.....	1
Regulatory Guidance	1
Purpose of the Initial Study	2
Project Description and Environmental Setting.....	3
Project Location.....	3
Background and Need for the Project.....	3
Project Objectives	4
Project Start Date.....	4
Project Description	4
Environmental Setting of the Project Region	6
Description of the Local Environment	7
Current Land Use and Previous Impacts	8
Environmental Permits	11
Mitigation Measures	11
Summary of Findings	15
Initial Study-Environmental Checklist.....	16
Environmental Factors Potentially Affected.....	16
Determination	16
Environmental Checklist and Discussion	17
Aesthetics.....	17
Agricultural Resources	18
Air Quality.....	19
Biological Resources	21
Cultural Resources.....	33
Energy.....	35
Geology and Soils.....	36
Greenhouse Gas Emissions.....	38
Hazards and Hazardous Materials	41
Hydrology and Water Quality	42
Land Use and Planning.....	45
Mineral Resources	46
Noise	46

Population and Housing.....	47
Public Services.....	48
Recreation.....	49
Transportation.....	50
Tribal Cultural Resources.....	51
Utilities and Service Systems.....	52
Wildfire.....	53
Mandatory Findings of Significance.....	57
Appendix A.....	59
Mitigation Monitoring and Reporting Plan.....	59
Potentially Significant Effects and Mitigation Measures.....	59
PREPARERS OF THIS DOCUMENT.....	65
EXPERTS CONSULTED.....	66
REFERENCES CITED.....	67

MITIGATED NEGATIVE DECLARATION

Introduction and Regulatory Context

STAGE OF CEQA DOCUMENT DEVELOPMENT

- Administrative Draft.** This California Environmental Quality Act (CEQA) document is in preparation by Butte County Resource Conservation District (BCRCD) staff.
- Public Document.** This completed CEQA document has been filed by BCRCD at the State Clearinghouse on April 20, 2020, and is being circulated for a 30-day state agency and public review period. The review period ends on May 19, 2020.
- Final CEQA Document.** This final CEQA document contains the changes made by the Department following consideration of comments received during the public and agency review period. The CEQA administrative record supporting this document is on file, and available for review, at CAL FIRE's Sacramento Headquarters, Environmental Protection Program.

INTRODUCTION

This initial study-mitigated negative declaration (IS-MND) describes the environmental impact analysis conducted for the proposed project. This document was prepared by BCRCD 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, BCRCD, has prepared, reviewed, and analyzed the IS-MND and declares that the statements made in this document reflect BCRCD's independent judgment as lead agency pursuant to CEQA. BCRCD 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 BCRCD 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

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 30-day public review period for this project begins on April 20, 2020 and ends on May 19, 2020.

The requirements for providing an NOI are found in CEQA Guidelines §15072. These guidelines require BCRCDD 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.

BCRCDD 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. An electronic version of the NOI and the CEQA document were made available for review for the entire 30-day review period through their posting at:

<http://www.bcrdd.org>

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 BCRCDD'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. Keeseey
Conservation Project Coordinator
Butte County Resource Conservation District
150 Chuck Yeager Way, Suite A
Oroville, CA 95965
(530) 693-3173
tim@bcrdd.org

After comments are received from the public and reviewing agencies, BCRCDC 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 a few homes or very little public infrastructure visible from most of the project area. The 1,500-acre project location is within the Big Chico Creek watershed approximately +/- 9 miles northwest of the city of Chico in Butte County, CA (Mount Diablo Base and Meridian Township 23North, Range 02 East, portions of sections 1 and 12; T23N, R03E, portions of section 6 and 7; T24N, 02E, portions of section 36; and T24N, 03E, portions of sections 30 and 31). Private dirt roads established by previous landowners are the primary access to this remote area of the Big Chico Creek watershed. Portions of the project area are owned and managed by the Big Chico Creek Ecological Reserve (BCCER). This area of BCCER is used for management activities, recreation, education and research. Other portions of the project area and adjacent land are privately owned and used for full and part time residence, recreation, timber management, wildlife habitat, and watershed protection.

BACKGROUND AND NEED FOR THE PROJECT

The project is a 1,500-acre fuels reduction and ecological enhancement effort situated within the Big Chico Creek watershed. This area is comprised of unique geology dominated by volcanic mudflows generally trending in a north-south orientation. The project area flanks both sides of Big Chico Creek. Dominant vegetation within the project area includes annual grasslands, black oak and canyon live oak woodlands, mixed conifer-hardwood forest, Sierra mixed-conifer forest, and scrub communities dominated by buck brush, deer brush, scrub oak, and manzanita. The project area is relatively remote, and is accessible by only by private 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 of habitats and successional stages, promoting the resiliency of oak woodlands and conifer stands to fire and climate change, and encouraging native species diversity in grasslands;
2. To implement fuel reduction that will improve public safety 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 scrub continuity and density of small diameter trees through a variety of management techniques to promote a diverse age-class mosaic and reduce wildfire related risks to oak woodlands and conifer forests. The project applicant is the Butte County Fire Safe Council, a grass-roots, community-led non-profit

organization that mobilizes residents to protect their homes, communities, and environments from catastrophic wildfire. The BCFSC is working in partnership with BCCER and residents living within the Big Chico Creek watershed.

PROJECT OBJECTIVES

The project objective is to remove enough encroaching brush, chaparral, and small diameter trees to achieve a healthy and resilient landscape reflected in a fine grain mosaic of shrubs interspersed with grasslands, oak woodlands, and conifer forests 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 management techniques, including the use of broadcast burning in such a way as to promote native species and achieve numerous ecocultural objectives.

PROJECT START DATE

Fall 2020

PROJECT DESCRIPTION

The +/-1,500 acre fuel reduction and forest/woodland health improvement project would tie in to the northern portion of a landscape-scale defensible zone that is south of the project area and in the path of historic fire spread in the Big Chico Creek Watershed. This defensible zone project is achieved by BCCER CAL FIRE Vegetative Management Plan (VMP) units on the east side of Big Chico Creek. This project would create a ridge to ridge defensible zone from Musty Buck ridge on the west side of Big Chico Creek to the ridge that Forest Ranch and Highway 32 run along on the east side of Big Chico Creek. This would create a fuel break that could be used to fight wildfire moving from north to south or south to north in the Big Chico Creek watershed.

The project would reduce fuels, improve access and safety for firefighting personnel, and improve forest/woodland health using a variety of techniques, including: mechanical treatments, hand treatments, livestock grazing, pile burning, prescribed fire, herbicide treatments, and road maintenance. Means of shrub and small tree removal -- 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/technique would be present on site at a time so that operations can be carefully optimized for site conditions. Management prescriptions for these techniques are described below:

Mechanical Treatments

Mechanical treatments will be used to thin forest stands, reduce fuel loading, reduce ladder fuels and maintain roads. Mechanical treatments include but are not limited to chippers, masticators, excavators, and bobcats. Mechanical treatments can be very efficient for covering the ground and manipulating large vegetation.

Excessively disturbed areas (e.g. machine tracks) would be rehabilitated after conclusion of operations with compacted straw mulch, and/or slash over 90% of the area at a 2 inch depth. This will occur after the conclusion of each individual operation and prior to each winter period (Nov 15 – April 1) for the life of the Project.

Light weight tracked equipment, including a mini-excavator, mini-chipper, and/or skid steer may be used within the Watercourse, Lake Protection Zone (WLPZ). Every effort will be made to minimize impacts by limiting entries, turns and operations to dry periods when/where species of special concern are not present and/or when they are not particularly vulnerable.

A Timber Harvest Plan (THP) will be filed if commercial timber is to be harvested within the project boundary.

Hand Treatments

Hand treatment tools may include but are not limited to chainsaw, trimmer, pole saw, loppers, shovel and pick, etc. These may not be the most efficient tools for landscape scale modifications, but they are best for small-scale species specific treatments in areas with many different species and vegetation types.

Hand treatments will be allowed within the WLPZ and other sensitive areas as they cause the least amount of disturbance to the ground and as vegetation within this zone is also in need of management within the project area.

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 for later pile-burning when conditions are optimal.

Brush removal for prescribed burns would be primarily within a 50-100-foot buffer of private roads within the project area, 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, and reduce ladder fuels to protect black oak and conifer crowns from ignition, yet still maintain a desirable spatial and biological diversity of shrub species.

Livestock Grazing

Livestock grazing will be utilized to reduce ladder fuels and forest shrub density. Livestock, including goats, sheep, and cattle, have historically been used in the watershed as a means of vegetation management. They can be utilized as a primary or secondary treatment of vegetation. Livestock grazing will be for a short duration to meet the desired condition, which will eliminate the potential for over grazing and harm to natural systems. Livestock will be corralled utilizing adequate electric fencing to exclude them from sensitive areas, including large

livestock (such as cattle) from WLPZ's. Grazing will be for short periods (flash grazing) to meet ecological objectives and will meet NRCS Prescribed Grazing (528) practice standards for management of fine fuel loads.

Pile Burning

Pile burning may be used in conjunction with mechanical and hand treatments to reduce ground fuel loading. When vertical continuity is reduced by adding fuels to the horizontal fuel loads, only the crowning index is reduced but not the risk of high severity fire. Pile burning is used to eliminate overstocked vegetation from the natural system and thus increase fire resilience.

Prescribed Fire

Prescribed fire is a very cost and time efficient management tool. The native species within the project boundary have all evolved with and are adapted to frequent fire intervals. Using low intensity, more frequent prescribed fires allows native species to thrive and can also reduce invasive species populations. All prescribed fires will be subject to local and state regulation to maintain air quality and reduce fire escape risk.

Herbicide

Herbicide treatments will follow all state rules and regulations and product labeling. Herbicides may be used to control species that are unresponsive to other treatments or to reduce secondary treatments. Herbicide treatments will not occur within the WLPZ. Herbicides that may be used include glyphosate, aminopyralid, and 2-4D.

Road Maintenance

Road maintenance is necessary as management activities take place and equipment is moved around. The entire project takes place on private dirt roads that require seasonal and annual maintenance. Road maintenance will include maintaining current access roads and existing private seasonal roads for equipment and personnel access. These roads will likely need some work for hydrologic disconnect and surface grading following management activities and prior to the wet season. Existing private seasonal roads would not be used during saturated conditions and water barred prior to the winter season and/or after the use of these roads for this project. This road maintenance and improvement will assist wildfire fire fighting personnel with safe ingress and egress should a wildfire occur in the area. No new watercourse crossings are anticipated to be developed as part of this project. Should a new watercourse crossing be required, project proponents will consult with the Water Board and CDFW to obtain the necessary permits.

Invasive Management

An integrated pest management approach, including the use of livestock grazing, prescribed fire, pile burning, herbicide, mechanical and hand treatments would be utilized for management of invasive species such as, but not limited to, Himalayan Blackberry, Scotch Broom, Spanish Broom, French Broom, Yellow Star Thistle, Klamath Weed, and other non-native species occurring in the project area. The need for management of invasive species far outweighs the temporary disturbance to the system. Fifty-percent (50%) of the canopy will be left within the WLPZ for shade and bank stability.

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 the Big Chico Creek watershed. The most recent large fire adjacent to 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.

The goal of this project is to restore habitats within the project area to more historic conditions, through a variety of integrated management techniques. 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 purpose of this CEQA evaluation is to analyze the potential environmental impacts of a proposed 1,500-acre fuel

reduction and forest/woodland health improvement project located in the Big Chico Creek watershed as indicated on the attached maps (*See Figures 1 and 2*).

DESCRIPTION OF THE LOCAL ENVIRONMENT

Elevations range from 2,500 feet at the ridgetop on the east side end of the project area to 900 feet at the southern end where Big Chico Creek exits the project area. The soils within the project area have texture ranging from loamy through fine and can be shallow to very deep. The 1,500-acre project site, based on the California Department of Fish and Wildlife (CDFW) California Wildlife Habitat Relationship System (CWHHR) is primarily Sierran Mixed Conifer (SMC) and Montane Hardwood Conifer (MHC). Conifer tree species include Ponderosa pine, Douglas fir, incense cedar, and a small number of white fir. Hardwoods include Black oak, particularly in damper draws. Understory vegetation is mostly scattered woody shrubs including manzanita, ceanothus, poison oak, toyon, buckeye, pacific dogwood, western redbud, Himalayan and California blackberry. The ground cover is a diverse mix of annual and perennial grasses and wildflowers, mostly native.

At lower elevations of the project area below 1,500 feet the vegetation community transitions to Montane Hardwood (MHW) and Blue Oak Woodland (BOW) comprised of a pronounced hardwood tree layer with a shrub stratum and sparse herbaceous layer. Tree species include Canyon Live Oak, Blue Oak, Douglas-fir, California-laurel, California black oak, Gray Pine, Incense cedar, Big Leaf Maple and Ponderosa Pine. Blue oak is particularly dominant on south facing slopes with shallow soils. These Montane Hardwood communities are in various stages of succession. There are small patches of Mixed Chaparral (MCH) dominated by shrubs. Brush and ground cover species found with the hardwood and chaparral habitats are similar to those found in the conifer habitats. The majority of the project area has a thick, dense, understory that poses a significant fire hazard.

There are also strips of Montane Riparian (MRI) vegetation along Big Chico Creek and some of the tributaries to Big Chico Creek. This vegetation community consists of dense groves of broad-leaved, winter deciduous trees mixed with conifers and a sparse to heavy understory. Some of the project area is very steep, including vertical rock outcrops classified as Barren (BAR), consisting primarily of rock with scattered shrubs, forbs, and grasses. Open meadows consisting of Annual Grasslands (AGS) and Perennial Grasslands (PGS) are scattered throughout the project area consisting of grasses (annual and perennial) and forbs. There are no remaining perennial springs. 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 mixed conifer/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. As ranching became increasingly less profitable, BCCER was formed with the purchase of the Simmons ranch in 1999 and the Henning ranch in 2001, and other parcels within the project area were sold for private recreational and residential use.

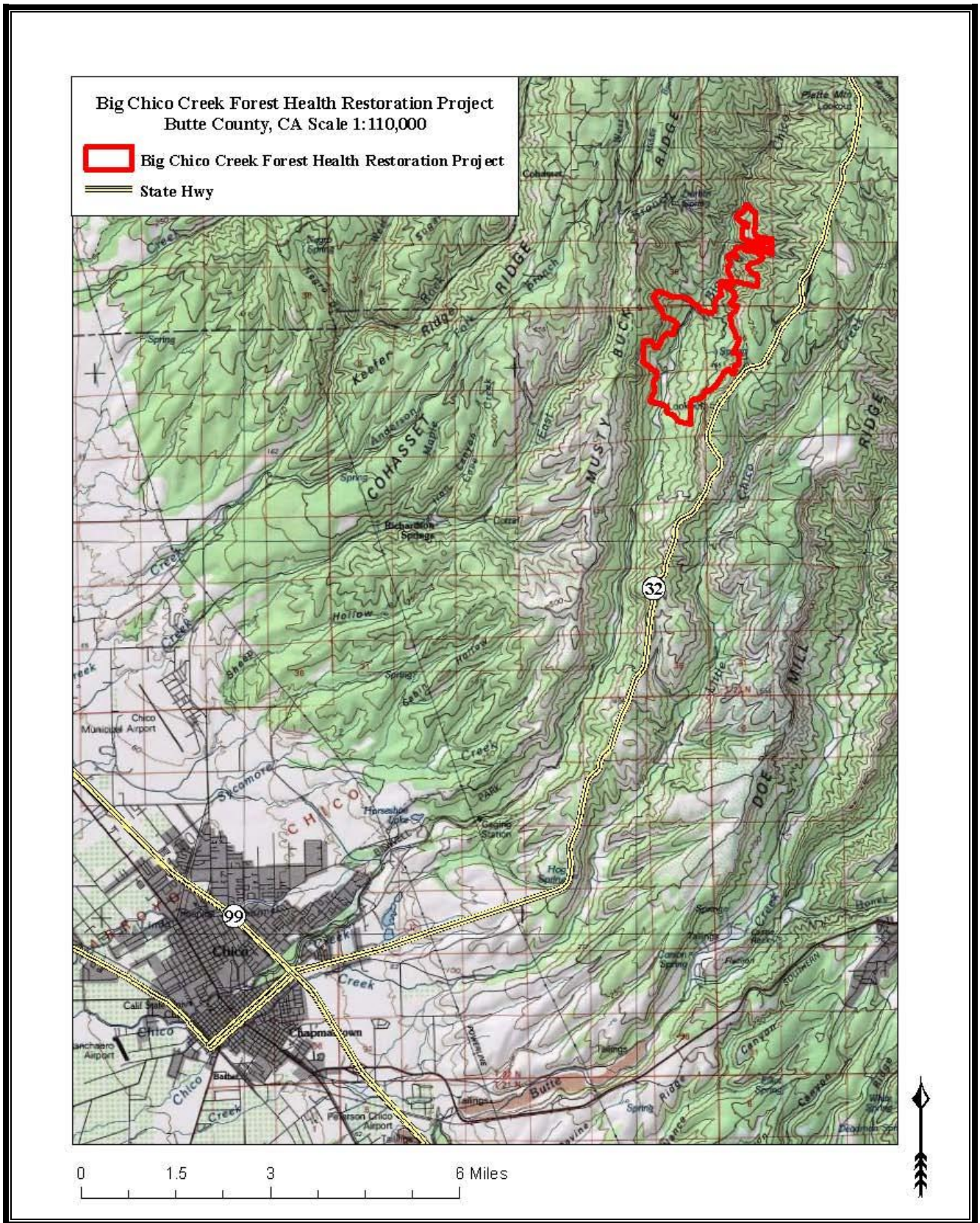


Figure 1. Project Location Map #1 of 1.

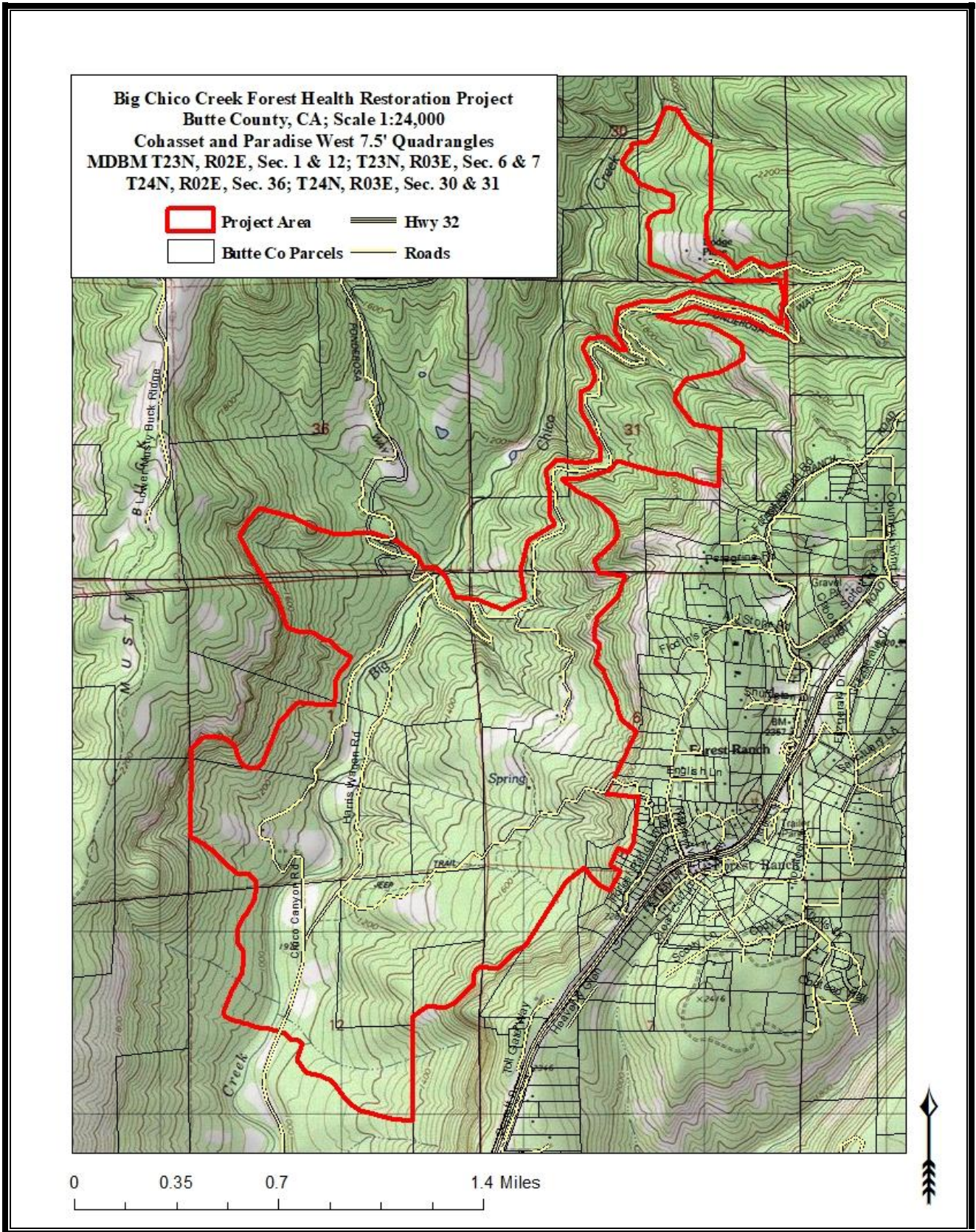


Figure 2. Project Location Map #1 of 2.

ENVIRONMENTAL PERMITS

The proposed project will require the following environmental permits and will be required to comply with the following state regulations:

- Smoke Management Plan(s) approved by Butte County Air Quality Management District
- Prescribed Burn Plan(s) approved by project proponents and landowners.

MITIGATION MEASURES

The following 15 mitigation measures will be implemented 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 – Pile burning and broadcast fire: Pile burning and broadcast burning shall be conducted in a manner which will not damage residual trees and reproduction. 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 mature and legacy 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.

Mitigation Measure #4: BIO-2 Elderberry Shrub Protection: Elderberry shrubs shall be marked within all project areas prior to implementation. No elderberry shrubs shall be removed or disturbed during project implementation. Elderberry branches that are dead or less than 1” may be pruned during the non-critical period for valley elderberry longhorn beetles from Nov. – Feb.

Mitigation Measure #5: BIO-3: Botanical Resources: Special status plants species including populations of *Erythranthe glaucescens* (Shield-bracted monkeyflower – Rank 4.3), *Lilium humboldtii ssp. Humboldtii* (Humboldt Lily - Rank: 4.2), and *Astragalus pauperculus* (Depauperate milk-vetch - Rank: 4.3) identified during botanical surveys conducted for this project or during

project layout will be avoided through mapping and/or flagged when appropriate, with the exception of broadcast fire.

Mitigation Measure #6: BIO-5: *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: BIO-6: *Riparian Area Protection*: Before any riparian vegetation removal or work within the bed bank or channel of a stream, creek, or river, project proponents will coordinate with the Department to ensure compliance with Section 1600 of the Fish and Game Code.

Mitigation Measure #9: CUL-1: *Avoidance of Cultural Resources*: Cultural resources present within the project area have not been formally evaluated to determine eligibility for listing on the CRHR. For the purposes of this project these cultural resources will be assumed potentially eligible for state and federal registers and will be avoided. Project proponents will ensure that cultural resources are not adversely affected by ground disturbing activities. If cultural resources cannot be avoided and ground disturbance will occur within the recorded site limits than the site(s) will be formally evaluated to determine if they meet the regulatory criteria for eligibility to the CRHR.

Mitigation Measure #10: CUL-2: *Unanticipated Discovery of Cultural Resources*: 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. A qualified professional archaeologist shall be immediately notified.
3. The archaeologist shall evaluate the new discovery and develop appropriate protection measures.
4. The archaeologist shall investigate how the project was reviewed for cultural resources to determine if the cultural resource should have been identified earlier.
5. The 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, the Archaeologist shall notify the appropriate Native American tribal group and the NAHC, if appropriate.

Mitigation Measure #11: CUL-3: *Encountering Native American Remains*: Although unlikely, if human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and

prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a “Most Likely Descendant” can be designated and further recommendations regarding treatment of the remains is provided.

Mitigation Measure #12: 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 should be in accordance with slope restrictions (Mitigation Measure #12) and Water Protection BMPs (Mitigation Measure #13).

Mitigation Measure #13: GEO-2: Slope restrictions: Ground-based equipment would be restricted to slopes less than 50 percent. Flagging, mapping, and meeting with equipment operators would be used to keep operators out of areas over 50% slope. Exceptions may be made for short pitches of 100 feet slope distance, up to 75 percent slope. Exposed soils resulting from ground based equipment on slopes over 50% slope shall be 90% covered with operational slash or hay/straw to a minimum 2” depth prior to the winter period (Nov. 15 – April 1). This will occur after the conclusion of each individual operation and prior to each winter period for the life of the Project.

Mitigation Measure #14: 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.

Watercourse and Lake Protection Zones (WLPZ) will be classified based on the California Forest Practice Rules §936.5 – Procedures for Determining Watercourse and Lake Protection Zones Widths and Protective Measures. WLPZs shall be identified on the ground with flagging prior to implementation of treatments. These zones will be:

Watercourse Classification	Slope 0-30%	Slope 30-50%	Slope >50%
Class I (Anadromous Salmonids) – Big Chico Creek	150’	150’	150’
Class I (Non-Anadromous)	75’	100’	150’
Class II (including all springs with surface water)	50’	75’	100’
Class III	25’	50’	50’

The standard best management practices for protecting water quality include:

- Trees will not be removed from the core zone of Big Chico Creek (30’ from creek). Trees greater than 8” dbh will not be removed from the inner zone (30 – 70’ from the watercourse) and a 70% overstory canopy cover will be maintained. A 50% overstory canopy cover will be retained in the outer zone (70 – 100’ from the watercourse) in a well-distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations and wind firm trees will be favored.
- Within the WLPZ, at least 50% of the total canopy covering the ground shall be left in a well-distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be

composed of at least 25% of the existing overstory conifers.

- No heavy equipment shall operate within the WLPZ except on existing roads and crossings. Light weight equipment, including a mini-excavator, mini-chipper, and/or skid steer, may operate within the WLPZ when conditions are dry within the WLPZ. Equipment within the WLPZ will not turn around within the WLPZ, but will make minimal tracks perpendicular to the watercourse. Any other types of light equipment that are used will not exceed the weights of those listed above. Exposed soils within WLPZ shall be 90% covered with operational slash or hay/straw to a minimum 2” depth prior to the winter period (Nov. 15 – April 1). This will occur after the conclusion of each individual operation and prior to each winter period for the life of the Project.
- No equipment shall refuel, be cleaned, or lubricated within the WLPZ. No equipment may operate within the core zone of Big Chico Creek (0-30’ from creek).
- Road based equipment being used for project implementation shall not be used during any time of the year when soils are saturated and excessive damage can occur as well as the potential discharge of sediment to watercourses.
- There will be no mechanical fireline construction within the WLPZ.
- No ignitions of broadcast (prescribed) burns would occur within the WLPZ. Broadcast burning would be allowed to back burn into the WLPZ, but in order to maintain stream temperatures and avoid sediment discharge to Class I and II streams piles and broadcast prescribed burns are restricted within the WLPZ to the following distances from the stream:

Watercourse Classification	Slope 0-30%	Slope 30-50%	Slope >50%
Class I (Anadromous Salmonids) – Big Chico Creek	100-150’	100-150’	100-150’
Class I (Non-Anadromous)	50-75’	66-100’	100-150’
Class II (including all springs with surface water)	33-50’	50-75’	66-100’

Mitigation Measure #15: FIRE-1: Prescribed (Rx) burn plan: Mitigation measures will include and be dependent upon:

- Rx burns and pile burns can be scheduled for fall months into spring. Burn days will be dependent upon California Air Resources Board (CARB) forecasts, Cal Fire approval and will comply with all local and state regulations.
- Rx broadcast burns will coincide with ecological emergence to promote a heterogeneous forest structure, reduce the abundance of invasive and limit impact to desired native species.
- To reduce impacts to surrounding community’s Rx burn timing, planning and implementation will all be dictated by smoke management mitigations through CARB.
- Prescribed burns will be coordinated with other planned burns on BCCER and within Forest Ranch to avoid cumulative impacts to air quality and wildfire safety.

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, 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, Biological Resources, Cultural Resources, Hydrology and Water Quality, and Tribal Cultural Resources.

The Initial Study-Environmental Checklist included in this document discusses the results of resource-specific environmental impact analyses that were conducted by the District. This initial study revealed that potentially significant environmental effects could result from the proposed project. However, project proponents have revised project plans and have developed mitigation measures that will eliminate impact or reduce environmental impacts to a less than significant level. Butte County RCD 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

<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Public Services
<input type="checkbox"/> Agriculture Resources	<input type="checkbox"/> Hazards & Hazardous Materials	<input type="checkbox"/> Recreation
<input checked="" type="checkbox"/> Air Quality	<input checked="" type="checkbox"/> Hydrology and Water Quality	<input type="checkbox"/> Transportation
<input checked="" type="checkbox"/> Biological Resources	<input type="checkbox"/> Land Use and Planning	<input checked="" type="checkbox"/> Tribal Cultural Resources
<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Utilities and Service Systems
<input type="checkbox"/> Energy	<input type="checkbox"/> Noise	<input type="checkbox"/> Wildfire
<input type="checkbox"/> Geology and Soils	<input type="checkbox"/> Population and Housing	<input type="checkbox"/> Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION 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.


 Name: David Lee
 Title: BCRC D Chairman

5-21-2020
 Date

Environmental Checklist and Discussion

AESTHETICS

<p>a) Except as provided in Public Resources Code § 21099, would the project have a substantial adverse effect on a scenic vista?</p>	<p>Potentially Significant Impact</p> <p><input type="checkbox"/></p>	<p>Less Than Significant with Mitigation Incorporated</p> <p><input type="checkbox"/></p>	<p>Less Than Significant Impact</p> <p><input type="checkbox"/></p>	<p>No Impact</p> <p><input checked="" type="checkbox"/></p>
---	---	---	---	---

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 management operations and untreated areas will be left to provide textural variety.

<p>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?</p>	<p>Potentially Significant Impact</p> <p><input type="checkbox"/></p>	<p>Less Than Significant with Mitigation Incorporated</p> <p><input type="checkbox"/></p>	<p>Less Than Significant Impact</p> <p><input type="checkbox"/></p>	<p>No Impact</p> <p><input checked="" type="checkbox"/></p>
--	---	---	---	---

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 conifers, 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.

<p>c) Except as provided in Public Resources Code § 21099, <u>in non-urbanized areas</u>, 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 <u>in an urbanized area</u>, would the project conflict with applicable zoning and other regulations governing scenic quality?</p>	<p>Potentially Significant Impact</p> <p><input type="checkbox"/></p>	<p>Less Than Significant with Mitigation Incorporated</p> <p><input type="checkbox"/></p>	<p>Less Than Significant Impact</p> <p><input type="checkbox"/></p>	<p>No Impact</p> <p><input checked="" type="checkbox"/></p>
---	---	---	---	---

Portions of the project area could be visible to members of the public from Hwy 32, about 1.5 miles

away, but the project will not substantially degrade the aesthetic quality of the view.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Prescribed fire activities associated with the project could create a faint temporary glow on some nights, but the glow will not be substantial and affect day or nighttime views of the area.

AGRICULTURAL RESOURCES

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The majority of the project area is zoned AG, Agriculture. The BCCER portion of the project is zoned RC, or Resource Conservation. A portion of the project on the north end is zoned, TM, or Timber Mountain. As such, the project is consistent with the existing zoning and Williamson Act contracts.

c) Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project is also not on land zoned for timber production and would not cause rezoning of forest land.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The 1,500-acre project site will promote and improve forest land by removing competition and improving the chances that forest resources are not lost as a result of a potential catastrophic wildfire. The proposed action is intended to remove small diameter trees, and enough encroaching brush and chaparral to achieve a healthy and resilient landscape reflected in a fine grain mosaic of conifer and oak woodland habitats that is reflective of traditional knowledge and historic photographs of this area. It is intended that by facilitating this vegetation composition and structure a dynamic ecological community will be achieved 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project prescribed burning would produce PM10. Prescribed burning is regulated by the Butte County Air Quality Management District (BCAQMD) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project area is located within the Big Chico Creek Watershed across multiple property boundaries. The Big Chico Creek was the traditional homeland 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 [*Centaurea 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 the Big Chico Creek Canyon. Specifically, the Musty fire in 1999 burned extensively through the Big Chico Creek Ecological Reserve (BCCER) and adjacent properties 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. The adjacent landowners have also worked to manage the landscape through clearing defensible space, battling invasive species and maintaining roads. 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. Dominant vegetation within the project area includes annual grasslands, black oak and canyon live oak woodlands, mixed conifer-hardwood forest, Sierra mixed-conifer forest, and scrub communities dominated by buck brush, deer brush, scrub oak, and manzanita.

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 and adjacent properties, a 12 quad map review generated through the RareFind and California Natural Diversity Database (CNDDDB) website maintained by the California Department of Fish and Wildlife (CDFW), suggested multiple species potentially occurring in the project area (See Attachment B – CNDDDB Map). Based on known species occurrences spring run Chinook salmon, steelhead, and valley elderberry longhorn beetle are known from, or expected to occur within the project boundary. Critical habitat for spring run Chinook salmon and Steelhead also exist within Big Chico Creek. Big Chico Creek and its adjacent lands are situated within the range of the East Tehama Deer Herd. This herd is of management concern to the 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 and adjacent landowners 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: A wildlife and botanical survey were conducted for this project and the results are summarized in this section. The purpose of these surveys 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.

All federal and state threatened endangered, proposed, candidate or sensitive species that could potentially occur within the project area were considered. After reviewing the CNDDDB and available endangered species data from the USFWS and CDFW and comparing this with records maintained by the CSUC Ecological Reserves, 9 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. Three species in Table 2 were found to be present in the project area. Several healthy populations of *Erythranthe glaucescens* (CNPS rank 4.3) were found on rock outcroppings where water seeps through and in adjacent to seasonal streams. *Lilium humboldtii ssp. humboldtii* (CNPS rank 4.2) was found throughout the project area. One population of *Astragalus pauperculus* was found on a sandstone rock outcrop within a meadow on the east side of Big Chico Creek.

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 <i>Desmocerus californicus dimorphus</i>	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.	Possible

Initial Study-Mitigated Negative Declaration for the Proposed Big Chico Creek Forest Health Restoration Project

			Elderberry generally responds vigorously to fire by germination and sprouting. Mitigation measures have been incorporated to protect Elderberry bushes during mechanical, hand treatments, and herbicide applications.	
Fishes				
Steelhead trout <i>Oncorhynchus mykiss irideus</i>	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 in the project area, mitigation measures designed to protect watercourses have been incorporated in to the project design to ensure that there is no potential for this project to have an effect on the species.	None
Chinook salmon -- spring-run <i>Oncorhynchus tshawytscha</i>	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 in the project area, mitigation measures designed to protect watercourses have been incorporated in to the project design to ensure that there is no potential for this project to have an effect on the species.	None
Amphibians				
Western spadefoot <i>Spea hammondi</i>	SSC	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 due to the incorporation of mitigation measures that protect watercourses, springs, and wet areas.	Possible
Foothill yellow-legged frog <i>Rana boylei</i>	ST (Cand.)	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.	This species has been observed on BCCER and other areas of the Big Chico Creek watershed. Mitigation measures designed to protect watercourses, springs, and wet areas make it unlikely that the species will be adversely impacted by project activities due to their association with water.	Possible

Initial Study-Mitigated Negative Declaration for the Proposed Big Chico Creek Forest Health Restoration Project

Cascades frog <i>Rana cascadae</i>	SE (Cand.)	A range of aquatic habitats. Reproduction occurs in shallow still-water. They overwinter in aquatic sites that do not freeze solid like deep loose silt at the bottom of a pond or near springs.	Species is unlikely to be present in the project area. Project is outside the historic range for this species.	Unlikely
Reptiles				
Western pond turtle <i>Actinemys marmorata</i>	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.	This species has been observed at BCCER And neighboring properties. Mitigation measures that protect watercourses, springs, and wet areas will make it unlikely that this species will be impacted by project activities.	Unlikely
Coast horned lizard <i>Phrynosoma blainvillii</i>	SSC	Occurs in valley foothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats. Inhabits open country, especially sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats.	Prefers open areas that will not be disturbed by project activities.	Unlikely
Birds				
California spotted owl <i>Strix occidentalis occidentalis</i>	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. The closest known nest site is 2 miles northeast of the project area near Platte Mtn. lookout.	Possible
Yellow-breasted chat <i>Icteria virens</i>	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; Mitigation measures protecting riparian zones, where this species is more likely to be encountered, will make it unlikely that this species will be impacted by project activities.	Unlikely
Bald eagle <i>Haliaeetus leucocephalus</i>	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 the project area typically during winter and spring. There is potential for the species to roost and forage during these periods, but it is unlikely to nest within the project area. The proposed activity will provide improved foraging conditions. No adverse impacts are likely.	None

Initial Study-Mitigated Negative Declaration for the Proposed Big Chico Creek Forest Health Restoration Project

Northern goshawk <i>Accipiter gentilis</i>	SSC	Generally, prefer dense forests with large trees and relatively high canopy closures like late successional forest stands.	Not observed within the project area. This species may occasionally transit through the project area to forage, but suitable nesting habitat is not present. The proposed project will provide improved foraging conditions. No adverse impacts are likely.	Unlikely
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST	Primarily in the tidal salt marshes of the northern San Francisco Bay however some populations exist in freshwater marshes of the Sierra Nevada foothills.	One observation in the Big Chico Creek watershed at lower elevations in Upper Bidwell Park 25-30 years ago. Prefers wet habitats that will be protected by project mitigation measures.	Unlikely
Great gray owl <i>Strix nebulosa</i>	FE	Prefer forest and meadow associations across their range and nest in mature old growth coniferous and deciduous forests	Not observed within the project area. Very rare. Foraging habitat may occur within the project area, but suitable nesting habitat is not present. The proposed project will provide improved foraging conditions. No adverse impacts are likely.	Unlikely
Mammals				
Gray wolf <i>Canis lupus</i>	FE, SE	Large territories with a variety of topographic features. Packs follow ungulate seasonal migrations.	The closest pack (Lassen Pack) has yet to be tracked or spotted in Butte County.	Unlikely
Sierra Nevada red fox <i>Vulpes vulpes necator</i>	FC, ST	High mountains of the Sierra Nevada in open conifer woodlands and mountain meadows near treeline.	No suitable habitat within the project area. Nearest observation 13 miles northeast of project area in Butte Meadows.	None
Fisher – west coast DPS <i>Pekania pennanti</i>	ST	High cover and structural complexity in large tracts of mature and old growth forests	No suitable habitat within the project area.	None
Western red bat <i>Lasiurus blossevillii</i>	SSC	Roosts in trees and sometimes shrubs on habitat edges adjacent to streams fields or urban areas streams or fields.	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.	Unlikely
Pallid bat <i>Antrozous pallidus</i>	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.	Unlikely

Initial Study-Mitigated Negative Declaration for the Proposed Big Chico Creek Forest Health Restoration Project

<p>Townsend's big-eared bat <i>Corynorhinus townsendii</i></p>	<p>CSC, FS</p>	<p>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</p>	<p>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.</p>	<p>Unlikely</p>
<p>Sierra Nevada mountain beaver <i>Aplodontia rufa californica</i></p>	<p>CSC</p>	<p>Not related to true beavers, this nocturnal rodent prefers moist cool forests.</p>	<p>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</p>	<p>Unlikely</p>

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
<i>Allium sanbornii</i> var. <i>sanbornii</i>	Serpentine outcroppings	May-Sept	900 - 4200	4.2
<i>Allium jepsonii</i>	Open, serpentine or volcanic slopes, flats	May-Jul	1000-2000	1B.2
<i>Arctostaphylos mewukka</i> ssp. <i>truei</i>	Chaparral, forest openings	Feb-Jun	900 - 4050	4.2
<i>Astragalus pauperculus</i>	Open, vernal moist, volcanic clay	Mar-Jun	120 - 3600	4.3
<i>Azolla microphylla</i>	Ponds, slow streams, freshwater- marsh	N/A	0-4000	4.2
<i>Balsamorhiza macrolepis</i>	Open grassy or rocky sites, valleys	Mar-Jun	0 - 4200	1B.2
<i>Botrychium ascendens</i>	Moist meadows, open woodland near streams or seeps	N/A	5000-10,500	2B.3
<i>Botrychium crenulatum</i>	Saturated hard water seeps and stream margins	N/A	5000-12,000	2B.2
<i>Botrychium minganense</i>	Meadows, open forest along streams or around seeps	N/A	5000-10,000	2B.2
<i>Brodiaea rosea</i> ssp. <i>vallicola</i>	Grassland	Apr-Jun	0-1100	4.2
<i>Brodiaea sierrae</i>	Open areas in chaparral, foothill woodland (dry meadows), generally on soils derived from basic and ultramafic intrusive rocks	June-July	540 - 3000	4.3
<i>Bulbostylis capillaris</i>	Open damp/dry sandy-gravelly soil	June-Aug	900 - 6600	4.2
<i>Calochortus syntrophus</i>	Stony sandstone (Kilarc series) in blue-oak woodland	May-Jun	1500-5500	1B.1
<i>Calycadenia oppositifolia</i>	Grassland, grassy openings in oak woodland	Apr-Jul	150 - 2700	4.2
<i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	Dry rocky places in open forest, chaparral	May-July	1800 - 3600	4.2
<i>Campylopodia stenocarpa</i>	Unknown		unknown - unknown	2B.2
<i>Cardamine pachystigma</i> var. <i>dissectifolia</i>	Shady grassy woodlands on serpentine	Feb-Apr	1600 - 3400	1B.2
<i>Carex geyeri</i>	Open forest, slopes	May-Aug	3000-7000	4.2
<i>Carex limosa</i>	Sphagnum bogs	Jul-Sep	4000-9000	2B.2
<i>Carex xerophila</i>	serpentine outcroppings	Mar-Jun	1350 - 2300	1B.2
<i>Castilleja rubicundula</i> var. <i>rubicundula</i>	Grassland	Apr-Jun	0 - 2700	1B.2
<i>Clarkia gracilis</i> ssp. <i>albicaulis</i>	Grasslands at about 1500'	May-Jun	1500 - 1500	1B.2
<i>Clarkia mildrediae</i> ssp. <i>mildrediae</i>	yellow pine forest	Jun-Aug	1350 - 5100	1B.3
<i>Clarkia mildrediae</i> ssp. <i>lutescens</i>	Yellow-pine forest	Jun-Jul	1500-5500	4.2
<i>Clarkia mosquinii</i>	Dry, rocky places, probably foothill woodland	May-Jul	540 - 3600	1B.1
<i>Claytonia palustris</i>	Marshy meadows, springs, streambanks	May-Aug	3000-8000	4.3
<i>Claytonia parviflora</i> ssp. <i>grandiflora</i>	Vernal moist, often disturbed sites	Feb-Apr	450 - 3600	4.2
<i>Cryptantha crinita</i>	Rocky volcanic soils, gravelly streambanks, gravel bars, generally foothill woodland	Mar-Jun	300-4000	1B.2
<i>Cryptantha rostellata</i>	Open, rocky, dry sites, sparse grassland, chaparral, foothill woodland	Apr-Jun	120 - 2400	4.2
<i>Cypripedium fasciculatum</i>	Mesic to moist, shady conifer forest	Mar-Aug	300 - 6000	4.2
<i>Delphinium uliginosum</i>	Streambanks, chaparral, grassland, on serpentine	May-Jun	1300-2000	4.2
<i>Drosera anglica</i>	Swamps, peatlands, often with Sphagnum	Jun-Aug	4200-6500	2B.3
<i>Erigeron inornatus</i> var. <i>calidipetris</i>	Loose sand, lava beds, depression edges, forest	Jun-Aug	3500-6500	4.3
<i>Erigeron petrophilus</i> var. <i>sierrensis</i>	Rocky foothills to montane forest, sometimes on serpentine	Jun-Oct	900 - 5700	4.3
<i>Eriogonum tripodum</i>	Serpentine	May-Jul	(330) 1000	4.2
<i>Eriogonum umbellatum</i> var. <i>ahartii</i>	Serpentine outcroppings	Jun-Sept	1200 - 3000	1B.2
<i>Eriophorum gracile</i>	Wet meadows, bogs	May-Jul	2000-9500	4.3
<i>Erythranthe glaucescens</i> (formerly <i>Mimulus</i>)	Seeps, streambanks	Mar-Jun	0 - 1800	4.3
<i>Erythranthe inconspicua</i>	Near hillside streams or seeps, in partial shade	Apr-Jul	650-7000	4.3
<i>Euphorbia hooveri</i>	Vernal pools	Jul-Sep	0-850	1B.2

Initial Study-Mitigated Negative Declaration for the Proposed Big Chico Creek Forest Health Restoration Project

<i>Frangula purshiana</i> ssp. <i>ultramafica</i>	Open conifer forest, montane chaparral, seeps, serpentine	Apr-Jun	2600-6400	1B.2
<i>Fritillaria eastwoodiae</i>	Grassland and oak woodland	Mar-Jun	0 - 4500	3.2
<i>Fritillaria pluriflora</i>	Extremely heavy soils like adobe, including on serpentine	Feb-Apr	0 - 2700	1B.2
<i>Githopsis pulchella</i> ssp. <i>serpentinicola</i>	Serpentine, Ione formation, and similar	May-Jun	900 - 1920	4.3
<i>Hesperexav caulescens</i>	Shrink-swell clay in vernal pools, and sometimes serpentine	Mar-Jun	0 - 900 (1500)	4.2
<i>Hesperocyparis bakeri</i>	Mixed-evergreen forest, open slopes, flats, often on serpentine	N/A	3600-6000	4.2
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	Freshwater wetlands, wet banks, marshes	Jul-Nov	0-300	1B.2
<i>Imperata brevifolia</i>	Springs, wet meadows, floodplains	Sept-May (cool season)	0 - 1500	2B.1
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Vernal pools and vernal moist places	Apr-Jun	940 - 1500	1B.1
<i>Layia septentrionalis</i>	Serpentine or sandy soils	Apr-May	300 - 2700	1B.2
<i>Leptosiphon ambiguus</i>	Grassy areas on serpentine	Mar-Jun	0 - 3000	4.2
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Decomposed granite, slate, volcanic rubble, conifer forest	Jul-Aug	6000-7000	3.2
<i>Lilium humboldtii</i> ssp. <i>humboldtii</i>	Dry wooded areas	May-Jul	(600) 1800 - 3300	4.2
<i>Limnanthes floccosa</i> ssp. <i>californica</i>	Vernal pool edges	Mar-May	0-300	1B.1
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	Vernal pool edges	Mar-May	0-2000	4.2
<i>Lliamna bakeri</i>	Mtn slopes, juniper woodland, lava beds	Jun-Sep	3200-8200	4.2
<i>Mielichhoferia elongata</i>	Rocks containing copper	not known -	not known	4.3
<i>Monardella venosa</i>	Grassland, openings in chaparral	Jun-Jul	150 - 1200	1B.1
<i>Navarretia heterandra</i>	Heavy soil, vernal pools, wet or drying flats	Apr-Jun	0 - 3300	4.3
<i>Packeria eurycephala</i> var. <i>lewisrosei</i>	Serpentine and other rocky places	Mar-Jul	300 - 4500	1B.2
<i>Paronychia ahartii</i>	Vernal pool edges but also well-drained rocky slopes, volcanic uplands	Mar-Jun	0 - 1500	1B.2
<i>Penstemon personatus</i>	Yellow-pine, montane forests	Jul	3500-6000	1B.2
<i>Piperia coleman</i>	Open conifer forest, scrub	Jun-Aug	4200-6500	4.3
<i>Polygonum bidwelliae</i>	Thin volcanic soils esp. on ridges	Apr-Jul	180 - 3600	4.3
<i>Rhynchospora californica</i>	Marshes, seeps, Meadows and seeps	May-Jun	0-650	1B.1
<i>Rhynchospora capitellata</i>	Wet meadows, fens, seeps, marshes	Mar-Jun	0 - 6000	2B.2
<i>Rupertia hallii</i>	Woodland openings	Jun-Aug	0 - 6750	1B.2
<i>Sidalcea gigantea</i>	Moist to wet forested slopes, seeps, stream margins, meadows, mid to upper conifer forest	June-Aug	(1920) 2700 - 4950	4.3
<i>Sidalcea robusta</i>	Dry banks in transition from blue oak woodland to upslope mixed woodland	Jun	300 - 1200	1B.2
<i>Silene occidentalis</i> ssp. <i>longistipitata</i>	Chaparral, conifer forest	Jun-Aug	2300-7500	1B.2
<i>Stellaria longifolia</i>	Moist areas	May-Jul	~3000	2B.2
<i>Stellaria obtusa</i>	Moist areas in woodland, shaded edges of creeks	May-Jul	5000-6500	4.3
<i>Streptanthus drepanoides</i>	Open chaparral or Jeffrey-pine woodland, on serpentine	May-Jul	800-6000	4.3
<i>Streptanthus longisiliquus</i>	Openings in pine forest, oak woodland	May-Jul	1300-5500	4.3
<i>Stuckenia filiformis</i> ssp. <i>alpina</i>	Shallow, clear water of lakes, drainage channels	May-Jul	1000-7050	2B.2
<i>Tuctoria greenei</i>	Vernal pools	May-July	0 - 3150	1B.1
<i>Utricularia intermedia</i>	Shallow (< 1 m) water	Jul-Sep	4000-8900	2B.2

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, habitat alteration, 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 small diameter trees and 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, **Mitigation Measure #4 – Elderberry Shrub Protection** (details on page 11) has been incorporated to protect elderberry shrubs, and observation indicates that elderberry exhibits enhancement from the addition of fire, and therefore positive impacts rather than adverse (Hankins 2013).

The impact to FYLF is expected to be less than significant because the species' life history is closely tied to water and **Mitigation Measure #13: HYD-1: Project Best Management Practices** (detailed on page 13) has been incorporated to protect watercourses and the species that inhabit these zones through the use of Watercourse and Lake Protection Zones (WLPZs).

Cumulative effects to Wildlife Resources: The primary activity that may affect wildlife species within the project boundary involve the manipulation of habitat conditions through hand thinning, herbicide, prescribed fire, and grazing to improve native species habitat, reduce the risk of high intensity catastrophic wildfire, and ensure fire resilience to the surrounding community.

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. 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: Three 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) and *Lilium humboldtii* ssp. *humboldtii* (CNPS rank 4.2) were found throughout the project area. One population of *Astragalus pauperculus* was found on a sandstone rock outcrop within a meadow on the east side of Big Chico Creek. **Mitigation Measure #5: BIO-3: Botanical Resources** detailed on page 11 have been developed to protect these and other sensitive botanical resources.

Mitigation measures for their protection have been developed to protect these occurrences.

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. Within the project boundary, 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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Mitigation Measure #13: HYD-1: Project Best Management Practices (detailed on page 13) has been incorporated to protect watercourses and the species that inhabit these zones through the use of Watercourse and Lake Protection Zones (WLPZs).

Six habitat communities identified as sensitive by the California Department of Fish and Wildlife are found in adjacent quad maps to the project area: Great Valley Cottonwood Riparian Forest, Great Valley Mixed Riparian Forest, Great Valley Valley Oak Riparian Forest, Northern Basalt Flow Vernal Pool, Northern Hardpan Vernal Pool, and Northern Volcanic Mud Flow Vernal Pool. Vernal pools have not been known to exist within the project boundary. Great Valley Mixed Riparian Forest and Great Valley Valley Oak Riparian Forest have the potential to occur in the project area if riparian habitats are allowed to be managed and both are known to respond positively to prescribed fire (Hankins 2013, 2015). 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*).

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project area does encompass some seasonal wetlands, such as meadows and springs. However, **Mitigation Measure #13: HYD-1: Project Best Management Practices (BMPs)** detailed on page 13 involving the protection of water resources will eliminate any potentially significant effects to wetlands, seeps and watercourses in the project area.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 Big Chico Creek watershed 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 within the Big Chico Creek watershed, many exist outside the plan boundary.

CULTURAL RESOURCES

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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. Perhaps the first contact between these Tribes and

Europeans occurred in 1811, when Padre Abella explored the San Joaquin and Sacramento Valleys. In 1832-3, John Work traveled through the northern Sacramento Valley as part of a fur trapping expedition for the Hudson Bay Company (Riddell 1978). Members of his party transmitted diseases that had a catastrophic effect on native peoples. The mass insurgence of Euroamericans during the Gold Rush in 1848-9 led to additional waves of disease spread, violence, and environmental destruction. In 1851, Native Americans were forced to move on reservations.

Three historic themes relevant to the history of Big Chico Creek Canyon include: lumber and logging, homesteading, and livestock ranching. The Gold Rush (1848-9) brought a wave of immigrants to California. Locally, Big and Little Butte Creeks were among some of the richest gold mining localities in the county. The area of Big Chico Creek, having a fundamentally different geology, was spared the effects of these mining efforts. The opening of the Humboldt Road in 1864 made available vast tracts of previously inaccessible timberlands. Shipping logs with horse drawn wagons along the Humboldt Wagon Road was inefficient and a timber companies sought a better system to transport lumber to sawmills in Chico. The Butte Flume and Lumber Company constructed the Big Chico Creek Flume between 1872 and 1874. The 38-mile long flume ran through Big Chico Creek canyon and was used to transport roughcut lumber from sawmills in the mountains to the community of Chico. An engineering marvel of the time, the flume was constructed in a V-shape, four to five feet wide at the top with an average drop of 27 feet per mile. The flume flowed continually and a series of flume tenders stations (cabins) were set up at intervals along the route to support the operation. A telegraph line was put along the flume to connect to communicate between mills and flume tenders stations. The Flume was operational from 1872 to 1907 (Dennison and Nopel 1998:50-55, Hutchinson 1974:12-21).

The Homestead Act of 1862 accelerated the settlement of the western territory by granting family s 160 acres of surveyed public lands for settlement. Claimants were required to “improve” the plot by building a dwelling and cultivating the land and after 5 years the original filer was entitled to the property, free and clear, except for a small registration fee. A number of homesteads are present within and adjacent to the project area (Hess 2011). Many of these homesteaders conducted livestock ranching, including the Lucas’ family that owned much of the land that is now BCCER and had one of Butte County’s more successful ranching operations, prevailing over 1,000 acres (BCCER 2009v).

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 neglect a resource to the extent that it deteriorates or is destroyed. An archaeological records search was conducted at the Northeast Information Center (NEIC) of the California Historic Resources Inventory System (CHRIS), and an archaeological survey/report of the project area was conducted by Alta Archaeological Consulting, a Certified Professional Archaeologist (CPA) in March/April 2020. A total of 23 cultural resources were identified within the project area as a result of a records search and archaeological field survey. Mitigation Measures recommended in the survey report have been incorporated into project design to protect identified sites and potential inadvertent discoveries. These include: **Mitigation Measure #8: CUL-1: Avoidance of Cultural Resources;** **Mitigation Measure #9: CUL-2: Unanticipated Discovery of Cultural Resources;** and **Mitigation Measure #10: CUL-3: Encountering Native American Remains** all detailed on page 12. The project as presently designed is not expected to have an adverse effect on archaeological or cultural resources.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Mitigation Measures recommended in the survey report have been incorporated into project design to protect identified sites and potential inadvertent discoveries. These include: **Mitigation Measure #8: CUL-1: Avoidance of Cultural Resources; Mitigation Measure #9: CUL-2: Unanticipated Discovery of Cultural Resources; and Mitigation Measure #10: CUL-3: Encountering Native American Remains** all detailed on page 12.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 space 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

- | | | | | |
|---|--|--|--|--|
| <p>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.)</p> | Potentially Significant Impact

<input type="checkbox"/> | Less Than Significant with Mitigation Incorporated

<input type="checkbox"/> | Less Than Significant Impact

<input type="checkbox"/> | No Impact

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

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 primarily gravelly loams. Soils are primarily moderately deep to deep (42 – 82”) with a few areas along the cliffs where soil depth can be 0-9”. The soils fall into eight classifications (NRCS 2020):

Table 4: Soil Classifications within the project area.

Soil #	Soil Classification	Acres in Project Area	Percentage of Project Area
625, 626, 627, 628, 632, 633, 634, 635, 636, 637, 641	Ultic-Haploxeralfs	466.5	31.1%
629, 630, 631	Slideland gravelly loam	369	24.6%
642, 643, 644, 645	Chinacamp gravelly loam	483	32.2%
647, 648, 649	Coalcanyon taxadjunct very gravelly loam	49.5	3.3%
652	Schott	12	.8%
730, 731	Tuscoll	52.5	3.5%
720	Dystoxerepts -Haploxeralfs	13.5	.9%
733	Haploxeralfs, terrace	54	3.6%
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% (42% of the project area), “moderate” for slopes under 50% (34% of the project area), and “high” for slopes over 50% (24% of the project area). 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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

d) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Land management operations associated with the project 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.

e) Would the project result in substantial soil erosion or the loss of topsoil?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 fuels on the project site.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Land management operations associated with this project 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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There is no building construction involved with this project.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

i) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

GREENHOUSE GAS EMISSIONS

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 sun's 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, as well as a very small increase could result from equipment use. 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 19th and early 20th century was more of an open conifer and 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 a decrease in average tree size, increase in the number of trees per acre, and a dense understory of evergreen sclerophyll 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 vegetation communities 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 habitats 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 and forest/woodland fuel reduction treatments are ways to help maintain those carbon stocks over time. By reducing the probability of catastrophic wildfire, management operations 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 management treatments will be resequenced by the remaining vegetation and new vegetation following the treatment. 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.

Forest management activities are 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/thinning 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 and forest management 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 and forest thinning; however, other objectives are met as well, 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 resource, including environmental resources, public health, and public and firefighter safety.

Less than significant 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 when compared to 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 a substantial amount of carbon would remain sequestered below and above ground in the project area. In addition, project 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 green house 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 treatments would reduce future potential wildfire smoke and greenhouse gas emissions, and reduce potential loss of sequestered carbon.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 to 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

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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, and herbicides for noxious weed treatments. Operations will follow all applicable state and federal laws.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Equipment used to implement the project will be fueled with diesel fuel. A spill of this fuel could be hazardous to the environment. **Mitigation Measure #13: HYD-1: Project Best Management Practices (BMPs)** on page 13 is designed to ensure that an accidental spill will not harm 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 human habitation are not likely to be significant.

The proposed project includes the use of herbicides to control invasive weeds. The proposed applications would comply with all applicable state and federal regulations for the safe use of pesticides (including label requirements).

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project is not within 1/4 mile of a school.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project is not located on a hazardous materials site.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project area is within the 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.

Big Chico Creek is on the 303(d) list for California impaired waters for mercury from an unknown source. Project activities will not result in additional impacts to these listings.

Big Chico Creek is a Class 1 watercourse, as defined by the California Forest Practice Act. There are several Class 2 and Class 3 watercourses that are tributaries to Big Chico Creek within the project area. Watercourse and Lake Protection Zones (WLPZ's) will be flagged along watercourses, and project activities within these zones will be limited to those that do not have the potential to impact water quality (*See Mitigation Measure #13: HYD-1: Project Best Management Practices* on page 13). 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.

Prescribed fire projects have 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.

Light weight tracked equipment may be used within the Watercourse, Lake Protection Zone (WLPZ). Every effort will be made to minimize impacts by limiting entries, turns and operations to dry periods. Excessively disturbed areas (e.g. machine tracks) would be rehabilitated after conclusion of operations with compacted straw mulch, and/or slash over 90% of the area at a 2 inch depth (*See Mitigation Measure #13: HYD-1: Project Best Management Practices* on page 13).

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 area are expected to experience minimal, short-term and negligible effects.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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

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

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

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

LAND USE AND PLANNING

a) Would the project physically divide an established community?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There is no established community within the project site.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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), Agriculture (AG), and Timber Mountain (TM). 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.

The purpose of the AG zone is to support, protect, and maintain a viable, long-term agricultural sector in Butte County. Standards for the AG zone maintain the vitality of the agricultural sector by retaining parcel sizes necessary to sustain viable agricultural operations, protecting agricultural practices and activities by minimizing land-use conflicts, and protecting agricultural resources by regulating land uses and development intensities in agricultural areas. Permitted uses include crop cultivation, animal grazing, stock ponds, and agricultural processing. More intensive agricultural activities, such as animal processing, dairies, hog farms, stables, forestry and logging, and mining and oil extraction, are permitted with the approval of a Conditional Use Permit.

The purpose of the TM zone is to preserve Butte County’s valuable timber resources and to protect both the economic and environmental value of these lands. Standards for the TM zone are intended to support the growing and harvesting of timber, pulp woods, and other forestry products for commercial purposes. Permitted uses include logging, timber processing, crop cultivation, agricultural processing, and the management of forest lands for timber operations and animal grazing. Extractive uses that are generally compatible with forestry operations, including mining and oil and gas extraction, are conditionally permitted in the TM zone.

MINERAL RESOURCES

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

NOISE

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

POPULATION AND HOUSING

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)?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no proposed activities that would directly or indirectly promote population growth in the area.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

PUBLIC SERVICES

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection?

The project will not impact the provision, or the need for governmental facilities. The project will not impact existing fire protection services.

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?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not impact the provision, or the need for governmental facilities. The project will not impact existing police protection services.

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?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not impact the provision, or the need for governmental facilities. The project will not impact existing school services.

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?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not impact the provision, or the need for governmental facilities. The project will not impact existing park services.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not impact the provision, or the need for governmental facilities. The project will not impact existing public facilities.

RECREATION

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

BCCER is the only portion of the project area that is available for public access. 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 limits 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 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).

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

TRANSPORTATION

a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3(b)?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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.

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)?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

d) Would the project result in inadequate emergency access?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

TRIBAL CULTURAL RESOURCES

<p>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)?</p>	<p>Potentially Significant Impact</p> <p><input type="checkbox"/></p>	<p>Less Than Significant with Mitigation Incorporated</p> <p><input type="checkbox"/></p>	<p>Less Than Significant Impact</p> <p><input type="checkbox"/></p>	<p>No Impact</p> <p><input checked="" type="checkbox"/></p>
---	---	---	---	---

The Cal FIRE Native American contact list (Cal FIRE 2020) and CA Native American Heritage Commission contact list (NAHC 2020) 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,
- Konkow Valley Band of Maidu
- Maidu Cultural and Development Group,
- Mechoopda Indian Tribe of Chico Rancheria,
- Mooretown Rancheria
- Tsi Akim Maidu
- United Auburn Indian Community of the Auburn 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 information, 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 February 27, 2020. One comment was received from NAHC stating that their search of the sacred lands file was negative. Responses received from Butte Tribal Council and Mooretown Rancheria stated that the project was within Mechoopda territory. The Mechoopda Tribe is an active partner in cultural burns at BCCER and supportive of efforts to restore habitats within the Big Chico Creek watershed to pre-contact conditions. 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.

The project will enhance living cultural resources (e.g. plants and animals). **Mitigation Measure #8: CUL-1: Avoidance of Cultural Resources; Mitigation Measure #9: CUL-2: Unanticipated Discovery of Cultural Resources; and Mitigation Measure #10: CUL-3: Encountering Native American Remains** all

detailed on page 12. 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 California Native American tribe.

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will enhance living cultural resources (e.g. plants and animals). **Mitigation Measure #8: CUL-1: Avoidance of Cultural Resources; Mitigation Measure #9: CUL-2: Unanticipated Discovery of Cultural Resources; and Mitigation Measure #10: CUL-3: Encountering Native American Remains** all detailed on page 12 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

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?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not result in the relocation or construction of new utilities.

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?

Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project is a restoration project that will not affect utilities.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project does not involve the use of utilities or public service systems.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

WILDFIRE

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 conifer/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 a higher density of smaller diameter trees, with a dense understory of evergreen sclerophyll 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 vegetation communities 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.

A variety of forest management and fuel reduction techniques, including prescribed burning, 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 these proposed treatments is to reduce the risk of large damaging fires by creating conditions that increase effectiveness of fire suppression.

Through forest management, 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 this project; 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. Deer Creek GIS conducted a simulation of fire behavior pre-treatment and post-treatment, depicting the increased time fire fighters would have for an initial attack before a fire starting in the Big Chico Creek canyon reached the community of Forest Ranch (*See* Figure 3 and 4). The fire spread model assumes 30mph uphill winds, and burns for 120 minutes. Assumed fuel moistures for 1, 10, and 100hr fuels are 3, 4, and 5%. Spotting distances are assumed to be about 800 feet, and probability of ignition for spots is 80%. Thinning and burning would raise the crown base height to 6 feet, surface fuels in pine/oak areas would be dominated by oak litter, areas of heavy brush would be set back to light brush, and no surface fuel changes would occur in areas mapped as grass.

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.

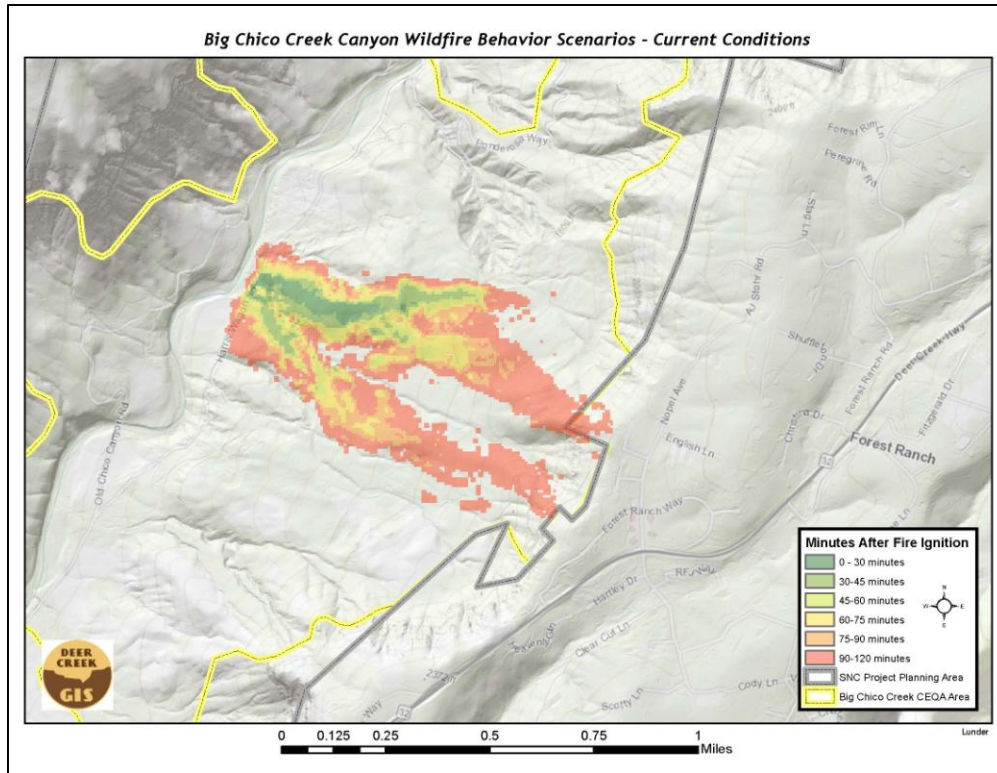


Figure 3: Pre-treatment wildfire behavior scenario - current conditions.

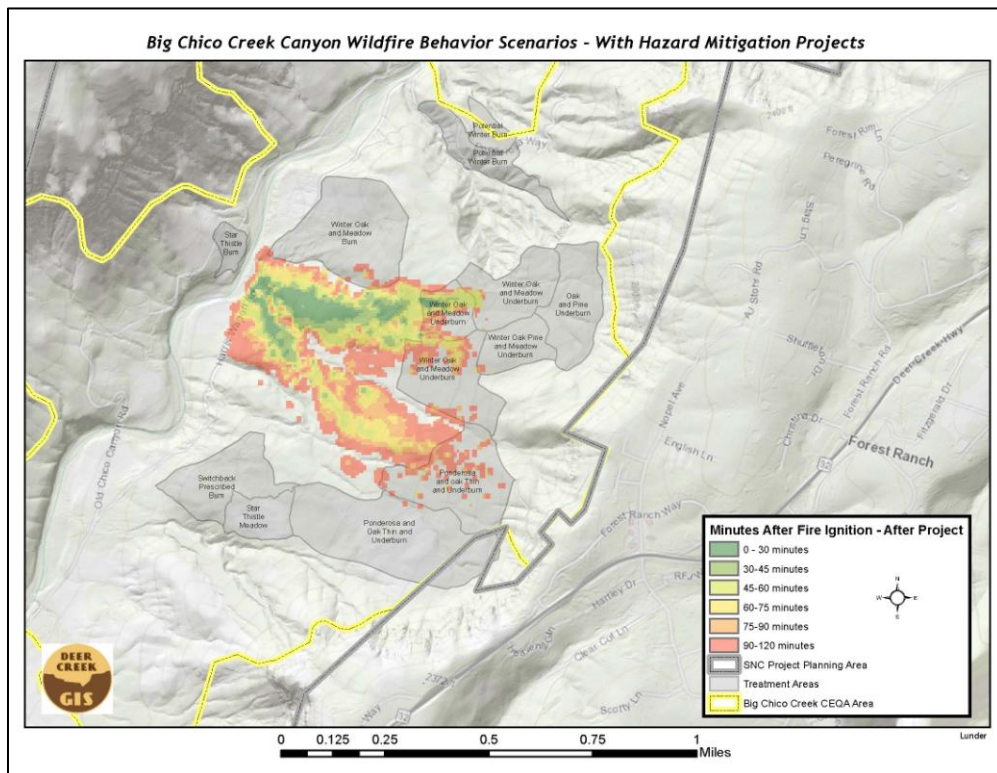


Figure 4: Post-treatment wildfire behavior scenario with hazard mitigation projects.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The desired fire intensity is low to moderate for proposed prescribed fires. A prescribed burn plan will be developed for each proposed prescribed fire 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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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.

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?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

<p>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?</p>	<p>Potentially Significant Impact</p> <p><input type="checkbox"/></p>	<p>Less Than Significant with Mitigation Incorporated</p> <p><input type="checkbox"/></p>	<p>Less Than Significant Impact</p> <p><input checked="" type="checkbox"/></p>	<p>No Impact</p> <p><input type="checkbox"/></p>
---	---	---	--	--

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 since the 19th century in some areas of the project; the implementation of forest management techniques and 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.

According to the opinions of numerous tribal cultural resources experts, 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.

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.)	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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

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. Butte County RCD 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 – Pile burning and broadcast fire: Pile burning and broadcast burning shall be conducted in a manner which will not damage residual trees and reproduction. 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: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

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: Project partner implementing the project and the BCAQMD

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

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.

Schedule: During project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #4: *BIO-2 Elderberry Shrub Protection:* Elderberry shrubs shall be marked within all project areas prior to implementation. No elderberry shrubs shall be removed or disturbed during project implementation. Elderberry branches that are dead or less than 1” may be pruned during the non-critical period for valley elderberry longhorn beetles from Nov. – Feb.

Schedule: Prior and during project implementation

Responsible Party Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #5: *BIO-3: Botanical Resources:* Special status plants species including populations of *Erythranthe glaucescens* (Shield-bracted monkeyflower – Rank 4.3), *Lilium humboldtii ssp. Humboldtii* (Humboldt Lily - Rank: 4.2), and *Astragalus pauperculus* (Depauperate milk-vetch - Rank: 4.3) identified during botanical surveys conducted for this project or during project layout will be avoided through mapping and/or flagging when appropriate, with the exception of broadcast fire.

Schedule: Prior and during project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

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, during, and after project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

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: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #8: BIO-6: Riparian Area Protection: Before any riparian vegetation removal or work within the bed bank or channel of a stream, creek, or river, project proponents will coordinate with the Department to ensure compliance with Section 1600 of the Fish and Game Code.

Schedule: Prior to project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #9: CUL-1: Avoidance of Cultural Resources: Cultural resources present within the project area have not been formally evaluated to determine eligibility for listing on the CRHR. For the purposes of this project these cultural resources will be assumed potentially eligibility of state and federal registers and be avoided. Project proponents will ensure that cultural resources are not adversely affected by ground disturbing activities. If cultural resources cannot be avoided and ground disturbance will occur within the recorded site limits than the site(s) will be formally evaluated to determine if they meet the regulatory criteria for eligibility to the CRHR.

Schedule: Prior to and during project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #10: CUL-2: Unanticipated Discovery of Cultural Resources: 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. A qualified professional archaeologist shall be immediately notified.
3. The archaeologist shall evaluate the new discovery and develop appropriate protection measures.
4. The archaeologist shall investigate how the project was reviewed for cultural resources to determine if the cultural resource should have been identified earlier.
5. The 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, the Archaeologist shall notify the appropriate Native American tribal group and the NAHC, if appropriate.

Schedule: During project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #11: CUL-3: Encountering Native American Remains: Although unlikely, if human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a “Most Likely Descendant” can be designated and further recommendations regarding treatment of the remains is provided.

Schedule: During project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #12: 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: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #13: GEO-2: Slope restrictions: Ground-based equipment would be restricted to slopes less than 50 percent. Flagging, mapping, and meeting with equipment operators would be used to keep operators out of areas over 50% slope. Exceptions may be made for short pitches of 100 feet slope distance, up to 75 percent slope. Exposed soils resulting from ground based equipment on slopes over 50% slope shall be 90% covered with operational slash or hay/straw to a minimum 2” depth prior to the winter period (Nov. 15 – April 1). This will occur after the conclusion of each individual operation and prior to each winter period for the life of the Project.

Schedule: During project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #14: 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.

Watercourse and Lake Protection Zones (WLPZ) will be classified based on the California Forest Practice Rules §936.5 – Procedures for Determining Watercourse and Lake Protection Zones Widths and Protective Measures. WLPZs shall be identified on the ground with flagging prior to implementation of treatments. These zones will be:

Watercourse Classification	Slope 0-30%	Slope 30-50%	Slope >50%
Class I (Anadromous Salmonids) – Big Chico Creek	150'	150'	150'
Class I (Non-Anadromous)	75'	100'	150'
Class II (including all springs with surface water)	50'	75'	100'
Class III	25'	50'	50'

The standard best management practices for protecting water quality include:

- Trees will not be removed from the core zone of Big Chico Creek (30' from creek). Trees greater than 8" dbh will not be removed from the inner zone (30 – 70' from the watercourse) and a 70% overstory canopy cover will be maintained. A 50% overstory canopy cover will be retained in the outer zone (70 – 100' from the watercourse) in a well-distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations and wind firm trees will be favored.
- Within the WLPZ, at least 50% of the total canopy covering the ground shall be left in a well-distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.
- No heavy equipment shall operate within the WLPZ except on existing roads and crossings. Light weight equipment, including a mini-excavator, mini-chipper, and/or skid steer, may operate within the WLPZ when conditions are dry within the WLPZ. Equipment within the WLPZ will not turn around within the WLPZ, but will make minimal tracks perpendicular to the watercourse. Any other types of light equipment that are used will not exceed the weights of those listed above. Exposed soils within WLPZ shall be 90% covered with operational slash or hay/straw to a minimum 2" depth prior to the winter period (Nov. 15 – April 1). This will occur after the conclusion of each individual operation and prior to each winter period for the life of the Project.
- No equipment shall refuel, be cleaned, or lubricated within the WLPZ. No equipment may operate within the core zone of Big Chico Creek (0-30' from creek).
- Road based equipment being used for project implementation shall not be used during any time of the year when soils are saturated and excessive damage can occur as well as the potential discharge of sediment to watercourses.
- There will be no mechanical fireline construction within the WLPZ.
- No ignitions of broadcast (prescribed) burns would occur within the WLPZ. Broadcast burning would be allowed to back burn into the WLPZ, but in order to maintain stream temperatures and avoid sediment discharge to Class I and II streams piles and broadcast prescribed burns are restricted within the WLPZ to the following distances from the stream:

Watercourse Classification	Slope 0-30%	Slope 30-50%	Slope >50%
Class I (Anadromous Salmonids) – Big Chico Creek	100-150'	100-150'	100-150'
Class I (Non-Anadromous)	50-75'	66-100'	100-150'
Class II (including all springs with surface water)	33-50'	50-75'	66-100'

Schedule: Prior and during project implementation

Responsible Party: Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure #15: FIRE-1: Prescribed (Rx) burn plan: Mitigation measures will include and be dependent upon:

- Rx burns and pile burns can be scheduled for fall months into spring. Burn days will be dependent upon California Air Resources Board (CARB) forecasts, Cal Fire approval and will comply with all local and state regulations.
- Rx broadcast burns will coincide with ecological emergence to promote a heterogeneous forest structure, reduce the abundance of invasive and limit impact to desired native species.
- To reduce impacts to surrounding community's Rx burn timing, planning and implementation will all be dictated by smoke management mitigations through CARB.
- Prescribed burns will be coordinated with other planned burns on BCCER and within Forest Ranch to avoid cumulative impacts to air quality and wildfire safety.

Schedule: Prior to project implementation

Responsible Party: Project partners implementing the project in coordination with CAL FIRE

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

A copy of the completed MMRP will be forwarded to: Butte County Resource Conservation District (BCRCD), 150 Chuck Yeager Way, Suite A, Oroville, CA 95965.

PREPARERS OF THIS DOCUMENT

Tim Keeseey
Conservation Project Coordinator
Butte County Resource Conservation District (BCRCD)
150 Chuck Yeager Way, Suite A
Oroville, CA 95965
(530) 260-0934
tim@bcrd.org

Wolfy Rougle
Forest Health Watershed Coordinator Butte County Resource Conservation District (BCRCD)
150 Chuck Yeager Way, Suite A
Oroville, CA 95965
(530) 721-0164
wolfy@bcrd.org

Eli Goodsell
Director
Big Chico Creek Ecological Reserve
25 Main St., Suite 203
Chico, CA 95928-5388
(530) 898-5010
egoodsell@csuchico.edu

Rhianna Dutra (RPF #3098)
Ecological Reserves Field Coordinator II
Big Chico Creek Ecological Reserve
25 Main St., Suite 203
Chico, CA 95928-5388
(530) 342-1371
rjdutra@csuchico.edu

Calli-Jane DeAnda
Executive Director
Butte County Fire Safe Council
5619 Black Olive Dr.
Paradise, CA 95969
(530) 877-0984
firesafe@buttefiresafe.net

EXPERTS CONSULTED

Don Hankins
Professor of Geography and Planning
Chico State University
Butte Hall, Room 539
(530)-898-4104
dhankins@csuchico.edu

Alex DeGeorgey, MA, RPA
Principal
Alta Archaeological Consulting, LLC
15 Third St.
Santa Rosa, CA 95401
(707) 544-4206
alex@altaac.com

Zeke Lunder and Paul Lackovic
GIS and Fire Modeling
Deer Creek Resources
1100 Fortress St. #2
Chico, CA 95973
(530)(680-1398
Zeke.lunder@gmail.com and plackovic@deercreekresources.com

Phil Nemir (RPF #1666)
P.O. Box 1717
Susanville, CA 96130
(530) 257-2294
philnemir@hotmail.com

Dave Derby
Unit Forester, RPF #2333
CAL FIRE
6640 Steiffer Rd.
Magalia, CA 95954
(530) 872-6334
Dave.Derby@fire.ca.gov

REFERENCES CITED

Air Quality

Butte County Air Quality Management District (AQMD). 2018. Butte County Air Quality Management District Air Quality Standards and Air Pollutants. <http://bcaqmd.org/planning/air-quality-standards-air-pollutants/>

Biological Resources

Butte County. 2018. Butte County General Plan 2030. <https://www.buttecounty.net/dds/Planning/General-Plan/Chapters>

Hankins, D.L. 2013. The effects of indigenous prescribed fire on riparian vegetation in central California. *Ecological Processes*. 2:24.

Hankins, D.L., 2015. Restoring Indigenous Prescribed Fires to California Oak Woodlands. In Standiford, Richard B.; Purcell, Kathryn L., tech. cords. 2015. Proceedings of the seventh California oak symposium: managing oak woodlands in a dynamic world. Gen. Tech. Rep. PSW-GTR-251. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 579 p.

Cultural Resources

Big Chico Creek ecological Reserve (BCCER) 2009v The Lucas Family. Electronic document, http://www.csuchico.edu/bccer/Research/Reports/Lucas_Family.htm, accessed December 2009.

Dennison, Bill, and Dave Nopel 1998 Logging, Lumber, and Livelihood in a Small Corner of the West: Butte Meadows, Chico, Meadows, and Jonesville, CA. Chico, Butte Meadows – Jonesville Community Association.

Hess, Erin 2011 BCCER-07 “Homestead” Site Genealogical Research. Unpublished manuscript on file at the Department of Anthropology, Chico State University.

Riddell, F.A. 1978 Maidu and Konkow. In Handbook of North American Indians: California 8:370-386. Smithsonian, Washington.

Geology and Soils

Archer, V. 2008. Clearwater Soil Monitoring: Soils Report. Orofino, ID.

Certini, G. 2005. Effects of fire on properties of forest soils: a review. *Oecologia* 143:1-10.

Choromanska, U. and T.H. DeLuca. 2002. Microbial activity and nitrogen mineralization in forest mineral soils following heating: evaluation of post-fire effects. *Soil Biology and Biochemistry* 34: 263- 271.

- Clayton, J.L.; Kellogg, G; Forester, N. 1987. Soil disturbance Tree-growth relations in central Idaho clearcuts. Gen. Tech. Rep. INT-GTR-372. Ogden UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 6p.
- Clayton, J.L. 1990. Soil disturbance resulting from skidding logs on granite soils in Central Idaho. USDA Forest Service Research Paper INT-436.
- de Dios Benavides-Soloria, J., and L.H. MacDonald. 2005. Measurement and prediction of post-fire erosion at the hillslope scale, Colorado Front Range. *Int. J. of Wildland Fire* 14:457-474.
- DeBano, L.F. 1981. Water repellent soils: a state-of-the-art. Gen. Tech. Rep. PSW-46, Pacific Southwest Forest and Range Exp. Stn., USDA Forest Service, Berkeley, CA. 21 pp.
- DeLuca, T. and G.H. Aplet. 2008. Charcoal and carbon storage in forest soils of the Rocky Mountain West. *Fron. Ecol. Environ.* 6: 18-24.
- DiTomaso, J.M. 2000. Invasive weeds in rangelands: Species, impacts and management. *Weed Science* 28(2): 255-265.
- Garrison, M. T. and J. A. Moore. 1998. Nutrient management: a summary and review. In: Intermountain Forest Tree Nutrition Garrison-Johnston, M. T., J. A. Moore and G. J. Niehoff. 2001. Cooperative Supplemental Report 98: 5.
- Garrison-Johnston, M. 2003. Geologic controls on tree nutrition and forest health in the Inland Northwest. Presented at GSA Ann. Mtng, Seattle, WA. 9 pp.
- Garrison-Johnston, M., T.M. Shaw, L.R. Johnson, and P.G. Mika. 2004. Intermountain Forest Tree Nutrition Cooperative, Presentation at the Potassium Meeting, IPNF, Coeur d'Alene, ID, April 23.
- Jurgensen, M.F., A.E. Harvey, R.T. Graham, D.S. Page-Dumrose, J.R. Tonn, M.J. Larson, and T.B. Jain. 1997. Impacts of timber harvests on soil organic matter, nitrogen, productivity and health of inland northwest forests. *Forest Science* 43: 234-251.
- Megahan, W.F. 1990. Erosion and site productivity in western-Montana forest ecosystems. In: Proceedings, Management and Productivity of Western-Montana Forest Soils. Gen. Tech. Rep. INT-280. USDA, Forest Service, Intermountain Research Station. pp. 146-150.
- Natural Resource Conservation Service (NRCS). 2019. Web Soil Survey. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- Neary, D.G., K.C. Ryan, and L.F. DeBano, eds. 2005 (revised 2008). Wildland fire in ecosystems: effects of fire on soils and water. Gen. Tech. Rep. RMRS-GTR-42-vol.4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 250 p.
- Newland, J.A., and T.H. DeLuca. 2000. Influence of fire on native nitrogen-fixing plants and soil nitrogen status in ponderosa pine-Douglas fir forests in western Montana. *Canadian Journal of Forest Research* 30:274-282.

- Niehoff, G. 2002. Soil NEPA analysis process and source of soil disturbance model coefficients. Page-Dumroese D.S., Jurgenson M., & Terry, T. 2010. Maintaining Soil Productivity during Forest or Biomass-to-Energy Thinning Harvests in the Western United States. *Western Journal of Applied Forestry* 25: 5-10.
- Reeves, D. D. Page-Dumroese and M. Coleman. 2011. Detrimental soil disturbance associated with timber harvest systems on National Forests in the Northern Region. Res. Pap. RMRS-RP-89 Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 12 p.
- Sperber T.D., Wraith J.M., Olson B.E. 2003. Soil physical properties associated with the invasive spotted knapweed and native grasses are similar. *Plant Soil* 252:241-249.
- Stark, 1979. Nutrient losses from timber harvesting in a larch/Douglas fir forest. USDA Forest Service Research Paper. INT-231.
- Sullivan, T. E. 1998. Monitoring soil physical conditions on a national forest in Eastern Oregon: A Case Study. 9 p
- Tepp, J.S. 2002. Assessing visual soil disturbance on eight commercially thinned sites in northeastern Washington. Res. Note. PNW-RN-535. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR. 20p.

Greenhouse Gas Emissions

- Bolsinger, C.L. 1989. Shrubs of California Chaparral, Timberland, and Woodland: Area Ownership, and Stand Characteristics.
- Conrad, S. G. and D. R. Weise. 1998. Management of fire regimes, fuels, and fire effects in Southern California chaparral: lessons from the past and thoughts for the future.
- Mader, S. 2007. Climate Project: Carbon Sequestration and Storage by California Forests and Forest Products. [Technical Memorandum prepared for California Forests for the Next Century] CH2M Hill Sacramento, CA.
- Wiedinmeyer, C. and J. C. Neff. 2007. Estimates of CO₂ from fires in the United States: Implications for carbon management. *Carbon Balance and Management*.

Hydrology and Watershed

- Central Valley Water Quality Control Board. 2016. 2014 – 2016 Integrated Report – 303(d) List and 305(b) Report. https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrap2014_2016
- Central Valley Water Quality Control Board. 2016. Basin Plan for the California Regional Water Quality Control Board Central Valley Region. Fourth edition revised April 2016 (with

Approved Amendments).

https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr.pdf

Recreation

Vaux, H.J., Jr., P.D. Gardner, and T.J. Mills. 1984. Methods for assessing the impact of fire on forest recreation. USDA Forest Service. Gen. Tech. Rep. PSW-79.

Tribal Cultural Resources

Cal FIRE. 2019. California Department of Forestry and Fire Protection (CAL FIRE) Native American Contact List https://www.fire.ca.gov/media/7258/nativeamericancontactlist_july-2019.pdf