

**Initial Study-Mitigated Negative Declaration
for the proposed
Lassen National Forest (LNF) Eagle Lake Ranger District (ELRD)
Hazard Tree Management Project
Lassen County, California**



Prepared by:

**Honey Lake Valley Resource Conservation District
Lassen County, CA**

March 2024

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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 Honey Lake Valley Resource Conservation District (HLVRCD) staff.
- Public Document.** This completed CEQA document has been filed by the Honey Lake Valley Resource Conservation District (HLV RCD) at the State Clearinghouse on March 15, 2024, and is being circulated for a 30-day state agency and public review period. The review period ends on April 13, 2024.
- Final CEQA Document.** This final CEQA document contains the changes made by the RCD 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 Honey Lake Valley RCD, 170 Russell Ave., Susanville, CA 96130.

INTRODUCTION

This initial study-mitigated negative declaration (IS-MND) describes the environmental impact analysis conducted for the proposed project. This document was prepared by HLVRCD 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, HLVRCD, has prepared, reviewed, and analyzed the IS-MND and declares that the statements made in this document reflect HLVRCD’s independent judgment as lead agency pursuant to CEQA. HLVRCD 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 HLVRCD 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 March 15, 2024 and ends on April 13, 2024.

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

HLVRCDC 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 are available for review during the entire 30-day review period through their posting at: <https://www.honeylakevalleyrcd.us/> , and the project will be posted on <https://ceqanet.opr.ca.gov/> .

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 HLVRCDC'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:

Kelsey Siemer, District Manager
Honey Lake Valley Resource Conservation District
170 Russell Ave., Suite C
Susanville, CA 96130
(530) 257-7271
kmarks@honeylakevalleyrcd.us

After comments are received from the public and reviewing agencies, HLVRCDC 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 area is located on +/-6,750 acres of public land managed by the U.S. Department of Agriculture, Lassen National Forest (LNF), Eagle Lake Ranger District (ELRD) in Lassen County, CA impacted by the Dixie Fire (2021). The project area is within the: Lower Butte Creek (5526.360103); Middle Butte Creek (5526.360102); Upper Butte Creek (5526.360101); Triangle Lake (8637.310104); Pine Lake (8637.310101); Silver Lake (8637.200105); Bogard (8637.310102); Lower Robbers Creek (5518.450101); Moonlight Pass (5518.450400), Mountain Meadows Creek (5518.450300), Upper Willard Creek (8637.200301), and Lower Willard Creek (8637.200302) watersheds. The legal location is:

Mount Diablo Base and Meridian (MDBM) Township 27North, Range 9 East, portions of Sections 1, 2, 11-13; T27N, R10E, portions of Section 18; T28N, R10 E, portions of Sections 3, 4, 9, 10, 14, 15, 22 & 23; T29N, R09E, portions of Sections 5, 6, & 8; T29N, R10E, portions of Sections 13, 14, 21-23, 27, 28, 33 & 34; T31N, R06E, portions of Sections 1, 2, & 12; T31N, R07E, portions of Sections 5, 6, 8-15, 17, & 23-26; T31N, R08E, portions of Sections 5-8, 17-20, 30, & 31; T32N, R06E, portions of Sections 23, 24, 26, 27, 34, & 35; T33N, R06E, portions of Sections 9, 10, 15, & 16.

The project is fairly steep with elevation ranging from 5,160 – 7,300 feet, and average annual precipitation of 27 - 35 inches. The majority of the project area burned at medium to high severity during the Dixie Fire in 2021.

BACKGROUND AND NEED FOR THE PROJECT

The Dixie Fire began on July 13, 2021 by a PG&E powerline and was contained on October, 25, 2021. The wildfire burned 963,309 acres. It was the largest single source wildfire in recorded California history. The fire resulted in expansive stretches of fire-killed and fire-damaged trees adjacent to National Forest System roads, trails, and facilities managed by LNF ELRD that now present a safety hazard. The primary purpose of this project is to provide for the safe use of National Forest System roads, trails, and facilities to the public, Forest Service staff, firefighters, emergency response personnel, law enforcement, private inholding landowners, contractors, special use permit holders, and others. Portions of the project area also contain hazard trees requiring abatement due to mortality or damage by insects and disease, drought, or other stressors either before or after the fire. Many of these trees are structurally unsound and are likely to fall within the next several years, posing a serious risk of injury or death to people using roads, trails, and facilities in the area. If hazard trees are left unabated, they may fall on roads, trails and facilities and either cause direct injury or death to people (tree falls directly on a person) or indirect injury or death (for example, a tree falls across a road and a driver strikes the downed tree after coming around a blind curve). Providing a safe environment for both public and administrative use of affected roads, trails, and facilities, is a priority for the Forest Service. The Chief of the Forest Service and the Regional Forester repeatedly stress that the safety of the public and employees is of central concern. Therefore, identification and mitigation of hazard trees on National Forest System lands is necessary to fulfill the Forest Service's mission.

Because it is impossible to accurately predict whether and when a particular tree will strike a road, trail, or facility, the Forest Service made a policy choice to take a conservative approach to hazard

tree abatement, erring in favor of being overinclusive in identifying and removing trees rather than being underinclusive and risking injury or death to forest users. Therefore, integral parts of the project's purpose are to:

- Treat a broad range of roads (such as road maintenance levels 2, 3, 4, and 5), trails, and facilities.
- Identify trees for removal that have a genuine risk of falling in the next several years, even if that risk is not a certainty (trees with a "moderate" or "high" risk rating according to the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (Angwin et al. 2022)).
- Adopt an analysis and treatment area surrounding roads that encompasses the vast majority of hazard trees likely to strike a target of concern (using a 300-foot potential treatment zone around roads, removing trees up to 1.5 times the height of a tree from a potential target).

Along with the need to reduce safety hazards on National Forest System roads, trails, and facilities, is the need to maintain an available and useful system of roads, trails, and facilities, for the public, Forest Service staff, firefighters, emergency response personnel, law enforcement, private inholding landowners, contractors, special use permit holders, and others. If hazard trees are not removed, they will likely fall in the next several years, and many will negatively impact the roads, trails, and facilities, as well as the people using them, separate from the risks of human injury or death caused by falling trees. Large trees can damage roadways, resulting in significant repair costs and temporary closures. Even when treefall causes no significant damage, fallen trees can create serious obstacles across major routes and significantly impact the public. For example, a large tree across a road can impede emergency ingress or egress by firefighters, emergency response vehicles, or members of the public trying to evacuate from an active forest fire.

While road closure may be an option in limited circumstances, it is contrary to the Forest Service's objective of maintaining the integrity of its road system, which provides a network of access routes and facilities for a wide range of recreational, commercial, emergency, and other public purposes. Therefore, LNF ELRD chooses not to include road closures as part of this decision, reserving such closures for individual circumstances where there is no reasonable alternative.

Another purpose of the project is to reduce fuel loading, elevated fire hazard, and resistance to control from dead, dying, fire-damaged, and already fallen hazard trees. The project area has high densities of dead and dying trees, especially in areas of high-severity burn. Felling identified trees will, in many instances, abate the safety hazard such trees pose to adjacent roads, trails, and facilities. However, felling the trees does not mitigate the fire hazard these trees pose and, in most instances, will increase the hazard, as well as create new problems such as impeding effective fire suppression where hazard trees are felled.

Increased fuel loading caused by felling hazard trees may extend resident burn times, increase flame length, increase fire heat and soil damage, and increase firefighter labor to suppress the fire (difficulty moving in jack-strawed or dense downed wood material). Because human-caused wildfires tend to start near roads and in and around developed areas (Narayanaraj and Wimberly 2012; Stephens and Ruth 2005), heavy downed fuel loading presents an additional safety risk in these areas, particularly if the fire may spread to adjacent lands. In addition, hazardous fuels or increased potential fire behavior within the road corridor present a safety threat to anyone using the recreation and administrative sites, accessing inholdings, or using roads as an escape route during a wildfire. Therefore, it is important to not only fell hazard trees but also remove them from the

treatment areas (both the tree trunk and its limbs). Management of activity-related slash and smaller fuels and removal of logs would reduce the severity and intensity of the next fire, create a safe and defensible space for firefighters in future advancing fires, and provide for safer ingress and egress.

Not all downed logs and woody biomass pose a serious fire hazard or impede safe and effective fire suppression. Downed woody biomass provides both ecological and recreational values. Therefore, our objective is to remove enough of the fuels from hazard tree felling to support low fire-hazard and low resistance-to-control conditions and to retain biomass and logs where soil cover or habitat is insufficient after fires.

Vast areas of Region 5 National Forest System lands burned in recent years and a huge number of dead and dying trees adjacent to roads, trails, and facilities pose a threat to the public, Forest Service staff, firefighters, emergency response personnel, law enforcement, private inholding landowners, contractors, special use permit holders, and others. While there is no firm estimate of the number of hazard trees, recent fires affected likely hundreds of thousands (if not millions) along thousands of miles of roads. Unfortunately, the agency's financial and staff resources do not match the magnitude of the problem. Therefore, it is critical that the project is as efficient as possible in addressing the hazards. Implementation efficiency has several important components. One is the need for a relatively simple process for identifying hazard trees. While a detailed tree-by-tree analysis involving mortality risk, slope position, lean, micro-site characteristics, prevailing wind patterns, or more, would likely yield a robust evaluation of individual tree hazard, such an approach is not practical given the overwhelming number of trees to be evaluated and the lack of a skilled workforce to conduct such evaluations. Therefore, a more streamlined approach is needed that considers individual tree failure potential and target potential (consistent with the Region 5 Hazard Tree Guidelines) but does so in a way that field crews can easily and efficiently implement the approach across thousands of acres. Because such a simplified approach will likely be either under- or over-inclusive in the trees identified as hazards, we chose to err on the side of caution and increased safety, consistent with the primary purpose of the project expressed above.

Another important component of implementation efficiency relates to the timing of treatments and requires abating hazard trees that will imminently fall (within the next year) as well as those likely to fall within the next 5 years. While removing trees at most imminent risk of falling is a priority, it is neither practical nor necessary to have a series of separate projects to abate existing hazard trees in the same location over several years. Doing so is not only inefficient from a planning perspective, but also inefficient and unnecessarily detrimental to the environment from an operational perspective (it would require multiple entries by loggers and equipment to the same parcel of land in locations where there is a mix of imminent and non-imminent hazard trees). Furthermore, it is often difficult to predict exactly when a hazard tree will fall, but dead and dying hazard trees become less stable with time, posing an increasing safety hazard to the contractors felling and removing the trees. Therefore, it is important to remove the hazard trees as soon as possible.

Dead and dying trees and downed woody biomass are natural components of forest ecosystems that provide both ecological and recreational values. However, the extent of dead and dying trees caused by recent mega-fires is not natural, and hazard trees adjacent to roads, trails, and facilities pose a serious threat to the public, agency staff, and other forest users. Therefore, the Forest Service's objective is to remove hazard trees to increase human safety; maintain the integrity and utility of the road, trail, and facility network; and reduce hazardous fuel accumulation, while leaving some dead

and dying trees and downed woody biomass on the landscape for ecological and recreational purposes.

An effective balance between these competing objectives may be met by felling, but not removing, some hazard trees in treated areas and by entirely foregoing treatment in other areas. In the areas selected for treatment, some felled hazard trees may be left on the forest floor, as long as downed woody biomass does not constitute a residual safety hazard, increase fuel loading above desired levels, or pose a significant impediment to economic and operational efficiency. Also, because of the heightened impacts to recreational values from widespread hazard tree removal along trails, the lower hazard along trails and fences (compared to roads and most facilities), and the operational difficulty of removing hazard trees from trails and fences without adjacent roads, it may be appropriate to leave the felled hazard trees along trails and fences.

In addition to retaining some woody biomass in treated areas, it is also appropriate to entirely forego treatment in some areas where the hazard posed by dead and dying trees is less and the ecological and recreational values of snags and downed wood are greater. For example, it is not being proposed to treat in wilderness areas, inventoried roadless areas, and along maintenance level 1 roads.

PROJECT OBJECTIVES

The project objective is to remove dead and dying trees resulting from the Dixie Fire (2021) along Forest Service system roads on the LNF ELRD in a timely and efficient matter to reduce safety hazard and the accumulation of fuels.

PROJECT START DATE

Summer 2024

PROJECT DESCRIPTION

The project will result in up to +/-6,750 acres of treatments to remove hazard trees from National Forest System roads, trails, and facilities. This includes the following actions in the project area:

1. Identify, fell, and remove hazardous trees up to 1.5 times the tree height striking distance of roads, trails, and facilities; and remove trees already felled during fire suppression or rehabilitation activities along high-use roads (maintenance level 2, 3, 4, and 5 National Forest System roads, county roads, and highways), within and adjacent to developed facilities on National Forest System lands; and fell certain trees along National Forest System trails.
2. Maintain roads.
3. Use best management practices to minimize or eliminate potential negative effects (*See Appendix B - Best Management Practices*).

Treatments would be prioritized to address the most heavily used roads and the most fire -impacted trees. Implementation would begin with those areas at highest risk due to their location (the primary factor) and the condition of the trees. Most treatment would occur within approximately 2 to 3 years.

Identifying Hazard Trees

Hazard trees are trees at risk of falling, in whole or in part, and injuring people or damaging property. Hazard trees are sometimes referred to as danger trees; on federal lands in California, the term hazard tree is used most consistently. Roads, trails, and National Forest System lands within and adjacent to developed facilities would be assessed for hazard trees. The area assessed for hazard tree abatement would be within 300 feet on each side of the centerline of roads, trails, and fences (a 600-foot corridor), and around facilities and infrastructure.

Trees within the assessment areas would be evaluated to determine if they are hazards using the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (Angwin et al. 2022) (referred to as “guidelines”). Trees that are determined to be a hazard would be abated, but not all dead or dying trees would require abatement. To identify if a tree is a hazard and if it requires abatement, a hazard rating is determined by adding the failure impact and the failure potential (tree defect) values as described in the guidelines.

The failure impact refers to the potential for the tree to impact people or property. The guidelines define the potential failure zone of a tree (where the tree or branch may fall) on level ground as about 1 to 1.5 times the height of the tree. However, the failure zone depends on several factors including degree of slope, obstacles, and the potential for a “domino effect” with the possibility of a more distant tree knocking down others closer to the road as it fall. **Only moderate to high hazard trees up to 1.5 times the tree height striking distance of the road would be felled..** This assessment would be based on the height of the tree, lean, condition, distance, and slope from the area to be protected in accordance with the guidelines. For example, it is expected that fewer trees would be identified as hazards on the downhill slopes next to roads because the trees would tend to fall downhill and away from the road. The failure potential would be determined using the guidelines along with the probability of fire-injured tree dying in the next several years, as described in Marking Guidelines for Fire-Injured Trees (Smith and Cluck 2011). The failure potential threshold for this project varies depending on severity of fire effects.

It is expected that most hazardous trees, and therefore more treatment, would occur in moderate intensity (25 to 75 percent basal area loss) and high intensity (75 percent or greater basal area loss) burn areas, based on post-fire vegetation condition data. In these areas, trees with a moderate to high hazard potential (hazard rating 4 to 7) would be felled. A probability of mortality of 0.6 would be used to determine failure potential, meaning that all trees for which the probability of mortality is 60 percent or higher within the treatment zone should be abated (Angwin et al. 2022)).

Unburned or low intensity burn areas are not targeted for treatment but may require incidental tree felling for an occasional single tree or scattered pockets of trees that have a high hazard rating (rating of 6 or 7 as described in the guidelines).

Some of the potential treatment areas displayed in these maps would remain untreated because they present a low hazard or low threat to health and safety (for instance, burned areas that resulted in no tree mortality or forest structure is composed of shrub layer with no overstory). Areas of lower priority hazard trees or trees with a lower chance of mortality may be monitored for future follow up.

Hazard Abatement Methods

Identified hazard trees would be felled using hand tools (such as chainsaws) or feller-bunchers. Felled trees would be chipped, lopped and scattered, piled and burned; removed for wood products such as lumber, biomass, or personal or commercial firewood; or other similar means of processing or removal. The most cost-efficient and effective treatment in each area based on timing, equipment availability, and post-treatment results would be selected.

Activity-generated woody fuels such as limbs and needles (commonly referred to as slash) would be piled, lopped and scattered, masticated, chipped, or burned. Lopped and scattered slash would be less than 8 feet in length and distributed at most 18 inches in depth. Hand-piled slash would be placed in openings clear of debris so that a hand line down to mineral soil can be created around each pile. Crews would locate piles in areas where they would not damage other timber or residual trees when burned. Piles would be located twice their height away from residual vegetation and no more than 5 feet by 5 feet by 6 feet. Crews would compress slash tightly in piles to ensure full consumption when burned. Piles would be placed outside the boundaries of sensitive resource areas including, but not limited to, historical or archeological sites, sensitive plant populations, annual streambeds or drainages, and roadside gutters and culverts. Within proposed treatment areas, existing woody fuels on the ground that exceed desired conditions for fuel loading may be removed or treated along with activity-generated woody fuels, consistent with project parameters and design features.

Chipped materials may be removed or left on-site when appropriate in place of piling. Chipping and spreading of materials on the landscape would not exceed a depth of 3 inches. Chips would be spread away from the base of trees.

Consistent with mitigation measures, stumps from live and recently dead trees in select areas may be treated with a registered borate compound (Forest Service Manual Pacific Southwest Region Supplement 2300-92-1 modified by Forest Service Handbook Pacific Southwest Region Supplement 3409.11-2010-1) to reduce the probability of infection in remaining live trees by *Heterobasidion occidentale* and *Heterobasidion irregular*, the causal agents of heterobasidion root disease (formerly referred to as annosus root disease). The need for borate treatment would vary by area and would be assessed at implementation.

Removing trees may require skidding logs or trees to landing areas for processing and loading on trucks. Landings would be selected from existing impacted areas or constructed as needed within 300 feet of roads, trails, and facilities. As ground conditions permit, log skidding would avoid remaining trees that are not hazards, seedlings, or regenerating trees. Logs would be skidded with the leading end suspended off the ground wherever conditions permit. Skidding distances would be limited to the minimum length necessary to safely reach the road, landing, or access point to load onto trucks. End-lining may be used to winch logs out of special management areas. Skyline, helicopter, and cable-yarding methods would not be used. Safe and efficient operations may require the incidental removal of trees that are not hazardous to the roads or infrastructure but need to be removed because they are hazards for workers (per hazard tree guidelines) or they need to be removed for landings or skid trails.

Road Maintenance

No new temporary or permanent road construction is proposed for this project. Road maintenance activities would include cleaning culverts, ditches, drains, and cattleguards, and grading road

surfaces and reestablishing rolling dips or other drainage features of the roadbeds on haul routes within the project area. All road maintenance including maintenance of haul routes would occur within previously disturbed areas of the roadbed, consistent with current road maintenance levels with no changes to the existing road system. For public safety, some roads may be temporarily closed during implementation (MUTCD 2014; Highway Safety Act of 1966).

ENVIRONMENTAL SETTING OF THE PROJECT REGION

The project area is located in a region where the Southern Cascades Mountain Range, Northern Sierra Nevada Mountain Range, Modoc Plateau, and Great Basin ecoregions merge. These regions are the ancestral home of the Maidu, Northern Paiute, Pit River, and Washoe Tribes and 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 cold winters, and hot summers with variability in annual precipitation as you move from mountainous forested regions on the west toward the dry, high desert to the east. Within the project area, average annual precipitation decreases from 25-45 depending on elevation, which ranges from 5,160-7,300 feet. The wet season produces 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 project area. Frequent burning by local Indigenous peoples created a landscape that was fire-maintained by low to moderate intensity fires that self regulated. Forest/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 project area. The project recently burned in the Dixie Fire (2021), cause by faulty PG&E powerlines. The fires had variable effects on vegetation within the landscape, with the majority burning at high severity. The purpose of this CEQA evaluation is to analyze the potential environmental impacts of removing hazard trees resulting from the Dixie Fire along Forest Service system roads to improve safety and reduce fuel loads.

DESCRIPTION OF THE LOCAL ENVIRONMENT

Portions of the project area have high densities of drought- and fire-killed standing trees in forest stands that generally were denser than the natural range of variation. In the proposed treatment area, a mosaic burn pattern resulted from the recent fires including unburned to low severity, low severity, with the majority of the project area burning at moderate severity to high fire severity. As a result, in some areas, tree mortality is 100 percent, while other areas still support a green forest. This range of fire severity leaves the existing landscape with a wide range of potential fire behavior depending on vegetation burn severity, fuel loading changes from dead and dying trees, and the regrowth of non-forest vegetation over time.

Literature indicates that post-disturbance fuel loadings are expected to be extreme in many portions of the project area. A recent study (Fettig et al. 2019, updated by Homicz 2022) of ponderosa pine stands in the central and southern Sierra Nevada found significant increases in fuel loadings caused by severe drought followed by western pine beetle outbreak. The study included plots on the Eldorado, Stanislaus, Sierra, and Sequoia National Forests. Fallen dead trees were the largest class size of surface fuels and were the primary driver of fuel load increases. These data indicated extreme surface fuel loadings in these areas prior to recent wildfires or treatment. The Eldorado had

a total average of 279 to 384 tons per acre; the Stanislaus had 292 to 340 tons per acre; the Sierra was the highest at 376 to 428 tons per acre; and the Sequoia had 269 to 276 tons per acre.

In dry forest such as in the Sierra Nevada, high to extreme fire hazard potential exists when downed coarse woody debris (materials with a diameter of 3 inches or greater) exceeds 30 to 40 tons per acre. The range of woody debris larger than 3 inches in diameter considered optimal is between 5 and 20 tons per acre. This balances acceptable risks of fire hazards and fire severity while at the same time providing desirable quantities of ground cover for soil productivity, soil protection, and wildlife needs. A wildfire with fuel loadings greater than this range could create control problems, higher suppression costs, and higher smoke emissions (Brown et al. 2003).

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. Brush 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 timberland, as well as cattle and sheep ranching land. Past vegetation management activities include fuel treatments and timber harvest. The project area is currently managed by LNF ELRD for recreation, timber management, wildlife habitat, and watershed protection.

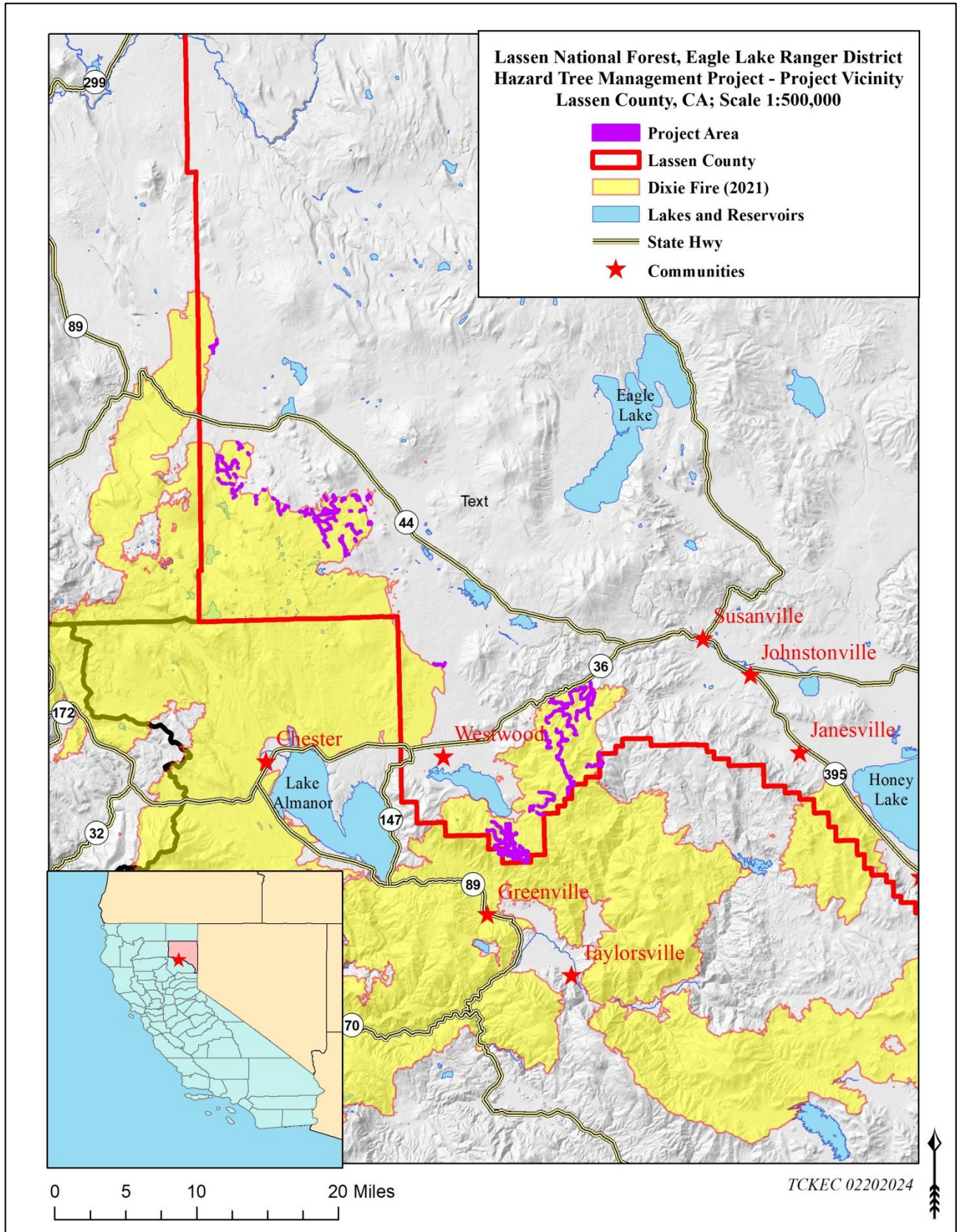


Figure 1: LNF ELRD Hazard Tree Management Project Vicinity

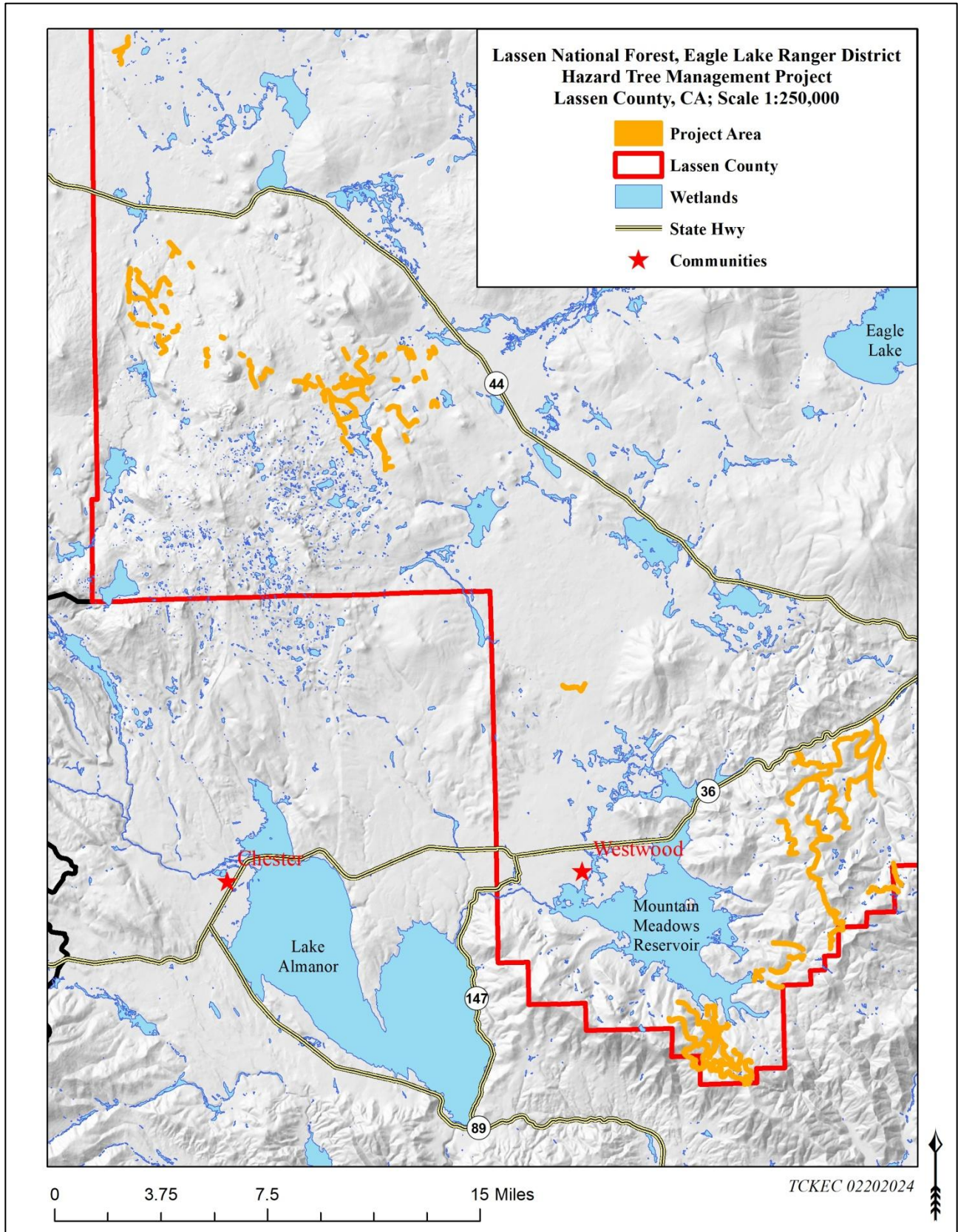


Figure 2: LNF ELRD Hazard Tree Management Project Location.

ENVIRONMENTAL PERMITS

No other permits are needed to implement this project.

MITIGATION MEASURES

Mitigation measures and best management practices (*See Appendix B*) (USDA Forest Service 2012) applicable to the project to minimize or eliminate potential negative effects or to comply with laws, regulations, and policy are described below (Mitigation Measures) and in Appendix B (Best Management Practices). More restrictive measures may be applied if determined necessary by the responsible official. Implementation of these mitigation measures will reduce the environmental impacts of the proposed project to a less than significant level.

Aesthetics:

Mitigation Measure AES-1: *Stump Heights* - For all hazard tree removal treatments in Retention and Partial Retention Visual Quality Objectives: Where high masses or groups of trees will be removed, stump heights should be between 6 to 8 inches (according to timber contract specifications), except in the case of localized situations that make low cutting heights unsafe. Stumps should be angled to the contour of the land. Low stumping shall occur for a distance of 100 feet from the road edge on upslope terrain and on easily visible level terrain areas and anywhere within the corridor of a designated, eligible, and/or suitable Wild and Scenic River. In those same areas where hazard tree removal occurs singly, or in a low volume and dispersed pattern, 8- to 12-inch stump heights are acceptable and should be angled to the contour of the land.

Botany:

Mitigation Measure BIO-BOT-1: *Sensitive Plants* - Known populations of federally threatened, endangered, proposed, and candidate; Forest Service sensitive, survey and manage, or species of conservation concern; Forest Service sensitive plant, lichen, or fungi species shall be flagged for avoidance. Ground-disturbing activities and spreading chips or slash materials shall be prohibited within flagged areas. When necessary, hand felling of trees and end-lining of logs may be conducted within occurrences if it is determined by a botanist that effects would be minimal or there will be beneficial effects based on the site or habitat conditions. Piles and fire lines shall be located outside of flagged areas.

Mitigation Measure BIO-BOT-2: *Pre-implementation Consultation with Botanist* - During early stages of hazard tree removal planning, consult with the botanist to review existing information about federally threatened, endangered, proposed, and candidate, Survey and Manage, or Forest Service sensitive plant, lichen, and fungi species and habitat, and suitable habitat, invasive species, and whether surveys are necessary in the specific areas or habitats planned for activity. Follow direction in Forest Service Handbook 2609.26 chapter 10, Forest Service manuals 2670.22, 2670.32 and 2900 on whether to conduct surveys and the appropriate type of survey documentation. Where these plants exist or are found through surveys, the botanist will recommend the appropriate avoidance or other design elements.

Mitigation Measure BIO-BOT-3: *New Sensitive Plant Discoveries* - In the event any new populations of federally threatened, endangered, proposed, and candidate, Forest Service sensitive, survey and manage, or species of conservation concern plant, lichen or fungi species are discovered

during the various phases of the project, the area will be flagged and avoided until a botanist is consulted for design feature applicability.

Mitigation Measure BIO-BOT-4: *Felling Adjacent to Sensitive Plant Populations* - Hazard trees adjacent to flagged populations of federally threatened, endangered, proposed, and candidate and Forest Service sensitive, survey and manage, and species of conservation concern plant, lichen, or fungi species will be directionally felled away from the flagged area to avoid disturbing the population. Only remove directionally felled trees if ground disturbance within the flagged area can be avoided. If directional felling cannot be done due to safety concerns, fell as necessary and leave on-site. This requirement may be waived by a botanist depending on the species present and its phenology. Flagging will be used to delineate avoidance boundaries.

Mitigation Measure BIO-BOT-5: *Felling within Flagged Sensitive Plant Populations* - Hazard trees located within flagged avoidance areas may be felled but must be left on-site to avoid ground disturbance unless removal can occur with minimal effects in consultation with a botanist. Flagging will be used to delineate avoidance areas.

Mitigation Measure BIO-BOT-6: *Special Plant Habitats* - Special habitat types which support unique plant communities (such as serpentine, lava caps, pumice flats, rock outcrops, and seeps and springs) will be avoided. This requirement may be waived by a botanist if ground disturbance can be avoided.

Non-Native Invasive Species:

Mitigation Measure BIO-INV-1: *Cleaning of Equipment* - All equipment to be used off-road would be cleaned using either washing or high-pressure air and visually inspected before moving into the project area to ensure equipment is free of soil, plant propagules, or other debris that may contain invasive plant seeds. All equipment working in infested areas will be cleaned prior to leaving the infested area.

Mitigation Measure BIO-INV-2: *Weed Free Materials* - Any source that provides material such as rock, gravel, or boulders to be used in the project area would be inspected and determined to have limited potential for the spread of invasive plants. Material stockpiles must be noxious weed free.

Mitigation Measure BIO-INV-3: *Weed Free Straw* - Any straw or seed placed within the project area must be California-certified weed-free and the seed mix approved by a botanist. Other materials to be used as mulch, for which a state inspection protocol does not exist (such as wood chips, local materials) would be inspected by a botanist to determine the potential for spread of invasive plants. Post-project monitoring would occur in areas where imported materials are used.

Mitigation Measure BIO-INV-4: *Equipment and Flagged Sites* - Equipment, vehicles, and personnel will avoid working within flagged invasive plant sites. Flagging will be used to delineate avoidance boundaries. If infestation cannot be avoided, consult with a botanist for risk minimization strategies.

Mitigation Measure BIO-INV-5: *Staging Areas and Landings* - If potential landings or staging areas are infested with invasive plants, consult a botanist about appropriate methods for minimizing risk and managing the infestation.

Mitigation Measure BIO-INV-6: *Invasive Discoveries* - Any additional infestations discovered prior to or during project implementation would be flagged and avoided. Report new infestations to a botanist.

Fisheries and Aquatics:

Mitigation Measure BIO-AQUA-1: *Burn pile placement* - No burn piles shall be placed within meadows, fens, springs, or 25 feet from the edge of riparian vegetation.

Mitigation Measure BIO-AQUA-2: *Burn pile ignition* - Piles that lie within 300 feet of perennial streams or special aquatic features or 150 feet of intermittent or ephemeral streams may be burned, but would, to the extent practicable, be ignited in a manner that allows any organisms to flee from the pile (for example, light on the leeward side so that fire moves as a front through the pile).

Mitigation Measure BIO-AQUA-3: *Water drafting sites* - Identify water sources on project implementation maps. Consult with the biologist or hydrologist to obtain approval for use of additional water drafting locations and to determine whether the location represents suitable habitat for sensitive aquatic species.

Mitigation Measure BIO-AQUA-4: *In-Channel drafting sites* - In-channel water drafting locations shall include rocking of approaches, barrier rock, straw bales, or other measures to prevent overflow and leaks from entering the watercourse.

Mitigation Measure BIO-AQUA-5: *Water drafting site survey and approval*- Survey all proposed water drafting locations for sensitive and listed amphibians and receive approval from a biologist prior to use. Use drafting devices with 2 millimeter or less screening, and place hose intake into bucket in the deepest part of the pool. Use a low velocity water pump and do not pump ponds to low levels beyond which they cannot recover quickly (approximately 1 hour).

Mitigation Measure BIO-AQUA-6 *Water drafting and Aquatic invasive organisms* - To minimize the risk of aquatic invasive species, project activities will adhere to the Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations, PMS 444. If contamination of gear with raw water, mud, or plants is unavoidable, the biologist will be consulted, and the operators will adhere to sanitizing equipment guidelines. A map of known locations of aquatic invasive organisms would be provided to implementation crews.

Mitigation Measure BIO-AQUA-7: *Water drafting in fish-bearing streams* - For fish-bearing streams, the water drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 4 cubic feet per second, nor exceed 20 percent of surface flows for streamflow less than 4 cubic feet per second. For non-fish-bearing streams, the drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 2 cubic feet per second, nor exceed 50 percent of surface flows. Water drafting should cease when bypass surface flows drop below 1.5 cubic feet per second on fish-bearing streams and 10 gallons per minute on non-fish-bearing streams.

Mitigation Measure BIO-AQUA-8: *Dust Abatement in Riparian Areas with Sensitive Species* - Only use water as dust abatement in riparian areas known to be occupied with sensitive status species.

Mitigation Measure BIO-AQUA-9: *Storage of heavy equipment and Sensitive Species* - The storage of heavy mechanical equipment will occur outside of habitats occupied by threatened, endangered, and sensitive species unless a biologist authorizes specific locations. If equipment is stored in occupied habitats, the areas around all equipment occurring in suitable habitat will be checked daily for threatened, endangered, and sensitive species prior to the equipment being moved.

Mitigation Measure BIO-AQUA-10: *Hazardous chemicals and Riparian Areas* - Do not store equipment fuels, hydraulic fluid, oils, fire ignition fuels, and other toxic materials within riparian areas unless a biologist authorizes specific locations.

Mitigation Measure BIO-AQUA-11: *Fueling and watercourses* - No fueling or refueling of any mechanical equipment (such as chainsaws) will occur within 100 feet of any flowing watercourse or intermittent drainage. Fueling and servicing of vehicles and other heavy equipment used for proposed activities will be done outside of aquatic management zones, the zone of concern for aquatic and riparian resources.

Mitigation Measure BIO-AQUA-12: *Hazardous spills* - Any hazardous spills will be immediately cleaned up and reported to the Forest Service.

Mitigation Measure BIO-AQUA-13: *Western pond turtle* - Within areas identified as high-quality western pond turtle habitat by the biologist prior to implementation, avoid placing piles, skid trails, and landing sites in open, grassy patches. Do not fell trees across these habitats wherever practical.

Mitigation Measure BIO-AQUA-14: *Vernal Pools* - Activities within 250 feet of vernal pools will occur only once the ground surface is completely dry (typically June 1 to October 31 but will vary year to year). No activity will occur within the vernal pool. A biologist will be present for ground- and vegetation-disturbing activities conducted within 250 feet of vernal pool habitat. Personnel will utilize existing roadways within 250 feet of vernal pools whenever possible. If not using an existing roadway, only rubber-tired vehicles will be utilized within vernal pool upland areas. Driving through vernal pools at any time of year will be avoided. Any hazard trees found within 250 feet of a vernal pool will be directionally felled away from the vernal pool.

Mitigation Measure BIO-AQUA-15: *Equipment Exclusion Zone for Sensitive Aquatic Species* - Within suitable habitat for aquatic and terrestrial Regional Forester sensitive species, implement a minimum 100-foot equipment exclusion zone around perennial and intermittent rivers, streams, other waterbodies, and wet/sensitive areas including seeps, springs, and meadows. If a biologist determines that suitable habitat is not present, the standard equipment exclusion zone will be applied.

Mitigation Measure BIO-AQUA-16: *Hazard tree marking guidelines in aquatic management zones* - Use a probability threshold of 0.7 or higher as defined in Marking Guidelines for Fire-Injured Trees (Smith and Cluck 2011) and a hazard tree rating of 6 or 7 as defined in the hazard tree guidelines (Angwin et al. 2022) when identifying hazard trees for removal within 1.5 site potential tree heights if upslope from the road, and 1 site potential tree height if downslope from the road, or 150 feet, whichever is greatest, from all perennial and intermittent streams.

Mitigation Measure BIO-AQUA-17: *Fiber netting and Frogs* - Tightly woven fiber netting or similar material shall not be used for erosion control or other purposes within suitable habitat to ensure the foothill yellow-legged frog, Sierra Nevada yellow-legged frog, or cascade frog do not get trapped, injured, or killed.

Mitigation Measure BIO-AQUA-18: *Borate and Frogs* - Within 500 feet of known occupied sites Cascades frog, foothill yellow-legged frog, and Sierra Nevada yellow-legged frog, design borate applications to avoid adverse effects to individuals and their habitats.

Mitigation Measure BIO-AQUA-19: *Refueling and Critical Aquatic Refugia* - Prohibit storage of fuels and other toxic materials within riparian conservation areas and critical aquatic refuges except at designated administrative sites and sites covered by a special use authorization. Prohibit refueling within riparian conservation areas and critical aquatic refuges unless there are no other alternatives. Ensure that spill plans are reviewed and up to date.

Mitigation Measure BIO-AQUA-20: *Stream Crossings and Water Drafting Sites* - Ensure that culverts or other stream crossings do not create barriers to upstream or downstream passage for aquatic-dependent species. Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat. Where possible, maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows, wetlands, and other special aquatic features.

Mitigation Measure BIO-AQUA-21: *Stream Channels* - Determine if the level of coarse large woody debris is within the range of natural variability in terms of frequency and distribution and is sufficient to sustain stream channel physical complexity and stability. Ensure proposed management activities move conditions toward the range of natural variability.

Mitigation Measure BIO-AQUA-22: *RCA's and Critical Aquatic Refugia* - Allow hazard tree removal within riparian conservation areas or critical aquatic refuges. Allow mechanical ground disturbing fuels treatments, salvage harvest, or commercial fuelwood cutting within riparian conservation areas or critical aquatic refuges when the activity is consistent with riparian conservation objectives. Use low ground pressure equipment, over-the-snow logging, or other non-ground-disturbing actions to operate off of existing roads when needed to achieve riparian conservation objectives. Ensure that existing roads, landings, and skid trails meet best management practices. Minimize the construction of new skid trails for access into riparian conservation areas for fuel treatments, salvage harvest, commercial fuelwood cutting, or hazard tree removal.

Mitigation Measure BIO-AQUA-23: *Frogs and Rain* - Foothill yellow-legged frog, Sierra Nevada yellow-legged frog, and Cascade Frog: For all activities in occupied or suitable habitat, if there is a 70 percent or greater forecasted rain event of 0.25-inch or greater, work activities will be postponed until site conditions are dry enough to avoid potential impacts.

Mitigation Measure BIO-AQUA-24: *Buffers for Frogs* - Foothill yellow-legged frog, Sierra Nevada yellow-legged frog, and Cascade Frog: Within the riparian areas with known or suspected occupancy or their designated or proposed critical habitat, use handheld equipment (chainsaws) and walk in and out using the same pathway. Do not create any skid trails or burn piles within these areas. Areas of occurrence for all species include reaches 0.3 miles upstream and downstream plus all associated wet meadows. Areas of occurrence are as follows into the uplands areas: California

red-legged frog: 0.3 mile Sierra Nevada yellow-legged frog and Mountain yellow-legged frog: 82 feet Foothill yellow-legged frog: 100 feet (distance may change) Yosemite toad: 0.78 mile

Wildlife:

Mitigation Measure BIO-WILD-1: *Large downed woody material* - To the greatest extent possible, retain downed woody material with a large end diameter greater than 30 inches, or of the largest size class available, that was present prior to the wildfire. Do not buck up, and avoid moving these large, pre-existing downed logs during treatment wherever practicable.

Mitigation Measure BIO-WILD-2: *Pre-Fire Snags and Downed Logs* - Unless a hazard to a road, trail, facility, or a threat to human safety, retain all snags and downed logs that were present prior to the recent fires. If large diameter pre-fire, old-growth, legacy trees (old trees that have been spared during harvest or have survived stand replacing natural disturbance), or snags are fallen as hazards, retain them whole as downed logs and do not buck or pile. If the downed log is a safety threat, move it to a safe location as intact as possible. Large-diameter (>30" dbh at stump height) and old-growth conifer snags or legacy trees with deformities such as cat faces, broken tops, hollows, or cavities are prioritized for retention when evaluating fuel levels.

Mitigation Measure BIO-WILD-3: *Hardwood snags* - Unless a hazard to a road, trail, or facility, retain all hardwood snags (larger than 16 inches diameter at breast height).

Mitigation Measure BIO-WILD-4: *Downed Logs* - Unless a hazard to a road, trail, or facility, where available retain an average of 5 to 8 downed logs per acre in uplands and 4 to 6 downed logs per acre in riparian areas of the largest size class (larger than 20 inches diameter at breast height, over 10 feet in length). Preference is to retain logs within riparian areas and away from roads. Numbers of downed logs can vary on any particular acre and should be an average for the landscape or treatment area.

Mitigation Measure BIO-WILD-5: *Bald Eagle:* Hazard trees located within 0.25 mile of active bald eagle territory will be evaluated by a biologist prior to felling to establish whether they contain nests or are important pilot or perch trees. If a hazard tree contains a nest, or is an important pilot tree, it will not be felled between January 1 and August 31 unless it is an immediate threat to human safety. No project actions that result in loud or continuous noise above ambient levels within 0.5 mile of an active bald eagle nest will occur from January 1 through August 31 or an occupied bald eagle winter roost from November through March 1.

Mitigation Measure BIO-WILD-6: *Sensitive Bats:* Where caves or mines are located within 250 feet of the project boundaries, a Forest Service cave coordinator, in coordination with a biologist, would be consulted and a buffer flagged on the ground identifying an equipment exclusion zone. The following protective measures would apply: No noise generating or habitat modification activities will take place within 250 feet from caves, mines, and mine adits to protect known or potential sensitive bat species (Townsend's big-eared bat, pallid bat, and fringed myotis) roost sites. Options for pile burning and felling around caves or mines include the following: pile burning and felling imminent safety threats only (hazard trees with a high hazard rating within 1.5 tree lengths of a road, trail, or facility) outside the March 1 through August 31 breeding season or pile burning during the March 1 through August 31 breeding season only under prevailing wind conditions that disperse smoke away from cave and mine entrances.

Mitigation Measure BIO-WILD-7: Limited Operating Periods (LOPs) - Limited operating period is a period of time to protect species from disturbance that could result in loss of fecundity (this year's young would not be conceived or birthed, young or eggs would be kicked out of den or nest, or otherwise be disturbed and not successfully survive to a juvenile or adult state) or a loss of life (migration).

Limited operating period timeframes examples (not all inclusive; others are listed in other mitigation measures):

- Fisher: March 1 to June 30
- Marten: May 1 to July 31
- Sierra Nevada red fox: January 1 to June 30

The limited operating period could be lifted if one of the assumptions is met:

- Species is not within the area as determined by protocol level surveys
- Area no longer has appropriate habitat or habitat components for the species to reproduce in the area (post-fire no longer meets species needs)

Mitigation Measure BIO-WILD-8: Marten and Fisher - Retain some slash piles for marten escape cover and prey habitat, where biologists have determined that cover and/or connectivity could benefit marten or fisher habitat (i.e., along outer edges of canopy openings and riparian buffers). The number and location of slash piles will vary and will be determined by biologists on a site-specific basis. When feasible, piles should contain large and small diameter logs, have enough interstitial space to allow for marten or fisher occupancy, and be at least 6 feet by 8 feet in diameter. Piles would be clearly marked to not be burned. Pile specifications will be adapted to on-the-ground conditions.

Mitigation Measure BIO-WILD-9: Marten Dens - Maintain a 100-acre buffer from May 1 to July 31 for all active marten den sites. Protect marten den site buffers from disturbance from vegetation treatments with a limited operating period from May 1 through July 31 as long as habitat remains suitable or until another regionally approved management strategy is implemented. The limited operating period may be waived for individual projects of limited scope and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.

Mitigation Measure BIO-WILD-10: Fisher: In high quality reproductive and potential fisher denning habitat and along Maintenance Levels 2 and 3 roads, implement hazard mitigation options other than complete removal for conifer snags larger than 35 inches diameter at breast height and hardwood snags larger than 27 inches diameter at breast height when it is safe to do so. Such options include cutting the hazard tree as high as possible to leave a portion of the trunk (10 to 20 feet tall) standing to provide potential microsites. Leave 15 to 20 feet of the thickest part of the trunk behind as a large log, particularly if it is decayed. When hazard tree removal creates continuous areas with canopy cover less than 40 percent, leave 1 to 2 large trees (larger than 30 inches diameter at breast height) per acre on the ground as coarse woody debris to enhance habitat quality and connectivity. This will facilitate crossing by fishers and limit the potential for habitat fragmentation.

Mitigation Measure BIO-WILD-11: Fisher Dens - Protect any known fisher den site buffers from vegetation treatments disturbance with a limited operating period from March 1 through June 30, as long as habitat remains suitable or until another regionally approved management strategy is implemented. The limited operating period may be waived for individual projects of limited scope

and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Avoid fuel treatments within any known fisher den site buffers to the extent possible. If areas within den site buffers must be treated to achieve fuels objectives for the urban wildland intermix zone, limit treatments to hand clearing of fuels. Use piling to treat surface fuels during initial treatment. Burning of piled debris is allowed in fall and winter.

Mitigation Measure BIO-WILD-12: Fisher Habitat - In high and moderate quality reproductive fisher habitat (Thompson et al. 2021; habitat model) in low severity and unburned areas, apply a limited operating period during the denning season (March 1 through June 30). Use the programmatic biological opinion definitions for potential and high-quality denning habitat for areas that the habitat model does not cover. The limited operating period may be waived for individual projects of limited scope and duration if pre-project surveys document absence of denning fisher (Tucker et al. 2020). In areas of moderate burn severity (25 to 75 percent basal area loss), a biologist will assess the area to determine if potential habitat remains and the limited operating period should be applied.

Mitigation Measure BIO-WILD-13: Sierra Nevada red fox: A biologist will validate detection of a Sierra Nevada red fox. When verified sightings occur, conduct an analysis to determine if activities within 5 miles of the detection have a potential to affect the species. If necessary, apply a limited operating period from January 1 to June 30 to avoid adverse impacts to potential breeding. Evaluate activities for a 2-year period for detections not associated with a den site.

Mitigation Measure BIO-WILD-14: Gray wolf: If dens or rendezvous sites are within 1 mile of the work activity, the biologist will establish a buffer to seasonally restrict activities from April 1 through July 15 between the proposed activity and the den site or rendezvous site. The buffer will be at least 1 mile but is likely to be irregularly shaped based on topography and concerns for revealing the exact site location. The biologist is expected to coordinate with California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service as appropriate, when determining whether dens or rendezvous sites are present and when designating buffers.

Mitigation Measure BIO-WILD-15: Snags - Retain four of the largest snags per acre larger than 15 inches diameter at breast height following plan direction, and where possible, retain 5 to 10 tons per acre of the largest downed logs. Preference is to retain the largest downed logs present prior to the fire at least 20 inches in diameter and more than 10 feet in length. If areas are deficient in logs, retain these large, downed logs whole in stands and do not buck or pile. Within perennial stream riparian buffers retain large, downed woody material for wildlife. Follow all relevant plan direction.

Mitigation Measure BIO-WILD-16: LOPs for Northern Goshawks and CA Spotted Owls - Maintain a seasonal limited operating period within 0.25-mile of known **California spotted owl and northern goshawk** nests or within protected activity center boundaries during the breeding season (March 1 to August 15 for spotted owls; February 15 to September 15 for goshawks) unless surveys confirm they are not nesting. The limited operating period would prohibit mechanical activities such as tree felling, machine piling, major road maintenance, or other operations that generate loud or continuous noise within approximately 0.25-mile of the activity center, unless surveys confirm that California spotted owls or northern goshawks are not nesting. If the nest stand within a protected activity center is unknown, either apply the limited operating period to a 0.25-mile area surrounding the protected activity center, or survey to determine the nest stand location.

Mitigation Measure BIO-WILD-17: *Activities in Northern Goshawk and CA Spotted Owl PACs* - No tree removal would occur in California spotted owl or northern goshawk protected activity centers, unless they are identified as a hazard. Trees identified as hazards, located within spotted owl or goshawk protected activity centers, which are larger than 30 inches diameter at breast height would be left on-site as whole downed logs (and not bucked up or removed) unless they would exceed desired fuel levels for the area. Do not locate log processing landings in northern goshawk or California spotted owl protected activity centers.

Mitigation Measure BIO-WILD-18: *Great gray owl:* Apply a limited operating period, prohibiting vegetation treatments within 0.5 mile of an active great gray owl nest stand, during the nesting period (typically March 1 to August 15). The limited operating period may be waived for vegetation treatments of limited scope and duration, if a biologist determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biologist concludes that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the limited operating period buffer distance may be reduced.

Mitigation Measure BIO-WILD-19: *Sandhill Cranes* - If **sandhill cranes** are observed within the project area before or during project implementation, a limited operating period will be in effect from April 1 through August 1 within one-half mile from occupied areas. If surveys indicate that cranes are not nesting, then the limited operating period for that year would not be required. Surveys of potential meadows are needed each year to establish nesting status.

Cultural Resources:

Mitigation Measure CULT-1: *National Historic Preservation Act* - Compliance with National Historic Preservation Act Section 106 will be fulfilled in accordance with the provisions of the R5 PA. Heritage program specialists will be involved early in planning processes for treatments to identify cultural resources at risk and determine effects. Measures to avoid adverse effects recommended by the Heritage Program Manager or Delegated Heritage Program Specialist and accepted by the Line Officer will be incorporated into treatment designs and implementation plans. Unavoidable and unanticipated adverse effects to cultural resource sites, and inadvertent discoveries, will be addressed in accordance with the provisions of R5 PA.

Mitigation Measure CULT-2: *Protection of Historic Sites and Unanticipated Discoveries* - Contracts will contain standard provisions for the Protection of Historical Sites and unanticipated discoveries (B/BT6.24 and C/CT6.24) pursuant to FSH 2409.11, 61.11b. Forest Service project administrators and/or designated Heritage Program Staff will review cultural resource site protection measures with contractors prior to the start of activities.

Mitigation Measure CULT-3: *Treatment Activities with Cultural Site Boundaries* - No treatment activities will occur within cultural site boundaries unless approved by the Heritage Program Manager or Delegated Heritage Program Specialist in accordance with provisions of the programmatic agreement.

Mitigation Measure CULT-4: *Human Remains* - Discoveries of human remains will be treated in accordance with provisions of the R5 PA (Stipulation 7.9: Human Remains).

Geology and Soils:

Mitigation Measure GEO-1: *Detrimental disturbance* – Limit total soil detrimental disturbance (compaction, displacement, and total porosity loss) to less than 15 percent of an activity area. Landings and skid trails will be considered part of an activity area.

Mitigation Measure GEO-2: *Slopes* – Limit all mechanical operations to slopes less than 35 percent. In areas where sustained slopes exceed 35 percent, limit mechanical operations such as skidding, tractor piling, grapple piling and mechanized tree felling except where supported by on-the-ground evaluation by an interdisciplinary team that includes a watershed specialist. Trees are permitted to be hand-felled and end-lined on slopes over 35 percent (within unburned and low soil burn severity areas only), but any furrow produced by end-lining that exceeds 25 feet long by 6 inches deep shall be recontoured (“filled in”) to prevent concentrated flow and hillslope erosion.

Mitigation Measure GEO-3: *Soil Moisture* - Operate mechanical equipment when soil moisture is less than 20 percent by weight. Use Forest Service standard contract provision Erosion Prevention and Control to suspend operations due to the rainy season, high water, and other adverse operating conditions, to protect resources. If Forest Service soil scientist or hydrologist is unavailable to sample soil, contract administrators shall use ball method to test for operability.

Mitigation Measure GEO-4: *Pivoting of Machinery* – Pivoting of machinery should be avoided to prevent soil displacement in high soil burn severity areas.

Mitigation Measure GEO-5: *Slash* – Activity generated slash may be machine or hand piled on slopes less than 35 percent; and hand piled on slopes greater than 35 percent.

Mitigation Measure GEO-6: *Soil Cover* - During management activities, maintain (or add to the extent feasible in deficient areas) an average of 50 percent effective soil cover in treatment areas that is well-distributed and generally in the form of fine organic matter. Where feasible, maintain 85 percent or more effective soil cover in riparian areas and on slopes greater than 25 percent, and 70 percent effective soil cover on areas with high soil burn severity. Management activities in areas with ecological types that cannot normally support 50 percent soil cover shall be considered individually for soil cover needs.

Mitigation Measure GEO-7: *Woody debris* – Maintain coarse woody debris for soil organisms based on ecological type and in consultation with wildlife and fuels specialists.

Mitigation Measure GEO-8: *Existing Landings and Skid Trails* – Reuse existing landings and skid trails wherever possible. Placement of landings and skid trails should avoid, where possible, high soil burn severity areas.

Mitigation Measure GEO-9: *Waterbars* - All skid trails will be waterbarred and have slash scattered on them to provide a minimum of 50 percent cover where conditions allow. Where suitable material exists, post treatment soil cover will range from 50 to 70 percent, with variations resulting from slope steepness and fuel reduction treatments.

Mitigation Measure GEO-10: *New Landings* - New landings will be located on gentle slopes (less than 20 percent) to minimize earthwork, and will avoid unstable areas, steep slopes below landslide benches, and slope positions where they could deliver sediment to streams. Cuts and fills will not

exceed 5 feet in height unless field-reviewed and approved by an earth scientist beforehand. Landings will have natural, non-constructed designs. All new landing fill slopes and access road fill slopes (greater than 100 square feet) would be mulched initially, and then the mulch would be maintained throughout the life of the project.

Mitigation Measure GEO-11: Tilling - Following completion of all management activities, till (subsoil to 18 inches) with a winged-subsoiler (preferred) all landings identified for rehabilitation, and main skid trails (up to 200 feet entering landings) that have fine textured soils. Tillage will be completed outside of the tree dripline so as not to impact root systems. For rocky soil, scarification will be used to restore sites. These areas should be mulched using certified weed-free materials or on-site slash that is lopped and scattered or chipped at a rate of 1.5 to 2 tons per acre (approximately 4 to 6 inches in depth) over a minimum of 75 percent of the exposed soils, where necessary, to prevent erosion.

Mitigation Measure GEO-12: Ultramafic Soils - All field personnel who will be working near earth-moving, or other dust-producing activities in areas underlain by ultramafic rock will be informed that naturally occurring asbestos commonly occurs in that rock, and they will be provided with a map showing such areas.

Mitigation Measure GEO-13: Ultramafic Soils and Dust Abatement - Dust production in ultramafic areas will be prevented or minimized by applying effective dust abatement measures, such as: applying water or other dust inhibitors to materials being worked. Where dust prevention in ultramafic areas is not possible, appropriate protection and mitigation measures will be applied so that Forest Service and contractor field personnel will not inhale such dust. These measures include but are not limited to closing windows on vehicles, turning on positive ventilation systems, and using appropriate air filtration masks.

Mitigation Measure GEO-14: Ultramafic Soils and Waste Rock - If rock or soil waste is generated from ultramafic areas, such waste will be disposed of only where the underlying rock is also ultramafic, and it will not be mixed with other waste from non-ultramafic areas. When transporting naturally occurring asbestos-containing material, avoid overloading trucks and cover with tarps to reduce dust. Ensure that piles of excavated material are wet and cover with tarps to reduce dust.

Mitigation Measure GEO-15: Ultramafic Soils and Mechanical Operations - Mechanical operations should operate on slightly moist or moist soils to reduce dust levels within area that could contain naturally occurring asbestos in ultramafic soils.

Mitigation Measure GEO-16: Ultramafic Soils and Side cast - Recommend that side casting of material should be kept to a minimum and ample watering of roads or areas where ultramafic material exists to minimize exposure to potential naturally occurring asbestos.

Hydrology:

Mitigation Measure HYD-1: Equipment Exclusion Zone (EEZ)– Equipment exclusion zones will be established to protect aquatic resources and water quality in the post-burn landscape based on soil burn severity and time since the fire (See Table 1).

Table 1. Aquatic management zone types, conditions, and associated equipment exclusion zone buffers

Aquatic management	Time since fire occurred	Soil burn severity*	Minimum equipment
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zone type	(years)		exclusion zone buffer width (feet)
Perennial, intermittent, and ephemeral streams, special aquatic features, lakes, wetlands, springs, landslide areas	Greater than 2 years	Moderate or High	100
Perennial, intermittent, and ephemeral streams, special aquatic features, lakes, wetlands, springs, landslide areas	Greater than 2 years	Low or Unburned	50**

Refers to most prominent soil burn severity within the aquatic management zone, as identified in burned area emergency response soil burn severity maps. For mosaic burn, defer to the most restrictive buffer width.

**Exception per mitigation measure BIO-AQUA-15: Within suitable habitat for aquatic and terrestrial Regional Forester sensitive species, implement a minimum 100-foot equipment exclusion zone around perennial and intermittent rivers, streams, other waterbodies, and wet/sensitive areas including seeps, springs, and meadows.

Mitigation Measure HYD-2: *Wet weather* - All ground-disturbing activities within or outside of the normal operating season (May 1 to October 31) will be implemented according to the Lassen National Forest wet weather operation standards.

Mitigation Measure HYD-3: *High Priority Soils* - High-priority wet, sensitive, or compactable soil sites (WETNESS sites identified by the hydrologist) will be field reviewed by a hydrologist, soil scientist, or designee to determine site sensitivity and applicable equipment exclusion zone.

Mitigation Measure HYD-4: *Roads* - Road sites identified by the hydrologist or designee as having high sediment delivery potential will be field reviewed prior to contract development to identify: (1) if mitigations are needed, and (2) what site-specific best management practices or road improvements are appropriate.

Mitigation Measure HYD-5: *Skid Trail Stream Crossings*- Designated skid trails crossing ephemeral stream channels may be approved for access to otherwise inaccessible areas, but only upon consultation with an aquatic specialist or designee.

Mitigation Measure HYD-6: *Skid Trails and Landslides* - No skid trails will be built on active landslides or inner gorges, and no existing skid trails on active landslides or inner gorges will be used.

Mitigation Measure HYD-7: *Refueling* - Refueling will not take place within aquatic management zones except at designated landings in locations where most disconnected from water resources. A spill containment kit will be in place where refueling and servicing take place.

Mitigation Measure HYD-8: *Borate* - Borate will not be applied to stumps within 25 feet from the stream channel. Large quantities of borate will not be stored, mixed or handled within 100 feet of any stream channel, wetland, or wet area (or farther as needed to ensure plan compliance). Follow label instructions for use near waterbodies. Spills within aquatic management zones will be immediately reported to the local Forest Service watershed specialist.

Mitigation Measure HYD-9: Equipment Exclusion Zones - All equipment exclusion zones will be flagged, signed, or both within proposed treatment units and identified as “equipment exclusion” on project maps or as “buffer strips” in contracts.

Mitigation Measure HYD-10: Tree Cutting –Trees providing bank stability on fish-bearing streams should not be cut where possible (where they don’t pose an imminent threat to life and safety). Trees will be directionally felled away from streambank where possible and as safety allows or unless otherwise approved by an aquatic specialist or designee.

Mitigation Measure HYD-11: Heavy equipment – Off-road heavy equipment access is prohibited within the Equipment Exclusion Zone. This includes skidders, forwarders, masticators, chippers, and more. Heavy equipment may operate from the roadway within the equipment exclusion zone. There would be no off-road heavy equipment use on slopes greater than 35 percent for low or unburned soil burn severity, or 25 percent for high or moderate soil burn severity within the Aquatic Management Zone.

Mitigation Measure HYD-12: Commercial Product Removal – Commercial product removal may occur within the aquatic management zone and the equipment exclusion zone where fuel loading is excessive and where forest plan standards for large or coarse wood are met, so long as equipment exclusion in the equipment exclusion zone restrictions can be met. Aquatics specialists and fuels specialists should be consulted for determination of “excessive fuel loadings.”

In the equipment exclusion zone, yarding or end-lining may be used to remove forest wood products in low soil burn severity areas with slopes less than 25 percent. There would be no yarding or end-lining in the equipment exclusion zone in areas of high or moderate soil burn severity. Exceptions may be considered where the equipment exclusion zone is located on the uphill side of a road on a road that runs parallel to a stream, provided that: (1) adequate road drainage is maintained and (2) the site has site-specific approval by an aquatic specialist. All furrows created in the aquatic management zone or equipment exclusion zone will be fully repaired (recontoured and covered with effective ground cover or erosion control).

Mitigation Measure HYD-13: Skidding – Skidding would not occur within the equipment exclusion zone. Exceptions may be considered on the uphill side of the road on roads that parallel streams, if approved by an aquatic specialist and providing that proper road drainage is maintained. All skid trails in the aquatic management zone would have site-specific mitigations (such as erosion control), as determined by an aquatic specialist, and would be fully repaired (decompacted and covered with effective ground cover or erosion control).

Mitigation Measure HYD-14: Stream crossings – There would be no temporary stream crossings, except where approved by an aquatic specialist. Exceptions would not be allowed on perennial streams, streams with flowing or standing water, areas of high and moderate soil burn severity, or on areas of low soil burn severity with slopes greater than 25 percent. All stream crossings in the aquatic management zone would be fully repaired (recontoured, decompacted, and covered with effective ground cover or erosion control).

Mitigation Measure HYD-15: Landings – Landings would be minimized in the aquatic management zone. There would be no new landings in the aquatic management zone, but existing landings may be used in the outer aquatic management zone outside of the equipment exclusion

zone. Exceptions to these restrictions may be considered on the uphill side of the road on roads that parallel streams, if approved by an aquatic specialist, and providing that proper road drainage is maintained. Exceptions would not be allowed on areas with high or moderate soil burn severity or areas of low soil burn severity with slopes greater than 25 percent. All landings in the aquatic management zone would be fully repaired (decompacted and covered with effective ground cover or erosion control).

Mitigation Measure HYD-16: *Slash piles* – Piles would be piled by hand within the equipment exclusion zone. Large and coarse wood interacting with the stream or active floodplain would not be piled unless the fuels hazard is excessive and forest plan standards for wood are met for a given stream reach. Pile size in the equipment exclusion zone would be limited to approximately 5 feet by 5 feet by 6 feet.

Mitigation Measure HYD-17: *Pile burning* – Hand piles within the equipment exclusion zone would be located greater than 50 feet from streams and 25 feet from groundwater-dependent ecosystems, meadows, springs. Pile burning would aim for low soil burn severity and minimize spread to the extent possible.

Mitigation Measure HYD-18: *Chipping or Masticating* – Chippers or masticators may operate within the equipment exclusion zone on existing roadbeds. Within the equipment exclusion zone there would be no deep concentrations (greater than 4 inches) of chips or masticated material. Chips would not be directed at stream channels, wet areas, or waterbodies. There would be no deep concentrations of chips in road ditch lines, or anywhere that could interfere with proper road drainage, within the aquatic management zone.

Mitigation Measure HYD-19: *Firewood cutting* – No firewood cutting within the equipment exclusion zone. Firewood piles should follow guidelines for “landings” as described previously.

Mitigation Measure HYD-20: *Canopy Cover* - In unburned areas or areas burned with low burn severity, avoid all loss of canopy cover to the extent possible. Retain canopy cover above 60 percent on average for a given treatment unit, except where conditions pose an imminent threat to life and safety. Identify unburned and low burn severity areas on site-specific maps prior to implementation.

Recreation:

Mitigation Measure REC-1: *Recreational Sites* - Avoid implementing activities within the boundaries of developed recreational sites during recreation season (May 15 through September 15). Minimize impacts to high-traffic recreation sites both day and night. These sites would include concession and Forest-run campgrounds and day use areas, popular trails, or trailheads. If hazard tree removal is necessary to address an emergent public safety concern, complete activities prior to opening for the season or issue a temporary closure.

Mitigation Measure REC-2: *Signage* - Provide safety signing along trails and roads, as well as trail closures in active project areas.

Mitigation Measure REC-3: *Public Access* - Maintain continued public and permit holder access during implementation, whenever feasible. If access cannot be maintained, please consult with District Recreation Staff for coordination and information dissemination to establish alternative routes or temporary closures.

Mitigation Measure REC-4: *Visitor Information* - Provide visitor information about area, road, and trail closures, or other recreation setting changes caused by project activities in news releases, on-site, and on the national forest's website.

Mitigation Measure REC-5: *Project Related Woody Material and Recreational Sites* - Completely remove all project-related woody material from developed and dispersed recreation sites including logs, branches, slash, and more, in a manner that minimizes disturbance to soil and natural forest duff layers, rehabilitate soil disturbance to natural existing condition. Use local leaf litter and small woody debris to disguise project-related ground disturbance within sight of roads, trails and within campgrounds.

Mitigation Measure REC-6: *Stumps* - In areas within all developed recreation sites (campgrounds, day use sites, trailheads, or others), flush cut all stumps, unless stumps are designated for grinding.

Mitigation Measure REC-7: *Landings* - Locate new landings away from developed and dispersed recreation areas (staging areas) where feasible. Avoid placing landings and other centralized project activities near private property.

Mitigation Measure REC-8: *Replacement of Signage and Barriers* - Protect all improvements including trails, roads, campground facilities, water system features, signs, barriers, mines, or bridges. If any signage or barriers (including boulders or fencing) or improvements are removed or damaged, they must be reinstalled in the same location and manner immediately following vegetation management operations.

Mitigation Measure REC-9: *Non-Motorized System Trails* - Minimize overlaying skid trails and haul roads on non-motorized system trails. If trails are used as skid trails or haul roads, trail cleanup and rehabilitation will be included in the contract. Skid trail crossings across designated forest trails and roads will be kept to a minimum. Any crossings shall be perpendicular to designated forest trails and roads. To reduce the potential for establishment of user created routes, rehabilitation must be completed in a timely manner to ensure the public does not begin using them for motorized or non-motorized recreation. The rehabilitation plan shall include returning to natural contour, scarification, seeding with native mix and installing natural barriers as needed. Trail width shall not be increased. Changes to trail alignment and surfacing will be minimized; the trail will not be straightened, nor its surface changed with an alternate material unless such actions are needed to enhance the trail and protect resources. Trees to be removed along trails will be designated and remaining trees left unmarked. Stumps will be cut as low as possible, and cuts angled away from trails.

Mitigation Measure REC-10: *Protect Range Improvements* - Protect range improvements and repair any damage in consultation with the range permittee.

Mitigation Measure REC-11: *Temporary Closure of Recreational Areas* - Recreation areas (designated roads, trails, trailheads, staging areas, and dispersed camp sites) may be temporarily closed to provide for public safety during active tree removal operations, but would otherwise remain open unless specifically agreed to by the recreation officer or trails manager.

Mitigation Measure REC-12: *Limit Trail Closures* - Limit all closures of trail segments to Monday through Friday, excluding Mondays of holiday weekends (Memorial Day, Labor Day, or others). No closures will be authorized on weekends. All trails shall be opened for safe use on weekends and holidays.

Mitigation Measure REC-13: *Public Notification* - Provide for public safety and education by posting signs to inform public of project activities. Whenever possible, post notices on forest website prior to hazard tree cutting. Keep information current.

Tribal Cultural Resources:

Mitigation Measure TRIBE-1: *Tribal Consultation* - Tribal consultation pursuant the NHPA will occur in accordance with the R5 PA for each hazard tree undertaking. Forests will provide tribal representatives the opportunity to monitor treatment activities, if so requested.

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 Agriculture Resources, Energy, Land Use Planning, Mineral Resources, Population and Housing, Public Facilities, and Utilities.
2. The proposed project will have a less than significant impact on Aesthetics, Air Quality, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Noise, Recreation, Transportation, and Wildfire.
3. Mitigation is required to reduce potentially significant impacts related to Biological Resources, Cultural Resources, Geology and Soils, 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. Honey Lake Valley 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 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 checked="" 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: Jesse Claypool
Title: HLVRCD Chairman

3/14/2024
Date

Environmental Checklist and Discussion

AESTHETICS

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

Scenic vistas were already impacted by the Dixie Fire (2021). Portions of the project area have high densities of drought- and fire-killed standing trees in forest stands that generally were denser than the natural range of variation. A mosaic burn pattern resulted from the fires and included areas of unburned, very low, low, moderate, and high fire severity. As a result, in some areas, tree mortality is 100 percent, while other areas still support a green forest. In moderate- and high-severity burn areas, the landscape has been dramatically altered; therefore, it does not meet the visual quality objectives. Treatments will result in better scenic vistas in the long-term as burned stands are restored to productive forest.

Direct and Indirect Effects: In moderate- and high-severity burn areas, the landscape has been dramatically altered; therefore, it is unlikely that visual quality objectives would currently meet the forest plan standards. By treating the slash and activity fuels through piling and burning, vegetation would regrow that provides visually pleasing contrast to surrounding features and landforms. The overall result of the proposed treatments would be an improved visual quality. The majority of what can be perceived as negative effects to the visual resource (flush cut stumps, hand or machine piles, treatment edges, ground disturbance, and untreated slash) occurs during implementation. This initial phase is short term in duration and does not represent the completed treatment. At the conclusion of treatment, visual signs of activity (such as cut stumps or track and tire marks) may still be evident in the short term but would be anticipated to dissipate over time. Mitigation measure AES-1: *Stump Heights* would be implemented to minimize these impacts. Evidence of burning on trees and ground would be naturally occurring in forests where wildfire regimes are common. When growth of shrubs, grasses, and forbs is underway, most of the evidence left behind by management activities would not be anticipated to be evident to the casual forest visitor.

Cumulative Effect: Cumulative scenic quality effects were evaluated from multiple viewpoints. It is anticipated that proposed management activities would appear visually subordinate to the characteristic landscape. All viewsheds would be natural or near natural-appearing and meet or exceed a partial retention visual quality objective. It is unlikely that the incremental effects from this project and any additional future foreseeable project would have a significant impact on the scenery of the project area.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Except as provided in Public Resources Code § 21099, would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway were previously impacted by the Dixie Fire. Treatments will remove dead/dying trees, and restore areas to more aesthetically pleasing conditions.

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?	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"/>

Existing visual character or quality of public views of the site and its surroundings will be improved by proposed treatments as dead/dying trees are removed, and natural vegetation is restored.

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 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"/>

Much of the project area is zoned for timberland production. The project is consistent with existing zoning.

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"/>

Dead and dying trees will be removed from forests substantially impacted by the Dixie Fire (2021), and will continue to be managed as forest land.

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?	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 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

a) Would the project conflict with or obstruct implementation of the applicable air quality 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"/>

Project prescribed burning would produce PM10. Prescribed burning is regulated by the Lassen County Air Pollution Control District (LCAPCD 2023) in compliance with federal and State Clean Air Acts. Prescribed burn projects must submit a Smoke Management Plan to LCAPCD 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 LCAPCD. This process ensures that there are not any significant smoke impacts to public health from the project. National forests are required by law to comply with State law and local rules established by the air districts. The primary effect to air quality from national forests is from smoke produced by wildland fires. Prescribed burning is regulated by the air districts, whereas uncontrolled wildfires are not regulated.

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?	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"/>

Lassen County is currently in attainment for all federal and state ambient air quality standards.

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 Lassen County. However, their direct, indirect and cumulative effects would be regulated by the LCAPCD in order to prevent adverse impacts and exceedances of health standards. The proposed prescribed fire treatments would reduce future potential wildfire smoke.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?	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"/>

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

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	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 emissions other than those mentioned above.

BIOLOGICAL RESOURCES

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?	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"/>

A biological assessment was conducted to analyze 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.

An assessment of potential threatened, endangered, Forest Service threatened, and rare (California Native Plant Society Rank 1 and 2) vascular plants, bryophytes, lichens, and fungi was conducted including a CNDDDB 2-mile search around the project area, a nine-quad search for rare plants using the California Department of Fish and Wildlife (CDFW) BIOS system (<https://wildlife.ca.gov/Data/BIOS>) (i.e. the 7.5' quadrangles where the project is primarily located along with the eight surrounding quads), and a search of Lassen National Forest sensitive plant species databases for known occurrences within 300-foot buffer beyond the action area. Plants found over 300 feet away from the project area boundary are considered to have no effect as they are outside the disturbance area. The Calflora (<https://www.calflora.org/>), and California Native Plant Society inventory of rare plants (<http://www.rareplants.cnps.org/>) were also used, as well as consideration to past experience in the area.

All federal and state threatened endangered, proposed, candidate or sensitive wildlife, aquatic, and fisheries species that could potentially occur within the project area were considered by reviewing the LNF and CNDDDB 2-mile search, search of the BIOS system, available endangered species data from the LNF, USFWS and CDFW to ensure threatened and endangered and sensitive species or their designated critical habitat that might be affected by the proposed action were adequately considered. A 2-mile buffer was used as the analysis area for wide ranging species as a known observation may not be within the project area but still may be utilizing the project area. For fish species, the subwatershed was used for analysis.

See Tables 2 and 3 for a complete list of species considered in this analysis.

Botanical Resources – Threatened, Endangered, Rare, and Sensitive:

Recent wildfires greatly altered the forested landscape in and around the project area. Impacted areas are in a state of change in terms of soil nutrients, watershed function, understory vegetation, canopy cover, and tree survival. The fires killed many trees outright, resulting in a reduced forest canopy cover compared to pre-fire conditions. This change decreased shading, changed growing conditions for many sensitive plants, increased solar penetration to the forest floor, and created suitable habitat for invasive plants to establish and spread.

Currently, we do not know the nature or extent of effects to sensitive plant populations from the fires and fire suppression activities, but it is likely some plants were killed. It is also likely that sensitive plant habitat was degraded or lost in some areas. Invasive plants often establish or spread on disturbed ground after wildfire events, depending on the species involved and fire severity. An increase in invasive plants would indirectly adversely affect sensitive plants by increasing competition between different species and habitat loss through displacement.

Activities that have affected baseline conditions for sensitive and invasive plants and their habitat within the project area include wildfires, fire suppression, fuels management, livestock grazing, mining, timber harvest, road construction and maintenance, off-highway vehicle use, utility line installation, recreation, and nonnative plant introductions. These activities have altered the present landscape to various degrees, with varying effects to species. Private landowners are not required to protect sensitive plant species or treat invasive plants, whereas forest managers are required to evaluate management activities on National Forest System lands (except wildfire suppression) for impacts to these resources.

Climate change may be shifting species to higher elevations and cooler aspects (Chen et al. 2011, Dukes and Mooney 1999). Although the effects of climate change on sensitive plants and nonnative invasive plants are uncertain at this time, some researchers predict that the increase in temperature and moisture may cause a shift in suitable habitat for some species. Nonnative invasive plants such as cheatgrass and spotted knapweed may experience a shift in range that leads to both an expansion and a contraction depending on moisture and temperature (Bradley 2009). It has also been shown that some species may move downhill due to increases in water availability (Crimmins et al. 2011). There is evidence indicating a potentially longer growing season, with increases in summer photosynthetic capacity. Kelly and Goulden (2008) found that rapid shifts in the distribution of plants can be expected with climate change and that global climate change may already be impacting vegetation distribution.

If climate change is severe enough to turn the moister areas into hot dry sites, nonnative invasive plants would likely thrive because many thrive in hot dry conditions. Models for climate change predict that habitat is vulnerable to nonnative invasive plant establishment and spread (Julius et al. 2013). Literature suggests that climate change is likely to increase the range and abundance of nonnative invasive species, as these species are not as limited by dispersal and pollination as are native plants (Dukes and Mooney 1999). However, the issue is complex and there is uncertainty about future invasion risk at the local level. Such changes would be incremental and may only be obvious over several years (Bradley et al. 2010).

Approximately 59 percent of the project area burned at moderate to high severity in these large wildfires. Prior to the fires, the dominant forest types were Sierra Mixed Conifer (SMC), white fir (WTF) and Eastside pine (EPN). Based on known and potential occurrence in the project area, 56

sensitive plant species were evaluated. Sensitive plant known occurrences include 21 on the Lassen National Forest. Table 2 lists sensitive plant species, effects determinations, and rationale for the project area.

Approximately 6 invasive plant species have been documented in the project area. Species with the largest infestations mapped include: *Centaurea solstitialis* (Yellow star-thistle), *Centaurea stoebe ssp. micranthos* (Spotted knapweed), *Cirsium arvense* (Canada thistle), *Lepidium latifolium* (Broadleaved pepperweed), *Rubus armeniacus* (Himalayan blackberry) and *Taeniatherum caput-medusae* (Medusahead). The full effects of the Dixie Fire (2021) on populations of sensitive plant species in the proposed action area will not be known for several years, as response to fire is highly variable and dependent on a species' life history, the severity and intensity of the burn, time since last fire, pre-fire vegetation assemblages, colonization by nonnative invasive species, and a multitude of other factors.

Mitigation measures **BIO-BOT #1-6** and **BIO-INV #1-6** have been proposed to reduce the impact to sensitive plant species to less than significant.

Aquatics and Fisheries Resources:

Approximately 12 percent of the project area was riparian habitat prior to the fires. Approximately 20% of this burned at high severity and no longer constitutes riparian habitat. In addition to removal of riparian habitat, these fires likely decreased riparian canopy cover, altered current large woody debris (variation is expected depending on burn severity, but likely generally increased), reduced future woody debris supply, and increased sediment delivery. Aquatic species in the zone therefore have experienced habitat loss as well as a likely reduction in remaining habitat quality. The zone contains 5 sensitive species including amphibians and the western pond turtle (*See* Table 2).

Mitigation Measures **BIO-AQUA #1-24** and **HYD-#1-20** have been proposed to reduce impacts to aquatic and fisheries sensitive species to less than significant.

Wildlife Resources:

Fire is a natural process that can be beneficial for a diverse ecosystem and for species associated with post-fire habitats such as primary cavity excavators (such as woodpeckers) or species associated with early seral shrub and herbaceous vegetation. But, very large fire events, also known as mega-fires, with large extents and proportions of high severity fire can be devastating for wildlife species associated with closed canopy, mixed conifer, late-successional habitat such as California spotted owl, northern goshawk, fisher, and marten, which can be greatly affected by the loss and fragmentation of habitat.

The recent wildfires impacted a variety of habitat types, including a large proportion of mature and late successional mixed conifer habitat, and resulted in very large, homogeneous blocks of high severity fire. Because of the enormous amount of change in the quantity, quality, and distribution of habitat across the recent fire areas, behavior patterns of many of the species in these areas have been substantially disrupted. For many of the species that historically occupied the project areas, their habitat use patterns have been disrupted and they have been displaced, so these species are dispersing to new areas and may be using marginal, lower quality habitat, at least in the short term if that is the only available option. This may include foraging in areas of fire-affected edge habitat. For these species, habitat that provides enough cover from predators and a sufficient microclimate,

as well as foraging opportunities, is likely to be used until such time as new territories are established in presumably higher quality habitat; a process that may take multiple years, during which time their reproductive efforts may be lost.

Numerous protected activity centers for California spotted owls and northern goshawks have been rendered unusable as high severity fire burned through all, or large proportions of, the habitat in these high value areas. Habitat for other species such as Sierra marten, Pacific fisher, sensitive bat species, riparian obligate birds, amphibians, reptiles, and invertebrates was also heavily impacted by the recent wildfires. Where the fires burned at a high and moderate intensity, many, if not all, of the important habitat features were consumed, such as herbaceous vegetation, shrub cover, downed logs and woody debris, stumps, leaf litter and other ground cover, in addition to the overstory canopy needed for shade and moisture retention.

Twenty-nine (29) terrestrial sensitive wildlife species (CA Species of Special Concern and Region 5 Forest Sensitive Species) and 5 federally threatened, endangered, candidate species, including the gray wolf, have potential to occur in the proposed action area. These species have been analyzed in detail in the project Wildlife Biological Assessment to establish whether the agency's actions are likely to result in a loss of species viability or create significant trends toward federal listing under the Endangered Species Act.

When considering effects to endangered, threatened, candidate, and sensitive species, the primary factors of change and impact include those factors that influence habitat suitability, habitat use, or species behavior. Effects from the proposed action were evaluated using a combination of qualitative and quantitative indicators. These indicators help determine the degree (magnitude, duration, and intensity) to which the proposed action may affect individuals or their habitat components, including predicted changes in an individual species' response to a disturbance or habitat manipulation, or changes in habitat function at relevant spatial scales.

Areas that have burned at high intensity do not contain enough cover or structure to be suitable habitat for the endangered, threatened, candidate, and sensitive species that may have been present in the analysis area prior to the fires. In the many areas of very large, homogeneous blocks of high severity fire, any species that requires moderate or high canopy cover and structural diversity for protection from predators and temperature regulation, and whose prey requires ground vegetation and woody debris, would not persist in these areas in the first several years following the fire. Species such as spotted owls, goshawks, great gray owls, and Sierra marten, are highly unlikely to venture into these very large, open, homogeneous, severely burned areas, which make up the majority of the treatment areas. Species that require ground cover and structure in order to regulate temperature and moisture levels, such as terrestrial salamanders, are also intolerant of these very open and dry sites.

In addition, fire-killed trees are unlikely to be used by these endangered, threatened, candidate, and sensitive species in the time period immediately following the fire because these trees tend to be "case hardened" whereby the outer bark is charred and the tree has been killed by the intense heat of the fire, but the internal wood is still sound. These trees do not yet contain the defect, decay, or enough internal rot to be easily excavated by primary cavity excavators (such as woodpeckers) (Hutto 1995) and so do not contain cavities or other features that would be used for denning, nesting, or roosting, as would be present in older, pre-fire snags. So, while there is an abundance of fire-killed trees currently on the landscape following these widespread fires, their relative value to

the endangered, threatened, candidate, and sensitive species that may have occurred in the fire areas is very limited until the overstory canopy recovers and natural processes occur that break down the fire-killed trees, which can take many years (Hutto 1995; Peterson et al. 2009). As these processes occur across the burned areas, there will be no shortage of fire-killed snags across the landscape due to the extremely large areas of forest that burned at high severity. Although where large snags occur close to high-use roads, they can be of a lower value to wildlife due to fragmentation and increased disturbance generally associated with roads, particularly for higher maintenance level and more heavily used roads. Therefore, the removal of fire-killed trees in the first few years following these fires, particularly from within very large blocks of high severity burn areas, is not expected to have meaningful or measurable impacts to sensitive species, because these species do not require or utilize these wide expanses of high burn severity in a meaningful way.

Where currently suitable unburned, or low burn severity habitat occurs within treatment units, it may be somewhat degraded with the removal of hazard trees, by removing important elements of the habitat (snags). Hazard trees in these areas are assumed to exist as the occasional single tree, or in scattered small pockets of trees. Felling these hazard trees may reduce potential nesting, roosting, and denning sites from within suitable habitat. But mitigation measures specifying more conservative marking guidelines when within riparian areas as well as for retaining extra-large, old-growth and legacy trees and snags would reduce impacts to these habitats, as well as benefit the current and future habitat in the analysis areas. Because, if these trees and snags pose a hazard and need to be felled, these important habitat elements will be kept on the landscape as downed logs and much of their value for the development of future stand is retained. So, felling of these scattered hazard trees and dispersed small groups of hazard trees surrounded by suitable habitat would leave the remaining stand intact and would not change the function of the habitat. Therefore, because only a minimal number of scattered individual or small pockets of hazard trees within unburned or low burn severity areas would be felled, this action is unlikely to cause adverse, population-level impacts to the endangered, threatened, candidate, and sensitive species, or their habitats that may occur in the analysis areas.

Several mitigation measures were also created to benefit endangered, threatened, candidate, and sensitive species and help to reduce fragmentation and provide ground-level structure within severely burned areas. For example, certain slash piles will be retained and left unburned specifically for marten or fisher escape cover and prey habitat, which would improve connectivity between habitat patches, particularly along outer edges of canopy openings and riparian corridors. These mitigation measures in combination with the retention of old-growth, legacy, and extra-large trees and snags as down logs would benefit species such as marten and fisher, or prey species that could use the subnivean spaces created by retained logs and piles in these areas in winter. Also, in order to avoid removing high value habitat elements where possible, for treatments along secondary and unpaved roads located in high quality fisher habitat, we would consider options other than complete tree removal for trees or snags greater than 35 inches diameter at breast height and hardwood snags larger than 27 inches diameter at breast height. Such options may include cutting the hazard tree as high as possible to leave a portion of the trunk (10 to 20 feet tall) standing and leaving 15 to 20 feet of the thickest part of the trunk behind, particularly if it is decayed, to provide potential microsites for denning or resting.

There is potential for the proposed actions to disturb or disrupt reproductive behaviors and normal activity patterns of the wildlife species that may occur adjacent to, or near, treatment areas. Increased noise, ground disturbance, human activity, and smoke are all associated with project

activities, and can result in negative impacts to any wildlife species in the area. To reduce the potential for negative impacts, mitigation measures would be implemented to protect these species during their reproductive time periods, as this is when species are most vulnerable and disturbances can cause the loss of the year's reproductive effort. Mitigation measures with protective measures such as limited operating periods, equipment exclusion zones, no-treatment buffers, smoke mitigations, and pre-implementation surveys are designed to minimize or avoid detrimental impacts to wildlife species.

So, while habitat for endangered, threatened, candidate, and sensitive species has been greatly impacted by the recent wildfires, given that the vast majority of treatment would occur along roads in areas burned at high severity, which have a limited value to these species in the years directly following the fires, as well as the numerous mitigation measures for the protection of endangered, threatened, candidate, and sensitive species and their habitats, no population-level impacts or impacts to the viability of the species are expected beyond what the fires have already done.

The proposed action including mitigation measures **BIO-WILD #1-20** would avoid or minimize impacts to threatened, endangered, and sensitive terrestrial wildlife species to less than significant.

Cumulative effects to Biological Resources:

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. To understand the contribution of past actions to the cumulative effects of the proposed action, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects to threatened, endangered, and sensitive wildlife, plants, and their habitats.

The spatial bounding for the cumulative effects analysis for most of the species analyzed is two-part: the area within the 300-foot buffer on either side of affected roads, trails, and fences within the given fire perimeter and the area within 0.25 mile of the treatment units. This spatial bounding would capture the physical change to the habitat within the 300-foot buffer from implementation of the proposed actions, and the approximate area where noise or smoke from implementation may impact threatened, endangered, and sensitive species outside or within the treatment unit itself. Where relevant, the discussion of effects may consider past, current, ongoing, and reasonably foreseeable actions outside of this bounding.

Actions within this spatial and temporal bounding that may occur in the foreseeable future that overlap both in space and time with the proposed actions were analyzed for their potential to result in additive impacts to threatened, endangered, and sensitive species or their habitats within the project Wildlife Biological Evaluation/Biological Assessment and the Aquatic Biological Evaluation/Biological Assessment.

On federal land, ongoing actions with the potential to affect terrestrial wildlife species and their habitats include timber harvest and fuels reduction, fire management (suppression, post-fire repair and prescribed fire), watershed restoration, road and facility maintenance, nonnative invasive plant management, special use permit implementation (such as utility corridors, rights-of-ways), recreation, water diversions, livestock grazing, and ongoing minerals exploration and mining activities. Additional ongoing and planned federal actions within the analysis area include Federal

Energy Regulatory Commission relicensing and Federal Highway Administration projects. Ongoing or future actions initiated by federal agencies would be designed or mitigated to minimize effects to threatened, endangered, and sensitive wildlife species and their habitats, and would therefore, avoid cumulative impacts where that potential may exist, as required under various laws such as the National Forest Management Act and the Endangered Species Act.

On lands of other ownership, planned and ongoing actions include vegetation management (for example, timber projects and fire suppression), State highway projects and maintenance, agriculture, livestock grazing, private and county road maintenance, and building and development. State and local regulations will provide some protections for threatened, endangered, and sensitive wildlife species and their habitats including stream and riparian habitats. Ground-disturbing and noise-generating activities may worsen human disturbance within the project area in the short term where the activities overlap in space and time with the proposed federal activities.

Overall, given the broad geographical scope of the project, but relatively small, spatially intermittent treatments, paired with applied mitigation measures **BIO-BOT #1-6, BIO-INV #1-6, BIO-AQUA #1-24, and BIO-WILD #1-20** and best management practices, cumulative impacts to threatened, endangered, and sensitive species and their habitats from the proposed action, in combination with planned and ongoing activities and climate change are expected to be minor or negligible.

Table 2: Biological Assessment – Botany**Federal and CA Endangered, Threatened, and/or Candidate Species**

Scientific Name	Common Name	Federal Status	State Status	Flowering Period	Elevation (m)	Habitat/Ecology	Impact	Rationale
<i>Arnica fulgens</i>	Hillside arnica	None	2B.2	Apr-May	1495-2700	Open, damp depressions in sagebrush or grassland	No	Treatments not likely to occur in preferred habitat; Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Astragalus pulsiferae</i> var. <i>suksdorfii</i>	Suksdorf's milk-vetch	FS Sensitive	1B.2	May-Aug	1300-2000	Loose, often rocky soil, often with pines, sagebrush	No	Treatments not likely to occur in preferred habitat.
<i>Betula glandulosa</i>	Dwarf resin birch	None	2B.2	May-June	1300-2300	Streams, bogs and fens, meadows and seeps, marshes and swamps, meadow edges in Lower montane coniferous forest up to sub-alpine coniferous forest.	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Boechea constancei</i>	Constance's rock cress	None	1B.1	May-July	975-2025	Rocky, serpentine slopes, ridges in chaparral, lower and upper montane coniferous forest	No	No habitat within the project area.
<i>Botrychium ascendens</i>	Upswept moonwort	FS Sensitive	2B.3	July-Aug	1500-3200	Moist meadows, open woodlands near streams and seeps	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Botrychium crenulatum</i>	Scalloped moonwort	FS Sensitive	2B.2	June-Sept	1500-3600	Saturated hard water seeps and stream margins, moist meadow, seeps, bogs, fens	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Botrychium minganense</i>	Mingan moonwort	FS Sensitive	4.2	July-Sept	1190-3290	Meadows, open forest along streams or around seeps.	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Botrychium montanum</i>	Western goblin	FS Sensitive	2B.1	July-Sept	1500-2100	Shady conifer woodland, especially under <i>Calocedrus</i> along streams	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize

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								and avoid impacts to habitat
<i>Botrychium pinnatum</i>	Northwestern moonwort	FS Sensitive	2B.3	July-Oct	1770-2040	Moist fields, shrubby slopes	No	Nearest occurrence 15 miles southwest of project area. Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Brasenia schreberi</i>	Watershield	None	2B.3	June-Sept	<2200	Wetlands; Wetland-riparian; Ponds; slow streams; marshes; swamps	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Bruchia bolanderi</i>	Bolander's bruchia	FS Sensitive	4.2	-	-	Meadows and seeps, damp soil in lower and upper montane coniferous forest	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Carex davyi</i>	Davy's sedge	None	1B.3	May-Aug	1400-3300	Usually in wetlands; sub-alpine and red fir forests	No	Usually found higher than project area. Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Carex lasiocarpa</i>	Woolly-fruited sedge	None	2B.3	June-July	1700-2100	Lake, pond shores, generally standing water	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Carex limosa</i>	Mud sedge	None	2B.2	June-Aug	1200-1700	Spaghnum bogs	No	No habitat within the project area.
<i>Carex petasata</i>	Liddons sedge	None	2B.3	May-July	600-3320	Dry to wet meadows, open forest	No	Treatments will not occur in preferred habitat Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Carex sheldonii</i>	Sheldon's	None	2B.2	May-Aug	1200-2000	Wetlands; riparian; Lower montane	No	Mitigation Measures

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	sedge					coniferous forest (mesic); marshes and swamps		BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat
<i>Castilleja lassenensis</i>	Lassen paintbrush	None	1B.3	July-Sept	955-3120	Volcanic soils in meadows and seeps and subalpine coniferous forest	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Cypripedium fasciculatum</i>	Clustered ladys-slipper	FS Sensitive	4.2	Mar – Aug	100 - 2435	Moist, partially shaded slopes under mountain dogwood (<i>Cornus nuttallii</i>).	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Drosera anglica</i>	English sundew	None	2B.3	June-Sept	1300-2255	Mesic soils in bogs, fens, swamps, peatlands, meadows and seeps often with Sphagnum	No	No habitat within project area; Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Epilobium palustre</i>	Marsh willowherb	None	2B.3	July-Aug	1825-2345	Wet meadows, seeps, bogs, disturbed wet areas.	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Erigeron lassenianus var. deficiens</i>	Plumas rayless daisy	None	1B.3	June-Sept	1360-1750	Serpentine, disturbed soils; gravelly disturbed sites, lower montane forests	No	Habitat not likely to occur within treatment areas.
<i>Erigeron nivalis</i>	Snow fleabane daisy	None	2B.3	July-Aug	1735-2900	Volcanic rocks, meadows, and seeps in sub-alpine coniferous forests , alpine boulder, and rock fields	No	Found at higher elevations than project area.
<i>Eriogonum ovalifolium var. depressum</i>	Depressed buckwheat	None	2B.1	June-Aug	1725-1740	Dry playas	No	No habitat within treatment areas.
<i>Eriogonum prociduum</i>	Prostrate buckwheat	FS Sensitive	1B.2	May – Aug	1300-2705	Clay and volcanic soils in Great Basin scrub, pinyon/juniper woodland, and upper montane coniferous forests.	No	Mitigation Measures BIO-BOT #1-6, and should minimize and avoid impacts to habitat.
<i>Eriogonum pyrolifolium var.</i>	Pyrola-leaved buckwheat	None	2B.3	July-Sept.	1675-3200	Alpine boulder and rock field (pumice, sandy, gravelly	No	Treatments will not occur in preferred habitat.

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<i>pyrolifolium</i>								
<i>Eriogonum spectabile</i>	Barron's buckwheat	None	1B.2	July-Sept	2010-2050	Rocky, gravelly, sandy glaciated andesite soils in upper coniferous forests	No	Found at higher elevations; not likely to occur within treatment areas.
<i>Erythranthe inflatula</i>	Ephemeral monkeyflower	FS Sensitive	1B.2	May-Aug	1250-1740	Among rocks and boulders on moist gravel, previously flooded, in Great Basin scrub, lower montane coniferous forest, and pinyon/juniper woodland.	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Eurybia merita</i>	Subalpine aster	None	2B.3	July-Aug	1300-2085	Upper montane coniferous forest.	No	No known occurrences in Lassen Co., nearest occurrence 30 mi. south of the project area.
<i>Frasera albicaulis var. modocensis</i>	Modoc green-gentian	None	2B.3	May-July	900-1750	Openings, dry brushy places in Great Basin grasslands, sometimes upper montane coniferous forest	No	Treatments not likely to occur in preferred habitat.
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	None	Endangered	Apr-Aug	10-2375	Shallow water, margins of vernal pools with clay soils.	No	Mitigation Measures BIO-AQUA-14: <i>Vernal Pools</i> –as well as mitigation measures pertaining to protection of sensitive botanical species and spread of invasive weeds should avoid and minimize impacts to habitat.
<i>Juncus dudleyi</i>	Dudley's rush	None	2B.3	July-Aug	<2000	Wet areas in montane coniferous forest	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Lewisia kelloggii</i> ssp. <i>hutchisonii</i>	Hutchisons lewisia	FS Sensitive	3.2	June-Aug	765-2365	Higher elevation ridgetops and passes. Mostly bare and rocky soil.	o	Proposed project is outside the geographic range. Nearest location is 30 miles south of project area..
<i>Lewisia kelloggii</i> ssp. <i>kelloggii</i>	Kelloggs lewisia	FS Sensitive	3.2	June-Aug	1465-2365	Decomposed granite, volcanic ash, rubble, upper montane coniferous forest.	N	Proposed project is outside the geographic range. Nearest location is 32 miles distant.

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<i>Lomatium roseanum</i>	Adobe lomatium	FS Sensitive	1B.2	June-July	1460-2250	Openings, gravelly or rocky; Great Basin scrub; Lower montane coniferous forest	No	Habitat not likely to occur in treatment areas.
<i>Lysimachia thyrsoflora</i>	tufted loosestrife	None	2B.3	Mar-Aug	975-1675	Meadows and seeps (mesic); marshes and swamps; upper montane coniferous forest.	No	No occurrences in Lassen Co. Nearest occurrence 16 miles west of project area.
<i>Meesia ulginosa</i>	Broad-nerved hump moss	FS Sensitive	2B.2	Oct	1210-2804	Damp soils in bogs, fens, meadows, seeps in upper montane and sub-alpine forests	No	Nearest occurrence to project area at Lake Davis 30 miles southeast of the project area.
<i>Navarretia leucocephala ssp. bakeri</i>	Baker's navarretia	None	1B.1	Apr-July	<1700	Vernal pools, meadows, and seeps.	No	Mitigation Measures BIO-AQUA-14: <i>Vernal Pools</i> –as well as mitigation measures pertaining to protection of sensitive botanical species and spread of invasive weeds should avoid and minimize impacts to habitat.
<i>Oruttia tenuis</i>	Slender orcutt grass	Threatened	Endangered	May-Sept	35-1760	Vernal pools, often gravelly	No	Mitigation Measures BIO-AQUA-14: <i>Vernal Pools</i> –as well as mitigation measures pertaining to protection of sensitive botanical species and spread of invasive weeds should avoid and minimize impacts to habitat.
<i>Oreostemma elatum</i>	Tall alpine-aster	FS Sensitive	1B.2	June-Aug	1005-2100	Mesic soils in bogs, fens, peatlands, marshy areas, wet meadow, upper montane coniferous forest	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Orthocarpus bracteosus</i>	Rosy orthocarpus	None	2B.1	June-Aug	1030-1850	Moist meadows and seeps	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.

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<i>Packera indecora</i>	Rayless mountain ragwort	None	2B.2	July-Aug	1450-2000	Damp areas along streams, meadows, woodlands	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Penstemon personatus</i>	Closed-throated beardtongue	FS Sensitive	1B.2	June-Sept	1065-2120	Metavolcanic soils in chaparral, lower and upper montane coniferous forest.	No	Proposed project is outside of range. Nearest location is 10 miles distant.
<i>Phlox muscooides</i>	Squarestem phlox	None	2B.3	Jun-Aug	1400-2700	Open rocky area; alpine rock	No	Habitat within project area will not be disturbed by project activities.
<i>Potamogeton praelongus</i>	White-stemmed pondweed	None	2B.3	July-Aug	1800-3000	Deep water, lakes, marshes, swamps	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Potentilla newberri</i>	Newberry's cinquefoil	None	2B.3	May-Aug	1300-2200	Receding shorelines (drying margins; vernal pools, marshes, swamps.	No	Nearest location 28 miles northeast of project area.
<i>Pyrrocoma lucida</i>	Sticky pyrrocoma	FS Sensitive	1B.2	July-Oct	700-2050	Alkaline clay flats; sagebrush scrub; openings in lower montane coniferous forest; meadows and seeps	No	No known occurrences within the project area; habitat not likely to occur in treatment area.
<i>Rhamnus alnifolia</i>	Alder buckthorn	None	2B.2	May – July	1370-2130	Wetlands, red fir, lodgepole pine, wetland-riparian	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Rhynchospora alba</i>	White beaked-rush	None	2B.2	June-Aug	60-2040	Boggy open sites	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Rorippa columbiae</i>	Columbia yellow cress	FS Sensitive	1B.2	May-Sept	1200-1800	Streambanks, lake or pond margins, meadows, wet fields, vernal pools	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Scheuchzeria palustris</i>	American scheuchzeria	FS Sensitive	2B.1	July-Aug	1370-2000	Floating mats, bogs, lake margins	No	Mitigation Measures BIO-BOT #1-6, and

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								HYD-1 should minimize and avoid impacts to habitat. No known occurrences in Lassen Co.
<i>Schoenoplectus subterminalis</i>	Water bulrush	None	2B.3	June-Aug	750-2250	Fresh lakes, streams low in nutrients	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.. No known occurrences in Lassen Co.
<i>Stellaria longifolia</i>	Long-leaved starwort	None	2B.2	May-Aug	900-1830	Bogs, fens, mesic areas in riparian woodland and upper montane coniferous forest.	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat.
<i>Stenotus lanuginosus</i> var. <i>lanuginosus</i>	Woolly stenotus	None	2B.2	May-July	1500-1930	Shallow, rocky, loamy soils in sagebrush scrub, juniper woodland, dry meadows.	No	Mitigation Measures BIO-BOT #1-6 should minimize and avoid impacts to habitat.
<i>Stipa exigua</i>	Little ricegrass	None	2B.3	June	2345-2420	Rocky slopes in sagebrush scrub	No	Treatments not likely to occur in preferred habitat. Occurs at higher elevations than project area.
<i>Utricularia intermedia</i>	Flat-leaved bladderwort	None	2B.2	July-Aug	1200-2700	Shallow water, <1 m	No	Mitigation Measures BIO-BOT #1-6, and HYD-1 should minimize and avoid impacts to habitat. No known occurrences in Lassen Co.

State Status - CNPS Rare Plant Rank

- 1B – Plant rare, threatened, or endangered in CA and elsewhere
- 2B – Plant rare, threatened, or endangered in CA, but common elsewhere
- 3 - More information needed
- 4 - Watch list – Plants of limited distribution

- .1 - Seriously threatened in CA
- .2 – moderately threatened in CA
- .3 – not very threatened in CA

Table 3 – Biological Assessment – Wildlife

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
Insects						
<i>Bombus occidentalis</i>	Western bumblebee	FS Sensitive	Candidate Endangered	Three basic habitat requirements: suitable nesting sites for the colonies, nectar and pollen from floral resources available throughout the duration of the colony period (spring, summer and fall), and suitable overwintering sites for the queens. Nests occur primarily in underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees.	Yes	Although impacts to individuals may occur, they are not expected, and suitable habitat for this species is not targeted for treatment. Therefore, population level impacts to this species are not expected.
<i>Danaus plexippus</i>	Monarch butterfly	Candidate	Species of Special Concern (SSC)	Live in a variety of habitats. Require milkweed plants for laying eggs, and other flowering plants for nectar. Winter along Pacific Coast	Yes	There are no known egg, larva, or chrysalis locations within the project area. Mitigation measures provide a level of protection to the species such as minimizing spread of invasive species.
Aquatics and Fisheries						
<i>Rana boylei, pop. 2</i>	Foothill yellow-legged frog	Threatened	Threatened	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. Usually found within a few feet of water.	Yes	Project would create short-term increase in sediment. Individuals could be crushed or disturbed in the upland areas. Mitigation measures for soils, watershed, and fisheries/aquatic species would minimize the potential for direct and indirect effects, including EEZs and LOPs during wet weather would reduce potential for individuals to be crushed or disturbed (BIO-AQUA-23 and BIO AQUA-24).
<i>Rana sierrae</i>	Sierra Nevada yellow-	Endangered	Threatened	Associated with streams, lakes and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow	Yes	Project would create short-term increase in sediment. Individuals could be crushed or disturbed in the upland

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
	legged frog			habitats at elevations from 4,500 - 11,980 ft. Aquatic species usually found within a few feet of water. Eggs are usually laid in shallow water attached to gravel or rocks. Tadpoles may require up to two over-wintering periods to complete their aquatic development.		areas. Mitigation measures for soils, watershed, and fisheries/aquatic species would minimize the potential for direct and indirect effects, including EEZs and LOPs during wet weather would reduce potential for individuals to be crushed or disturbed (BIO-AQUA-23 and BIO AQUA-24).
<i>Rana cascadae</i>	Cascades frog	FS Sensitive	Candidate – Endangered		Yes	Species ranges throughout Cascades with many extant populations. Common in areas, although declining in others. Recorded occurrences fall within the project area. Mitigation measures including EEZs, limits on stream crossings, and protections for sediment delivery, would limit direct and indirect effects to species and its habitat within treatments.
<i>Ambystoma macrodactylum sigillatum</i>	Southern Long-Toed Salamander	None	SSC	Adults spend much of their lives underground, often utilizing the tunnels of burrowing mammals such as moles and ground squirrels. Transformed adults are rarely found outside of the breeding season. They are mostly found under wood, logs, rocks, bark and other objects near breeding sites which can include ponds, lakes, and streams, or when they are breeding in the water.	Yes	Common in areas, although declining in others. Recorded occurrences fall within the project area. Mitigation measures including EEZs, limits on stream crossings, and protections for sediment delivery, would limit direct and indirect effects to species and its habitat within treatments.
Reptiles						
<i>Emys marmorata</i>	Western pond turtle	FS Sensitive	SSC	Associated with permanent or nearly permanent water in a wide variety of habitats. Require basking sites such as partially submerged logs, rocks, mats of	Yes	Species has large range, but distribution and abundance have declined. Recorded occurrences fall within the proposed treatment area.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
				floating vegetation, or open mud banks. Along large slow-moving streams, eggs are deposited in nests constructed in sandy banks. Along foothill streams, females may climb hillsides, sometimes moving considerable distances (300 ft.) to find a suitable nest site.		While some direct effects may occur, mitigation measures, especially EEZs would protect the turtles while using aquatic habitat. Mitigation measure BIO-AQUA-13 will substantially limit the risk of direct effects to turtles while nesting or overwintering in upland habitat.
Birds						
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Delisted	Endangered	Occupy various woodland, forest, grassland, and wetland habitats. Large nests are normally built in the upper canopy of large trees, and snags typically conifers near water sources with fish.	Yes	There are no known nests within the project areas and nesting habitat is not targeted for treatment. Protection buffers and seasonal restrictions, implemented for activities within .25 miles of bald eagle nest sites, if discovered, would avoid or minimize adverse direct and indirect effects to the species and its habitat.
<i>Strix occidentalis occidentalis</i>	California Spotted Owl	FS Sensitive	SSC	This species is closely related to the Northern spotted owl and has a similar life history utilizing mature forests for habitat.	Yes	Mitigation measures such as LOPs on noise generation activities within 0.25 miles of nests or PACs during the breeding season and restrictions on treatments within PACs, would avoid or minimize adverse direct or indirect effects to the species and its habitat.
<i>Strix nebulosa</i>	Great gray owl	FS Sensitive	Endangered	Prefer forest and meadow associations across their range and nest in mature old growth coniferous and deciduous forests	Yes	Mitigation measures such as LOPs on noise generation activities within 0.5 miles of nests or PACs during the breeding season and restrictions on treatments within PACs, would avoid or minimize adverse direct or indirect effects to the species and its habitat.
<i>Asio otus</i>	Long-eared	None	SSC	Frequents dense, riparian and live oak	Yes	No known nest locations within the

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
	owl			thickets near meadow edges, and nearby woodland and forest habitats, as well as dense conifer stands at higher elevations.		project area. Mitigation measures such as LOPs on noise generation activities, if a nest is located, would avoid or minimize adverse direct or indirect effects to the species and its habitat.
<i>Accipiter atricapillus</i>	American Goshawk	FS Sensitive	SSC	Generally, prefer dense forests with large trees and relatively high canopy closures like late successional forest stands.	Yes	Mitigation measures such as LOPs on noise generation activities within 0.25 miles of nests or PACs during the breeding season and restrictions on treatments within PACs, would avoid or minimize adverse direct or indirect effects to the species and its habitat.
<i>Circus hudsonius</i>	Northern harrier	None	SSC	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands, seldom found in wooded areas. Nests on ground in shrubby vegetation at marsh edges.	No	Habitat will not be impacted by proposed project activities. Mitigation Measures, including EEZs would avoid or minimize adverse direct or indirect effects to the species and its habitat.
<i>Antigone canadensis tabida</i>	Greater Sandhill Crane	FS Sensitive	Threatened, FP	Winter in the Central Valley and nest in six northeastern CA counties. Nest in healthy undisturbed wetland ecosystems.	No	Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Empidonax traillii</i>	Willow Flycatcher	None	Endangered	A rare to locally uncommon, summer resident in wet meadow and montane riparian habitats at 600-2500 m (2000-8000 ft) in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows. Nesting site usually near languid stream, standing water, or seep.	No	Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
<i>Riparia riparia</i>	Bank Swallow	None	Threatened	A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. In summer, restricted to riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with fine-textured or sandy soils, into which it digs nesting holes. Predominantly a colonial breeder.	No	No known nesting colonies within the project area. Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Setophaga petechia</i>	Yellow warbler	None	SSC	Breeds in riparian woodlands, montane chaparral, and in open ponderosa pine and mixed conifer habitats with substantial amounts of brush	No	No known observations within the project area Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Coturnicops noveboracensis</i>	Yellow rail	FS Sensitive	SSC	Require densely vegetated sedge marshes/meadows with moist soil or shallow standing water.	No	Only a rare occurrence of this species on the LNF. Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	None	SSC	Breed almost exclusively in marshes with tall emergent vegetation, such as tules (<i>Scirpus sp.</i>) or cattails (<i>Typha sp.</i>), generally in open areas and edges over relatively deep water	No	No known observations within the project area Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Chlidonias niger</i>	Black tern	None	SSC	Uses fresh emergent wetlands, lakes, ponds, moist grasslands, and agricultural fields. In migration, some take coastal routes and forage offshore.	No	No known observations within the project area Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
<i>Charadrius montanus</i>	Mountain plover	None	SSC	Frequents open plains with low, herbaceous or scattered shrub vegetation. Does not nest in California	No	Proposed treatments will not impact preferred habitat.
<i>Contopus cooperi</i>	Olive-sided flycatcher	None	SSC	Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes, or other open terrain. Extent and density of forest habitat less important than the amount of air space that can be scanned from its highest perches	Yes	Proposed treatments will not impact preferred habitat.
Mammals						
<i>Martes cuarina sierra</i>	Pacific marten	FS Sensitive	None	Habitat with limited human use is important. Martens require a variety of different-aged stands, particularly old-growth conifers and snags, which provide abundant cavities for denning and nesting. Tend to travel along ridgetops, and rarely move across large areas devoid of canopy cover. Small clearings, meadows, and riparian areas provide foraging habitats, particularly during snow-free periods.	Yes	Mitigation measures that restrict activities near den sites and an overall lack of impacts to suitable habitat would result in relatively minor impacts to this species. The proposed action would not contribute to a significant additional decline in suitable habitat beyond what has already occurred from the wildfires.
<i>Pekania pennanti</i>	Fisher	FS Sensitive	SSC	High cover and structural complexity in large tracts of mature and old growth forests	Yes	Mitigation measures that restrict activities near den sites and an overall lack of impacts to suitable habitat would result in relatively minor impacts to this species. The proposed action would not contribute to a significant additional decline in suitable habitat beyond what has already occurred from the wildfires.
<i>Vulpes vulpes</i>	FS Sensitive	None	Threatened	High mountains of the Sierra Nevada in	No	Mitigation measures that restrict

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
<i>necator</i>				open conifer woodlands and mountain meadows near treeline.		activities near den sites and an overall lack of impacts to suitable habitat would result in relatively minor impacts to this species. The proposed action would not contribute to a significant additional decline in suitable habitat beyond what has already occurred from the wildfires.
<i>Canis lupus</i>	Gray Wolf	Endangered	Endangered	Wolves have historically occupied diverse habitats in North America, including tundra, forests, grasslands, and deserts. As a consequence, and because they travel long distances and require large home ranges, wolves are considered habitat generalists.	Yes	Gray wolves are highly mobile and have a broad range of habitat tolerances. Noise disturbance could create a temporary change in behavior. Mitigation measures include no activity within 1 mile of an active den or rendezvous site from April 1 to July 15 (LOP). CDFW actively monitors wolf packs within the area and the Forest Service will ensure that no disturbance to the den will occur during the LOP (BIO-WILD-14).
<i>Aplodontia rufa californica</i>	Sierra Nevada Mountain Beaver	None	SSC	Not related to true beavers, this nocturnal rodent prefers moist cool deciduous and coniferous forests. Burrows usually consist of a network of tunnels built in deep soil. Burrow entrances often contain clumps of wilted vegetation which the animal likely uses as a kind of food cache as well as a source of nesting material.	Yes	Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Taxidea taxus</i>	American badger	None	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils	Yes	Based on the species preferred habitat, not likely to be impacted by the current project.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
<i>Gulo gulo</i>	Wolverine	Proposed Threatened	Threatened	In Northern Sierra Nevada, have been found in mixed conifer, red fir, and lodgepole habitats, and probably use subalpine conifer, wet meadow, and montane riparian habitats at elevations from 4,300 – 7,300 ft. Prefers areas of low human disturbance	Yes	Project areas are outside this species range.
<i>Lepus americanus klamathensis</i>	Oregon snowshoe hare	None	SSC	Prefers edges, heterogeneous habitats, and areas with dense understory, particularly in riparian habitats. Also found in areas with young firs with branches drooping to ground, and in patches of ceanothus and manzanita within, or bordering, fir or pine forests. Rarely found in open spaces or mature closed canopy forests.	No	Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Lepus americanus tahoensis</i>	Sierra Nevada snowshoe hare	None	SSC	Prefers edges, heterogeneous habitats, and areas with dense understory, particularly in riparian habitats. Also found in areas with young firs with branches drooping to ground, and in patches of ceanothus and manzanita within, or bordering, fir or pine forests. Rarely found in open spaces or mature closed canopy forests.	No	Habitat for this species is not targeted for treatment and mitigation measures in place for riparian species and habitats would provide protections for this species.
<i>Antrozous pallidus</i>	Pallid bat	FS Sensitive	SSC	Wide variety of habitats is occupied, including grasslands, shrublands, woodlands, and forests from sea level up through low elevation mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and	Yes	Mitigation measures that protect roost sites will be implemented to avoid adverse direct and indirect effects to the species and its habitat.

Scientific Name	Common Name	Federal Status	State Status	Habitat	Habitat in the Project Area	Potential Impact
				buildings.		
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	FS Sensitive	SSC	Found in all but subalpine and alpine habitats. Most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting and nesting.	No	While no caves or mines are known to exist within or near proposed activities, if caves are found, protection measures that limit activities within 250 feet of caves or mines will be implemented to protect this species and habitat.
<i>Myotis thysanodes</i>	Fringed myotis	FS Sensitive	None	Maternity colonies of up to 200 individuals are located in caves, mines, buildings, or crevices. Adult males are absent from maternity colonies, which are occupied from late April through September. Maternity group members may remain together during hibernation. Uses open habitats, early successional stages, streams, lakes, and ponds as foraging areas.	Yes	Mitigation measures that protect roost sites will be implemented to avoid adverse direct and indirect effects to the species and its habitat.

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"/>

Approximately 12 percent of the project area was riparian habitat prior to the fires. Approximately 20% of this burned at high severity and no longer constitutes riparian habitat. In addition to removal of riparian habitat, these fires likely decreased riparian canopy cover, altered current large woody debris (variation is expected depending on burn severity, but likely generally increased), reduced future woody debris supply, and increased sediment delivery. Aquatic species in the zone therefore have experienced habitat loss as well as a likely reduction in remaining habitat quality.

Mitigation Measures **BIO-AQUA #1-24** and **HYD-#1-20** have been proposed to reduce impacts to riparian habitat, vernal pools, and aquatic and fisheries sensitive species to less than significant.

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 wetlands, vernal pools, meadows and springs.

Mitigation Measures **BIO-AQUA #1-24** and **HYD-#1-20** have been proposed to reduce impacts to wetlands, vernal pools, and aquatic and fisheries sensitive species to less than significant.

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 does not 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. There may be short-term impacts to mule deer migration, but will not impede the overall migration of the herd.

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"/>

The proposed project does not conflict with any local policies or ordinances protecting biological resources.

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"/>

The project does not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

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 Maidu, Northern Paiute, Pit River, and Washoe Tribes represented today by several bands within the county and surrounding areas.

Early settlers in the 19th century 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. By the mid 19th century, Native Americans were forced to move on reservations.

Three historic themes relevant to the history of the project area include: lumber and logging, homesteading, and livestock ranching. The Gold Rush (1848-9) brought a wave of immigrants to California. The Homestead Act of 1862 accelerated the settlement of the western territory by granting families 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. Many of these homesteaders conducted livestock ranching

Direct and Indirect Effects: The affected environment refers to the current condition of cultural sites and their setting prior to implementation of proposed treatments. The values placed on cultural sites by living communities, and their physical ability to portray significant historic events, people, craftsmanship and serve as meaningful sources of scientific information, are fundamental considerations of their National Register of Historic Places eligibility. Management efforts are directed toward protecting the important values and physical characteristics of National Register listed, eligible and unevaluated cultural sites.

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.

Not all treatment areas have been surveyed and not all cultural sites are known. At least 316 cultural sites have been identified in the project area by past survey efforts. Most of these have not been evaluated. Damage and destruction to some cultural sites from the wildfires and emergency suppression has been documented, but the full nature or extent of these effects to sites in the project area is not known.

Compliance with National Historic Preservation Act Section 106 will be fulfilled in accordance with the R5 PA. Surveys, tribal consultation, and other methods will be used to identify cultural resources at risk in advance of project implementation. New sites will be documented, and the post-wildfire conditions of more sites will become known. Measures to protect cultural resources from project impacts will be incorporated into implementation methods. Any unavoidable or unanticipated effects to cultural sites will be addressed in accordance with processes in the R5 PA. The controlled felling of hazardous trees in and near cultural sites will reduce the risk of damage or loss that might occur under natural conditions. The potential for unnatural fuel accumulations to develop in and near cultural sites that increases their risk of damage from future wildfires and suppression responses will be reduced. Indirectly and cumulatively, more sites in the project area will become known through identification surveys and thus better protected and considered by future management actions and emergencies.

Mitigation measures **CUL-1** through **CUL-4** have proposed to reduce impacts to cultural and historic resources to less than significant.

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 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 **CUL-1** through **CUL-4** have been proposed to avoid impacts to human remains that may be encountered during project implementation.

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 to neighboring communities; 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. Biomass generated by the project may be used to develop energy at local cogeneration facilities.

	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. The project will result in renewable energy as biomass from thinning operations will be chipped and delivered to local cogeneration facilities.

GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

No activities associated with this project are substantial enough to rupture a known earthquake fault.

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

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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. Mitigation measure **GEO-2: Slopes** has been proposed to limit mechanical operations to slopes less than 35%, and mitigation measure **GEO-6: Soil Cover** has been proposed to maintain soil cover on steep slopes and sensitive areas. These mitigation measures should reduce the potential for the project to directly or indirectly cause a landslide.

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

Past management activities and natural processes including recent fires have impacted and shaped existing soil conditions in the project area. The primary means of discussing post-fire conditions of soils is soil burn severity, which was mapped following the fires. Burn severity describes the fire-caused damage to the soil and is a measure of the effects of fire on soil conditions including how water moves into and through the soil (hydrologic properties). Together with slope, burn severity influences the amount of soil erosion following a fire.

The dominant soil texture within the project area is sandy loam (45 percent) with 38 percent of the project area soil textures loam. The dominant parent materials in the zone are residuum weathered from basalt and granite.

Past activities have impacted the productivity of the soil. Based on GIS analysis, approximately 89 percent of the area within the proposed treatment areas were previously harvested using ground-based equipment and 33 percent of the area was treated for fuels. These areas treated in the past are assumed to be in “fair” soil condition (USDA Forest Service 2017) based on soil disturbance from those past activities and also effects from the recent fires. Some localized areas may be in “poor” soil condition based on past activities and soil burn severity, especially if recent activities occurred in areas where high soil burn severity levels exist. The majority of the proposed treatment areas burned at moderate to high soil burn severity (59 percent).

Background upland erosion rates are low at 0.01 ton per acre per year with the low and high soil burn severity scenarios. The soil “T factor” is the soil loss tolerance (tons per acre), which is defined as the maximum amount of erosion at which soil productivity is maintained. Acceptable soil loss rates (tons per acre) across the project area soils range from 1 to 5 tons per acre.

Ultramafic soils (soils formed from serpentine rock or other rocks rich in magnesium and iron but poor in phosphorus) are also present in the project area. These soils have low fertility due to a low carbon/magnesium ratio, and therefore, do not recover readily once disturbed. It is common to see sparse vegetation cover and shallow soils on serpentine parent materials. These soils are found within the project area but are not common along the roads proposed for hazard tree removal.

Direct and Indirect Effects: Localized areas with detrimental levels of soil compaction, displacement, and other physical disturbances would reduce the ability of soils to exchange oxygen and carbon dioxide, thus affecting the ability of soil organisms to survive. However, outside of landings and skid trails, large areas (greater than 100 square feet) of detrimental levels of soil disturbance are not expected because of mitigation measures (for example, the ground would be dry or frozen and designated skid trails would be used or existing skid trails would be reused), standard soil operating procedures, and timber sale contract provisions (Alexander and Poff 1985; Laurent 2007).

McIver and Starr (2000) found that post-fire harvesting activities cause greater disturbance than the same activities on green forests. Expected impacts to soil condition are greater on slopes above 25 percent where soil burn severity is high (Beschta et al. 2004; Wagenbrenner et al. 2015). Where these conditions exist, residual cover following treatments would be greater and buffer widths to sensitive locations would also increase, per the mitigation measures. In addition, favorable habitat for soil organisms would be maintained outside of designated skid trails, as limited soil disturbance is expected off these skid trails. Any reduction of productivity attributable to soil organisms would be short-term (less than 5 years). Mastication treatments are also proposed in the project areas. Effects of mastication would include fuel rearrangement and increased soil cover, temperature, and moisture and microbe activity.

Although performed with ground-based equipment, mastication generally occurs over an existing slash mat created during the mastication process. This material on the surface reduces the risks of compaction. Compaction on skid trails, landings, and temporary roads can indirectly lead to decreased water infiltration rates, leading to increased overland flow and associated erosion and sediment delivery to streams. Increased overland flow also increases intensity of spring flooding, degrading stream morphological integrity and causing low summer flows. Compaction indirectly leads to decreased gas exchange, which in turn, degrades sub-surface biological activity and above-ground forest vitality.

Burning slash piles could create extremely high temperatures in concentrated areas and would lead to volatilization of nitrogen and loss of phosphorus and potassium (DeBano 1981). However, because litter layers and organic matter would be kept intact throughout the rest of the stand (per mitigation measure **GEO-6: Soil Cover**) nutrient losses due to slash burning would be minimal and localized.

The overall potential for the proposed action to adversely affect a soil function indicator would be low. In areas of the project with high burn severity where the potential for a soil function indicator to be adversely affected by the proposed action would be moderate. Per the mitigation measures, reusing existing skid trails, limiting total soil detrimental disturbance to less than 15 percent of an activity area, avoiding turning machinery in areas with high soil burn severity, leaving extra cover on areas with high soil burn severity, conducting treatments during times of low soil moisture, and maintaining effective soil cover would ensure that the soil functions remain intact in good or fair condition. Forest Service Water Erosion Prediction Project modeling results show that upland erosion potential is very low overall, so these mitigation measures should provide adequate protection for erosive soils. The recovery of organic matter following fire is key to restoring ecosystem productivity (Beschta et al. 2004).

Following a fire, soil can become water-repellent (hydrophobic), which can increase runoff and erosion. These characteristics tend to develop on sites with moderate to high fire severity (Neary et al. 2005; McIver and Starr 2000; DeBano 2000). Water repellency in soils can occur under natural conditions as well (Robichaud et al. 2000) and generally is eliminated within the year following fire events (Wagenbrenner et al. 2015; Neary et al. 2005); therefore, in areas that burned prior to 2021, fire-induced hydrophobicity would be near background levels.

Wildfires can also increase soil erosion potential. This is especially important in the proposed treatment area on steeper slopes where fire consumed the protective forest floor layer, leaving the soil vulnerable to erosion because there is nothing left to catch the sediment (Neary et al. 2005). Keeping debris on-site can decrease soil loss by up to 95 percent (McIver and Starr 2000). Generally, increased erosion because of wildfire occurs during the year following the fire, but as vegetation recolonizes sites, erosion decreases (Neary et al. 2005). Proposed activities would take place at least 1 year after the fire. As noted above, the recovery of organic matter following fire is key to restoring ecosystem productivity (Beschta et al. 2004).

The application of mitigation measures **GEO-12** through **GEO-16** would eliminate the risk that project activities would generate dust containing naturally occurring asbestos greater than 0.25 percent, considered harmful to humans.

Upland Erosion

Modeling results for the Central Sierra Zone indicate that existing upland erosion rates are very low (0.01 ton per acre per year) and erosion rates following treatments are also very low for all scenarios (0 to 0.01 ton per acre per year). These erosion rates are much lower than the T factor thresholds of 1 to 5 tons per acre. Little to no upland erosion is expected from the proposed treatments in the project area.

Hillslope Erosion and Sediment Delivery

Post-fire soil erosion and sediment delivery are framed in terms of risk because the probability of sediment delivery is linked to weather events, which are unpredictable. For example, a burned watershed may see extensive hillslope erosion on high and moderate burn severity areas in the event of high-intensity precipitation but may not have measurable sediment inputs if storms are mild for the first few years following the fire.

For all hillslopes modelled, the magnitude of hillslope erosion from a typical or probable weather simulation, was less than the natural soil T factor, or soil erosion tolerance, for a given site. The soil erosion tolerance is an estimate of the maximum natural annual erosion that can be sustained without affecting soil productivity. In other words, under probable weather conditions, hillslope erosion may be higher than the pre-fire condition, but within a natural and sustainable range of soil loss. In the absence of treatment, forest soils and vegetation would recover naturally until soil erosion returns to pre-fire conditions. This would likely take approximately 0 to 15 years, depending on fire severity.

Sediment delivery risk falls over time, with most subwatersheds dropping to pre-fire conditions within 3 years on low soil burn severity hillslopes and typically within 5 to 10 years on high soil burn severity hillslopes.

Over time, dead and dying trees will fall to the ground and contribute to coarse and large wood volumes on the forest floor and within stream channels. The timeframe is highly variable; some trees will fall relatively quickly, while some may take many years. Initially, downed woody material can help stabilize hillslopes and riparian areas and help store sediment in stream channels. Wood recruitment is a natural and beneficial process; however, in excess can have adverse consequences. If the project is not implemented, an accumulation of excess fuels is likely. Where post-fire wood creates excessive fuel, it could lead to adverse fire effects in the event of a subsequent wildfire, such as high burn severity, elevated hydrophobicity (water repellency), and accelerated erosion. Recent studies have shown that when successive high-severity fires occur, the negative impacts can be long-lasting and even lead to shrub replacement of forest cover types (Coppoletta et al. 2020; Steele et al. 2021). The long-term effects of forest conversion on sediment delivery are not easily predicted, but forest conversion to shrubland is generally not desired. A forest floor, when

functioning properly, provides much needed needle cast, leaf litter, duff, and ground cover vegetation to protect soils during disturbances. In the absence of treatments, there is a higher probability that successive wildfires would lead to adverse effects to watershed processes. The absence of treatment would likely contribute to the build-up of fuels, which could lead to accelerated soil erosion after subsequent fires.

As described above, a baseline contribution of hillslope erosion and sediment delivery resulted from the wildfires. This analysis isolated the effects of the proposed action by looking at the difference between the existing condition and the proposed action for all scenarios; the major difference being the addition of skid trails and landings outside the equipment exclusion zone buffers for the proposed action. In all cases, modelling was completed on the steepest hillslopes proposed for treatment, which pose the highest inherent risk, and assumes that skid trails (and landings) outside the equipment exclusion zones are the source of accelerated erosion from project activities. Where units are treated non-mechanically, there is no mechanism for additional sediment delivery and the effects would be similar to the existing condition. Effects determinations were completed based on a combination of Water Erosion Prediction Project (WEPP) modelling results and based on proposed best management practices.

Model results indicate that equipment exclusion zone buffer widths proposed are sufficient to protect streams from hillslope erosion resulting from project activities under typical or probable weather conditions. Streams within and downstream of the project area are at very low risk of accelerated erosion and sediment delivery from mechanical and non-mechanical hillslope treatments. Thus, sediment delivery from mechanical hillslope treatments (skidding, landing) would be minor and short-term, based on a combination of results from WEPP sediment modelling and consideration of a suite of project-specific best management practices developed specifically for the post-fire condition.

Road Sediment Delivery

All subwatersheds within the project area were analyzed using GRAIP Lite to estimate the baseline contribution of sediment delivery from existing forest roads across the project area. Total sediment delivery from upstream forest roads for any given subwatershed has a wide range of possible outcomes.

If the project is not implemented, road sediment delivery would continue, consistent with the existing condition. No additional sediment would be delivered above the background or baseline condition because no log hauling would occur. As a result, there would be no additional sediment delivery above the background or baseline condition. Wildfires would contribute to higher stream sediment, down wood, and debris that could increase the risk of culvert plugging and/or road failure in the absence of treatment.

Sediment delivery from log hauling on forest roads would likely increase in the short term as a result of the proposed action; effects would be minimized by applying best management practices (*See Appendix B*) during implementation as required as part of the mitigation measures. The risk of sediment delivery from skidding and landing in treatment units is generally low due to equipment exclusion zones and other best management practices required as part of the mitigation measures. If sediment delivery occurs, the impacts would be adverse and short-term and recover as vegetation recovers (typically within 3 years). The long-term benefit of the proposed action is that fuels reduction can reduce the risk of detrimental impacts from successive high-severity wildfires. Additional beneficial impacts would occur where long-term improvements to the road network are applied to support log hauling (for example, adding aggregate or installing drainage features).

We modelled sediment delivery for the existing condition and proposed action for all subwatersheds using GRAIP Lite. Detailed sediment delivery predictions, modelling assumptions, and analysis are disclosed in

the road sediment analysis in the project record. We isolated the effects of the proposed action by looking at the difference between the existing condition and the proposed action for all scenarios; the major difference is the addition of project haul routes in the proposed action. A “low” and “high” haul scenario shows ranges of likely short-term effects to sediment delivery from log hauling associated with project activities in each subwatershed. Effects determinations were completed based on a combination of GRAIP Lite modelling results and based on proposed best management practices.

GRAIP Lite modelling predicts that sediment delivery from log haul on forest roads would increase across the project area. The magnitude of the relative increase varies widely depending on location and haul scenario but falls within an expected and reasonable range for road sediment when compared with available sediment total maximum daily loads within the project area and other best available science. However, actual sediment delivery is expected to be lower than predicted because mitigation measures require the application of best management practices to minimize sediment delivery. Haul will comply with wet weather standards per adherence to the mitigation measures and may include typical maintenance such as road blading and cleaning culverts or prescriptive best management practices designed to improve road drainage or surfacing. GRAIP Lite Modelling did not account for site specific and prescriptive best management practices that are expected to be used on the ground because the exact location and type of best management practice to be applied was not known at the time of analysis. Road best management practices will be determined prior to implementation, based on mitigation measures that require high risk road segments to be field validated by local experts and treated with best management practices based on site specific conditions.

Predicted sediment delivery would be reduced by application of best management practices/mitigation measures. Research on the effectiveness of road best management practices is variable, relevant studies have reported sediment reductions, ranging from 15 to 95 percent depending on the best management practice applied and the site-specific geology, soils, climate, roads condition, etc. (Edwards et al. 2016; National Council for Air and Stream Improvement 2012; Cissel. et al. 2014; Sudgen 2018; Cristan et al. 2018). Improving road drainage has longer term benefits and can ultimately prevent larger sediment delivery events (for example, culverts clogging or deep gullies forming).

Sediment increases would be reduced by applying best management practices and mitigation measures, such as avoiding wet weather haul and improving road drainage at high delivery road segments.

It is expected that all project-related sediment delivery resulting from log hauling to drop to baseline as vegetation recovers and log hauling ceases. A sharp drop in sediment delivery would occur immediately after log hauling ceases (within 1 year). Sediment delivery would return to baseline within 2 to 5 years as vegetation recovers on and along the road. However, if actions are taken to improve road surfacing (for example, from native surface to aggregate) or drainage on connected roads, the accumulated sediment delivery would likely drop below the baseline after the project is completed.

Sediment delivery from log haul would be short-term and within an expected and reasonable range of road sediment, based on a combination of GRAIP Lite model results, consideration of a suite of project-specific best management practices, mitigation measures, and best available science.

Cumulative Effects

Cumulative watershed effects analysis was completed using the Watershed Condition Class Trend Analysis, which is an approach that tiers to the national Watershed Condition Framework methodology (USDA Forest Service 2011a, USDA Forest Service 2011b) and adapts it to include a cumulative effects analysis methodology. The analysis evaluates the affected environment (existing condition combined with past and

ongoing activities) combined with the cumulative effects of the proposed action and reasonably foreseeable activities.

As an issue-based cumulative watershed effects analysis tool, the primary purpose of Watershed Condition Class Trend Analysis is to identify which, if any, indicators might be meaningfully changed by the proposed action, and ongoing, recent, and reasonably foreseeable activities. This project considered watershed condition class indicators of water quality, riparian and wetland vegetation, forest cover, fire effects, soils, aquatic habitat, aquatic biota, and roads and trails; forest cover, fire effects, soils, riparian and wetland vegetation, and roads and trails were analyzed quantitatively following the Watershed Condition Class Trend Analysis.

Effects of the proposed action and recent, ongoing, or reasonably foreseeable management activities have reached a threshold of concern if they cumulatively result in downward trend in watershed function for any individual relevant watershed condition class indicator. Thresholds for each indicator are based on a set of rules and thresholds that tier to best available science and allow for adaptation to natural watershed sensitivity based on localized knowledge of watershed conditions (USDA Forest Service 2011b).

The Watershed Condition Class Trend Analysis analyzes all subwatersheds potentially affected by the project and considers activities on federal and non-federal lands to the extent possible using quantitative analysis, supplemented with qualitative approaches where appropriate based on the project(s) and available datasets. The spatial bounds for analysis are the subwatershed scale. The subwatershed (HUC12) is sensitive to watershed changes, yet large enough to capture landscape processes and off-site disturbances. Temporal bounds vary by indicator and are described for each below.

The Watershed Condition Class Trend Analysis revealed that the wildfires changed the baseline for 1 or more individual indicators for 93 percent of the project area. Indicator ratings moved in the downward direction, indicating reduced watershed function as it pertains to those indicators. Three or more indicators' ratings are comprised in 39 percent of subwatersheds analyzed. The more indicators compromised as a result of the wildfire(s) indicates a higher likelihood that overall watershed function was reduced. There are a number of ways in which the wildfires may have reduced watershed function; the primary concerns to hydrology are elevated erosion, reduced capacity of riparian areas to capture and filter sediment, and higher stream flows, stream sediment and stream temperature. The Burned Area Emergency Response (BAER) reports and WEPP modelling indicate substantially higher erosion rates and stream sediment post-fire. The duration of these wildfire effects varies by indicator. Effects to all indicators (forest cover, fire, riparian and wetland vegetation, and soils) are expected to be most acute immediately and up to 5 years following vegetation removal from the fire. For all indicators, effects are linked to recovery of forest vegetation (ground cover, overstory, etc.). Loss of forest cover would wane over time as forest stands recover, typically within 30 to 50 years depending on local geophysical and climate conditions (Goeking 2020; wildfire BAER reports). Fire effects would revert back to a Fire Regime Condition Class rating criteria once the adverse wildfire effects have recovered, as defined in the Watershed Condition Classification Technical Guide (USDA Forest Service 2011b). This will vary from 2 to 15 years depending on fire severity, and on local geophysical and climate conditions (see BAER reports). Soil effects would typically recover within 2 to 15 years post-fire (see BAER reports). Riparian and wetland vegetation effects would typically recover within 0 to 10 years, depending on the species type and other disturbances present.

When quantified with the Watershed Condition Class Trend Analysis, the combined effects of the proposed action, ongoing, or reasonably foreseeable activities on National Forest System lands, in addition to effects of the wildfire, did not lead to additional downward trend for any watershed condition class indicator for any

subwatersheds analyzed. The thresholds of concern were not exceeded for any indicator in any subwatershed considered. The proposed action, while large in overall extent, has a very low intensity of likely effects when considered against established thresholds of the Watershed Condition Framework method (USDA Forest Service 2011a, USDA Forest Service 2011b). This is due to restrictive mitigation measures, developed to protect soil and watershed health in a post-fire landscape. Similarly, all ongoing and reasonably foreseeable Forest Service activities throughout the project area have project-specific best management practices that protect water quality and watershed function. When considered collectively, the incremental effects of all proposed Forest Service activities did not reduce watershed condition class indicator criteria below established thresholds to move indicator ratings in a downward trend.

Results from the forest cover analysis indicate approximately 26 percent (35) of subwatersheds analyzed exceeded the threshold of concern for forest cover due to the combined effects of the wildfire and potential logging and salvage activities on lands of other ownership. The forest cover analysis represents potential effects to streamflow from loss of forest cover. These analysis results indicate that there is a higher probability of elevated streamflows in those subwatersheds due to the combined effects of the wildfire and harvest on adjacent timberlands. In all cases, the wildfire is the dominant driver of downward trend. The threshold of concern was triggered in these subwatersheds by the assumption that fire salvage on lands of other ownership would further reduce functional forest cover in parts of the fire not completely denuded by the fire. Functionally, this means that streamflows already measurably increased by the wildfire(s) were raised incrementally higher as a result of activities off National Forest System lands. These effects are most acute immediately (up to 5 years) after the fire and would slowly recover as forest stands mature (Goeking 2020).

As summarized above, there would be no additional measurable downward trend to forest cover due to the proposed action and combined effects of all ongoing and reasonably foreseeable activities on National Forest System lands. The proposed action and other similar activities proposed by the Forest Service to cut dead or dying trees do not constitute additional forest cover loss that is not already quantified as part of the affected environment (wildfire and past treatments) analysis. Activities proposed in unburned areas would thin from below and retain overstory canopy cover. There are no projects on National Forest System lands that would thin stands to below an established threshold of approximately 60 percent canopy cover. Based on these conditions, the proposed action and other ongoing and reasonably foreseeable activities on National Forest System lands do not contribute towards downward trend of the forest cover indicator, in any subwatershed, including those that may be pushed over the thresholds of concern as a result of the wildfire and salvage on adjacent timberlands of other ownership.

For other indicators considered, there are no anticipated changes to ratings as a result of activities on lands of other ownership. Activities on other federal and non-federal lands are subject to local and state regulations to protect water quality. The California State Water Board requires all timber management projects, road work, etc. to enroll under an established permitting process and implement project best management practices. California Forest Practice Rules also require implementors to minimize impacts to water quality and incorporate buffer strips on streams (California Department of Forestry and Fire Protection 2023). These regulatory requirements serve to regulate and minimize adverse effects to water quality and watershed function.

The Watershed Condition Class Trend Analysis was supplemented with additional road sediment delivery analysis to account for potential short-term effects not captured by the watershed condition class indicator rating ruleset(s). Log haul associated with the project and ongoing and reasonably foreseeable activities is expected to increase fine sediment delivery to stream networks; sediment yields are expected to be similar to,

or slightly higher than the high haul scenario results from the direct/indirect effects analysis in subwatersheds with ongoing and foreseeable activities. While no thresholds have been designated, impacts are not substantial because 1) they are compliant with the Clean Water Act and 2) they are within a reasonable and expected range of sediment delivery for roads in managed basins. Impacts would be short term and partially mitigated through best management practices to improve roads as required by the mitigation measures.

Based on this analysis, recent wildfires likely compromised watershed function in many subwatersheds due to high proportions of high burn severity. Present, ongoing, or proposed activities on National Forest System lands within and adjacent to the wildfires are not expected to further impair any of 5 key indicators analyzed in the context of watershed function below the established thresholds of concern. This is because projects considered are largely restorative and consistent with best available science, or very small and discountable, and all projects include best management practices (including practices adapted specifically to post-fire environments) to mitigate or prevent adverse effects to water quality and watershed function. Based on this analysis and with the proposed mitigation measures, no significant cumulative impacts to soils are anticipated.

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 checked="" type="checkbox"/>	<input 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. Mitigation measure **GEO-2: Slopes** has been proposed to limit mechanical operations to slopes less than 35%, and mitigation measure **GEO-6: Soil Cover** has been proposed to maintain soil cover on steep slopes and sensitive areas. These mitigation measures should reduce the potential for the project to directly or indirectly cause a 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.

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

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

Across the project area, the primary factors related to climate change include: (1) the effects of greenhouse gas emissions in wildland fire smoke to climate, and (2) the effects of climate change to forest ecosystems. Recent wildfires produced large amounts of greenhouse gases. Prior to the wildfires, a significant drought period from 2012 to 2016 and during 2021, concurrent insect mortality, warmer winters, smaller snowpacks, and earlier runoff periods resulted in high levels of tree mortality and heavy fuel loads across the national forests.

Prolonged drought can promote drought-tolerant species, including invasive species. Additionally, drought can either positively or negatively affect pathogens and insects, depending on their life history requirements and the characteristics of the drought. Moderate drought, for example, can reduce bark beetle outbreaks, whereas long-term, severe droughts can weaken trees enough to cause an increase in outbreaks. The climatic features of drought (such as high temperatures, low relative humidity, higher minimum temperatures) can also change the fuel characteristics of an area. Examples of these drought-induced changes include increased dead fuels, lower live and dead fuel moisture, and lower soil moisture. Further, a drought may change the overall vegetation structure and composition that can lead to changes in fire behavior (Vose et al. 2016).

Wildfires in untreated areas (no action) would produce more greenhouse gases than treated areas (proposed action). In addition, in untreated areas, heavy fuel loads combined with more frequent and severe droughts would increase the intensity of wildfires and increase damage to forest ecosystems.

The Sierra Nevada region, which includes the project area, has already begun experiencing climate change in the form of higher nighttime temperatures, lower proportions of precipitation falling as snow rather than rain, decreased snowpack, and earlier peak flow in snow-fed streams. Climate models predict that these trends will continue and likely accelerate. By the end of the 21st century, temperatures in the Sierra Nevada are predicted to increase by as much as 6 to 10 degrees Fahrenheit. While climate models forecast a less dramatic change in total precipitation over this region, they indicate a shift toward greater extremes, including an increase in both the number of dry days and the amount of precipitation from the largest storms (Stephens and Frederick 2020).

Although uncertainties abound, multiyear severe drought conditions in the Sierra Nevada correlate with an increase in both wildfire size and severity, a trend that is consistent throughout the Western United States. Drought conditions, which can perhaps more accurately be characterized by measures of climate water

deficit, depend on the interplay between temperature, precipitation, and evapotranspiration demand. Some researchers hypothesize that snowpack drives the relationship between drought and fire, where higher spring temperatures cause earlier and more rapid snowmelt. Rapid snowmelt is thought to contribute to a decrease in water uptake, lower live fuel moisture, and cause longer periods of dry soil conditions. Other researchers suggest that the timing of snowmelt is less important in determining fire activity than the direct effect of higher temperatures (and lower precipitation) in drying both live and dead fuels during the fire season. Warming and drying effects due to climate change were found to be a major factor in the 8-fold increase of summertime forest-fire area acres burned in California since the 1970s, although the best metric to evaluate wildfire effects over time is fire severity because it describes forest mortality patterns (Stephens and Frederick 2020).

This information suggests that droughts are increasing in occurrence and severity in the project area and would increase mortality in dense green forest stands and stress and mortality to fire-damaged and unhealthy trees. Future fuel loadings would increase in the project area along with increases in wildfire intensity and extent.

Direct and Indirect Effects: The primary effect of the proposed action to climate change would be greenhouse gases produced from burning slash piles. However, wildfires in treated areas (proposed action) would produce less greenhouse gases than untreated areas (no action).

Equipment use over the project implementation timeframe would include dozens of gasoline or diesel fuel powered vehicles and specialized tree harvesting, processing equipment, and transportation trucks on any given day. Similar to hazard tree operations on other projects, treatments per day would include 0.5 miles to several miles of road and a varying number of facilities and infrastructure. Therefore, compared to emissions from prescribed fire projects, the emissions the equipment would produce would be minor. In most circumstances, vehicle and equipment emissions disperse rapidly and in the potential concentrations caused by only dozens of vehicles or equipment would not cause National Ambient Air Quality Standards exceedances.

Concerning the effects of climate change to future wildfire severity, some researchers and fire managers suggest that weather conditions have become more important than fuels in driving fire behavior. Steel et al. (2015) examined the relationship between fuels and fire behavior by examining how fire suppression has affected fire severity in different forest ecosystems in California. The authors tested the hypothesis that fire behavior is limited by fuel availability in some California forests where climatic conditions during the fire season are nearly always conducive to burning and the primary limiting factor for fire ignition and spread is the presence of sufficient fuel. In fuel-limited ecosystems, fire suppression results in increased fuels, leading to an increase in fire severity. The authors used time since last fire and fire return interval a surrogate for fuels accumulation resulting from fire suppression. They found that both are strongly positively related to fire severity in yellow pine and mixed conifer forests, and to a lesser extent in mixed evergreen and bigcone Douglas-fir forests, demonstrating that fire severity in these forest types is still driven by fuels. On the other hand, they found that time since last fire and fire return interval were not related to fire severity in red fir and redwood forest types and the Klamath Mountains bioregion where fire may be more limited by factors other than fuel loads, such as climatic conditions or ignition rates.

This research shows that in yellow pine, mixed conifer, and mixed evergreen forest types there is a strong correlation between fuel accumulation and wildfire severity (fuel limited), and less so in the bigcone Douglas-fir forest type. It also shows that climate is the main driver of fire severity in red fir and redwood

forest types and the Klamath Mountains bioregion. In both fuel-limited and climate-limited project areas, removing and reducing fuels would reduce wildfire severity and reduce some greenhouse gas emissions.

Cumulative Effects: This project, in combination with current and future proposed fuels projects and continued interagency collaborative efforts to address fuels, could reduce the risk of recurring damaging wildfires in the future. Frequent prescribed fire and other fuels reduction and ecosystem maintenance treatments in and around the project area would cumulatively move the areas toward meeting desired conditions for fuels and greenhouse gas emissions.

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

The project does not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

HAZARDS AND HAZARDOUS MATERIALS

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<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 Measures BIO-AQUA #3-7, BIO-AQUA #8-12, and HYD-1** are proposed 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.

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"/>

No project activities are planned within ¼ miles of an existing or proposed 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 Lassen 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"/>

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 community 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

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

See discussion of soil erosion and sediment delivery in the Geology and Soils (e) section.

Direct and Indirect Effects: Post-fire watersheds are at high risk of increased soil erosion and sediment delivery to streams until ground cover (vegetation, duff, and leaf litter) recovers. Wildfires typically result in increases in overland flow because organic matter and other vegetation consumed by fire no longer capture soil-water. This leads to higher streamflow and stream sediment, which could benefit or harm streams and water quality, depending on the quantity and duration. For example, higher baseflows can ameliorate effects of the current drought, whereas higher peak flows could increase sediment delivery and transport. Wildfires also increase coarse and large wood to streams over time. This is also largely beneficial, unless wood volumes are so high, they lead to fuel loadings outside the historical range, and set up the landscape for adverse soil burn severities from future fires. A wide range of conditions is found throughout the project area.

The project is located along existing roads, which would facilitate access and multiple-use management. However, forest road networks, particularly those with a higher proportion of native and aggregate surface roads, are the primary contributors to human-caused sediment delivery in managed watersheds. The baseline condition in managed subwatersheds includes sediment delivery from forest roads. Large wood and sediment from the wildfires could result in plugging of existing culverts and other drainage features, causing road failure at road-stream crossings.

Other past management activities within the project area, an aging infrastructure, and a legacy of roads constructed prior to the widespread knowledge of road-stream impacts and the Clean Water Act, have impacted stream sediment. Past management activities include historical logging units, skid trails, and landings. Historical livestock grazing, where present, may also have contributed to accelerated erosion, particularly in riparian areas. Past mining near streams has also altered stream sediment processes. Trails are hardened surfaces on the forest landscape that occasionally deliver sediment at trail and stream crossings. These past activities contribute to the sediment history of the project area and are captured in the watershed condition class indicators for water quality for each subwatershed affected.

In contrast to historical practices, present and ongoing projects on National Forest System lands (thinning, grazing, recreation, and more) require the implementation of best management practices to minimize sediment delivery. Best management practices are a cornerstone of compliance with the Clean Water Act today (USDA Forest Service 2012, USDA Forest Service 1981) and are increasingly critical when considered with the additional strain on local streams and rivers resulting from the anticipated effects of climate change. Climate change models predict that the affected area is likely to see overall warmer conditions, greater precipitation variability, and greater climate extremes. This could translate to successive wildfires and a higher probability of damaging storm events (USDA Forest Service 2022a).

There are 11 subwatersheds potentially affected by this project. At this time, no streams or subwatersheds have water quality impairments for sediment within or immediately downstream of the project area.

Mitigation measures **BIO-AQUA #1-24**, **GEO #1-16** and **HYD #1-20** have been proposed to reduce impacts to ground and surface waters to less than significant.

Cumulative effects: The existing condition reflects the changes of all activities that have occurred in the past. The analysis of cumulative effects evaluates the impact on hydrology and water quality from the existing condition within the analysis area. To understand the contribution of past actions to the cumulative effects of the proposed action, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects to hydrology and water quality. 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 within the project area.

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

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

The project would not physically divide an established community.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<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 Lassen County General Plan (2010).

MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<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.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

other applicable local, state, or federal standards?

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.

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<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.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<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 environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire 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 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

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"/>

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

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"/>

The project will not increase the use of existing neighborhood and regional parks or other recreation facilities.

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

A forested landscape provides a high-quality experience for visitors engaging in a wide range of recreational activities. A variety of recreational activities occur year-round in most of the project area including use of off-highway vehicles and over-the-snow vehicles, hiking, automobile touring, camping, hunting, fishing, mountain bicycling, equestrian use, and other snow sports such as cross-country skiing or snowshoeing.

There is a year-round variety of motorized activities and routes in the project area. The road system identified for hazard tree abatement provides access to private property, Forest Service permitted use areas, and access to National Forest System lands. The existing trails and road system optimize user satisfaction and provide quality recreation experiences. Maintenance level 2, 3, 4, and 5 roads provide a diverse motoring experience. Generally, maintenance level 2 roads provide recreational opportunities for off-highway vehicle

users, while the higher standard maintenance level 3, 4, and 5 roads provide recreational access for passenger cars.

Camping is allowed in most areas. Dispersed camping and use most often occurs at or near the intersections of trails, the end of roads, at previous landings, or other past- project staging areas. Camping, recreational mining, hiking, off-highway vehicle use, equestrian use and hunting are the prevalent recreation activities associated with dispersed use.

Due to the recent fires, the roads, trails, developed and dispersed use areas within the project area are currently affected by a large quantity of roadside or trailside hazards. The proposed action mitigates these safety concerns.

Direct and Indirect Effects: The proposed action would improve administrative, visitor, and traffic safety and provide an overall net benefit for recreation. Recreation resources may need to be temporarily closed during hazard tree removal efforts, which would displace users and may temporarily affect scenic quality. By following mitigation measures **REC -#1-16**, most impacts to recreation quality would improve, and trails and facilities would become available for public use.

Cumulative Effects: Hazard tree and other projects are expected to occur in the foreseeable future. Some proposed activities may temporarily limit access for recreation opportunities, displacing recreation use to other areas in the vicinity during project implementation. However, by removing hazards within the project area, national forests could reopen recreation sites, which would reduce impacts from visitor displacement. Hazard tree and other projects may require all or parts of the treatment areas to remain closed to public access until hazards no longer exist. These other similar projects would be designed to meet forest plan direction and they would not result in cumulative, long-term effects on recreation.

TRANSPORTATION

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

There is a year-round variety of motorized activities and routes in the project area. The road system identified for hazard tree abatement provides access to private property, Forest Service permitted use areas, and access to National Forest System lands. The existing trails and road system optimize user satisfaction and provide quality recreation experiences. Maintenance level 2, 3, 4, and 5 roads provide a diverse motoring experience. Generally, maintenance level 2 roads provide recreational opportunities for off-highway vehicle users, while the higher standard maintenance level 3, 4, and 5 roads provide recreational access for passenger cars.

Due to the recent fires, the roads and trails within the project area are currently affected by a large quantity of roadside or trailside hazards. The proposed action mitigates these safety concerns.

Recreational users may be temporarily displaced as roads are temporarily closed during hazard tree removal efforts

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

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

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

No road will be altered in such a way as to decrease emergency access. A goal of the project is to improve ingress and egress within the project area for wildfire protection and recreational use.

TRIBAL CULTURAL RESOURCES

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

The CAL FIRE Native American contact list (Cal FIRE 2023) and CA Native American Heritage Commission contact list (NAHC 2023) identifies the following Tribes and tribal groups as having aboriginal ties to, and interest in, projects that occur in Lassen County:

- Greenville Rancheria of Maidu Indians;
- Honey Lake Maidu
- Maidu Cultural and Development Group;
- Mooretown Rancheria;

- Pit River Tribe of California
- Susanville Indian Rancheria
- Tsi Akim Maidu;
- Wadatakuta Band of Northern Paiute of the Honey Lake Valley
- Washoe Tribe of California and Nevada

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. The Lassen National Forest consults with Tribes regarding their Schedule of Proposed Actions (SOPA) on a regular date. No comments have been received regarding this project.

The project will enhance living cultural resources (e.g. plants and animals). **Mitigation Measures CUL-1: to CUL-4, and TRIBE-1: Tribal Consultation** 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The project will enhance living cultural resources (e.g. plants and animals). **Mitigation Measures CUL-1: to CUL-4, and TRIBE-1: Tribal Consultation** 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.

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"/>

The project, as designed, will improve emergency response by removing safety hazards along National Forest System roads. Roads may be temporarily closed while hazard trees are removed, but this will not substantially impair an adopted emergency response plan or emergency evacuation plan.

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

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. 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	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"/>

slope instability, or drainage changes?

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

MANDATORY FINDINGS OF SIGNIFICANCE

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?

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 remove hazardous trees thereby increasing safety for people utilizing National Forest System roads impacted by the Dixie Fire (2021). In the long-term these treatments will increase habitat suitability for a wide range of native species while reducing invasive species, reduce fuel loads to lower burn severity for future fires, and improve ingress/egress for emergency personnel. 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 archaeologists and tribal cultural resources experts, the project, with mitigations incorporated, will not eliminate any important examples of the major periods of California history or prehistory.

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 cumulative effects of wide scale efforts to remove dead/dying trees impacted by wildfire and restore these areas, overall, is ecologically positive. Cumulative negative impacts could include that some species will be less abundant and some drainages could experience transient peaks in siltation, however, these impacts will be less than significant when compared to the likely catastrophic wildfire impacts of *not* improving ecosystem health and reducing fuel loads.

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. Removing safety hazards from National FS System roads impacted by the Dixie Fire, will provide a safe environment for humans to access and enjoy Lassen National Forest.

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. Honey Lake Valley 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.

Aesthetics:

Mitigation Measure AES-1: *Stump Heights* - For all hazard tree removal treatments in Retention and Partial Retention Visual Quality Objectives: Where high masses or groups of trees will be removed, stump heights should be between 6 to 8 inches (according to timber contract specifications), except in the case of localized situations that make low cutting heights unsafe. Stumps should be angled to the contour of the land. Low stumping shall occur for a distance of 100 feet from the road edge on upslope terrain and on easily visible level terrain areas and anywhere within the corridor of a designated, eligible, and/or suitable Wild and Scenic River. In those same areas where hazard tree removal occurs singly, or in a low volume and dispersed pattern, 8- to 12-inch stump heights are acceptable and should be angled to the contour of the land.

Schedule: During project implementation

Responsible Party: Forest Service, Project partners, project contractors implementing the project

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Botany:

Mitigation Measure BIO-BOT-1: *Sensitive Plants* - Known populations of federally threatened, endangered, proposed, and candidate; Forest Service sensitive, survey and manage, or species of conservation concern; Forest Service sensitive plant, lichen, or fungi species shall be flagged for avoidance. Ground-disturbing activities and spreading chips or slash materials shall be prohibited within flagged areas. When necessary, hand felling of trees and end-lining of logs may be conducted within occurrences if it is determined by a botanist that effects would be minimal or there will be beneficial effects based on the site or habitat conditions. Piles and fire lines shall be located outside of flagged areas.

Schedule: Prior to project implementation

Responsible Party: Forest Service Botanist

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-BOT-2: *Pre-implementation Consultation with Botanist* - During early stages of hazard tree removal planning, consult with the botanist to review existing information about federally threatened, endangered, proposed, and candidate, Survey and Manage, or Forest Service sensitive plant, lichen, and fungi species and habitat, and suitable habitat, invasive species, and whether surveys are necessary in the specific areas or habitats planned for activity. Follow direction in Forest Service Handbook 2609.26 chapter 10, Forest Service manuals 2670.22, 2670.32 and 2900 on whether to conduct surveys and the appropriate type of survey documentation. Where these plants exist or are found through surveys, the botanist will recommend the appropriate avoidance or other design elements.

Schedule: Prior to project implementation

Responsible Party: Forest Service Botanist, project partners, and contractors implementing the project.

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-BOT-3: *New Sensitive Plant Discoveries* - In the event any new populations of federally threatened, endangered, proposed, and candidate, Forest Service sensitive, survey and manage, or species of conservation concern plant, lichen or fungi species are discovered during the various phases of the project, the area will be flagged and avoided until a botanist is consulted for design feature applicability.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-BOT-4: *Felling Adjacent to Sensitive Plant Populations* - Hazard trees adjacent to flagged populations of federally threatened, endangered, proposed, and candidate and Forest Service sensitive, survey and manage, and species of conservation concern plant, lichen, or fungi species will be directionally felled away from the flagged area to avoid disturbing the population. Only remove directionally felled trees if ground disturbance within the flagged area can be avoided. If directional felling cannot be done due to safety concerns, fell as necessary and leave on-site. This requirement may be waived by a botanist depending on the species present and its phenology. Flagging will be used to delineate avoidance boundaries.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-BOT-5: *Felling within Flagged Sensitive Plant Populations* - Hazard trees located within flagged avoidance areas may be felled but must be left on-site to avoid ground disturbance unless removal can occur with minimal effects in consultation with a botanist. Flagging will be used to delineate avoidance areas.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-BOT-6: *Special Plant Habitats* - Special habitat types which support unique plant communities (such as serpentine, lava caps, pumice flats, rock outcrops, and seeps and springs) will be avoided. This requirement may be waived by a botanist if ground disturbance can be avoided.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Non-Native Invasive Species:

Mitigation Measure BIO-INV-1: *Cleaning of Equipment* - All equipment to be used off-road would be cleaned using either washing or high-pressure air and visually inspected before moving into the project area to ensure equipment is free of soil, plant propagules, or other debris that may contain invasive plant seeds. All equipment working in infested areas will be cleaned prior to leaving the infested area.

Schedule: Prior to and during project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-INV-2: *Weed Free Materials* - Any source that provides material such as rock, gravel, or boulders to be used in the project area would be inspected and determined to have limited potential for the spread of invasive plants. Material stockpiles must be noxious weed free.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-INV-3: *Weed Free Straw* - Any straw or seed placed within the project area must be California-certified weed-free and the seed mix approved by a botanist. Other materials to be used as mulch, for which a state inspection protocol does not exist (such as wood chips, local materials) would be inspected by a botanist to determine the potential for spread of invasive plants. Post-project monitoring would occur in areas where imported materials are used.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-INV-4: *Equipment and Flagged Sites* - Equipment, vehicles, and personnel will avoid working within flagged invasive plant sites. Flagging will be used to delineate avoidance boundaries. If infestation cannot be avoided, consult with a botanist for risk minimization strategies.

Schedule: Prior to and during project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-INV-5: *Staging Areas and Landings* - If potential landings or staging areas are infested with invasive plants, consult a botanist about appropriate methods for minimizing risk and managing the infestation.

Schedule: Prior to and during project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-INV-6: *Invasive Discoveries* - Any additional infestations discovered prior to or during project implementation would be flagged and avoided. Report new infestations to a botanist.

Schedule: During project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Fisheries and Aquatics:

Mitigation Measure BIO-AQUA-1: *Burn pile placement* - No burn piles shall be placed within meadows, fens, springs, or 25 feet from the edge of riparian vegetation.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-2: *Burn pile ignition* - Piles that lie within 300 feet of perennial streams or special aquatic features or 150 feet of intermittent or ephemeral streams may be burned, but would, to the extent practicable, be ignited in a manner that allows any organisms to flee from the pile (for example, light on the leeward side so that fire moves as a front through the pile).

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-3: *Water drafting sites* - Identify water sources on project implementation maps. Consult with the biologist or hydrologist to obtain approval for use of additional water drafting locations and to determine whether the location represents suitable habitat for sensitive aquatic species.

Schedule: Prior to project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-4: *In-Channel drafting sites* - In-channel water drafting locations shall include rocking of approaches, barrier rock, straw bales, or other measures to prevent overflow and leaks from entering the watercourse.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-5: *Water drafting site survey and approval*- Survey all proposed water drafting locations for sensitive and listed amphibians and receive approval from a biologist prior to use. Use drafting devices with 2 millimeter or less screening, and place hose intake into bucket in the deepest part of the pool. Use a low velocity water pump and do not pump ponds to low levels beyond which they cannot recover quickly (approximately 1 hour).

Schedule: Prior to project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-6 *Water drafting and Aquatic invasive organisms* - To minimize the risk of aquatic invasive species, project activities will adhere to the Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations, PMS 444. If contamination of gear with raw water, mud, or plants is unavoidable, the biologist will be consulted, and the operators will adhere to sanitizing equipment guidelines. A map of known locations of aquatic invasive organisms would be provided to implementation crews.

Schedule: Prior to project implementation

Responsible Party: Forest Service Botanist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-7: *Water drafting in fish-bearing streams* - For fish-bearing streams, the water drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 4 cubic feet per second, nor exceed 20 percent of surface flows for streamflow less than 4 cubic feet per second. For non-fish-bearing streams, the drafting rate should not exceed 350 gallons per minute for streamflow greater than or equal to 2 cubic feet per second, nor exceed 50 percent of surface flows. Water drafting should cease when bypass surface flows drop below 1.5 cubic feet per second on fish-bearing streams and 10 gallons per minute on non-fish-bearing streams.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-8: *Dust Abatement in Riparian Areas with Sensitive Species* - Only use water as dust abatement in riparian areas known to be occupied with sensitive status species.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-9: *Storage of heavy equipment and Sensitive Species* - The storage of heavy mechanical equipment will occur outside of habitats occupied by threatened, endangered, and sensitive species unless a biologist authorizes specific locations. If equipment is stored in occupied habitats, the areas around all equipment occurring in suitable habitat will be checked daily for threatened, endangered, and sensitive species prior to the equipment being moved.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-10: *Hazardous chemicals and Riparian Areas* - Do not store equipment fuels, hydraulic fluid, oils, fire ignition fuels, and other toxic materials within riparian areas unless a biologist authorizes specific locations.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-11: *Fueling and watercourses* - No fueling or refueling of any mechanical equipment (such as chainsaws) will occur within 100 feet of any flowing watercourse or intermittent drainage. Fueling and servicing of vehicles and other heavy equipment used for proposed activities will be done outside of aquatic management zones.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-12: *Hazardous spills* - Any hazardous spills will be immediately cleaned up and reported to the Forest Service.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-13: *Western pond turtle* - Within areas identified as high-quality western pond turtle habitat by the biologist prior to implementation, avoid placing piles, skid trails, and landing sites in open, grassy patches. Do not fell trees across these habitats wherever practical.

Schedule: Prior to project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-14: *Vernal Pools* - Activities within 250 feet of vernal pools will occur only once the ground surface is completely dry (typically June 1 to October 31 but will vary year to year). No activity will occur within the vernal pool. A biologist will be present for ground- and vegetation-disturbing activities conducted within 250 feet of vernal pool habitat. Personnel will utilize existing roadways within 250 feet of vernal pools whenever possible. If not using an existing roadway, only rubber-tired vehicles will be utilized within vernal pool upland areas. Driving through vernal pools at any time of year will be avoided. Any hazard trees found within 250 feet of a vernal pool will be directionally felled away from the vernal pool.

Schedule: Prior to and during project implementation

Responsible Party: FS Botanist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-15: *Equipment Exclusion Zone for Sensitive Aquatic Species* - Within suitable habitat for aquatic and terrestrial Regional Forester sensitive species, implement a minimum 100-foot equipment exclusion zone around perennial and intermittent rivers, streams, other waterbodies, and

wet/sensitive areas including seeps, springs, and meadows. If a biologist determines that suitable habitat is not present, the standard equipment exclusion zone will be applied.

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-16: *Hazard tree marking guidelines in aquatic management zones (Riparian Reserves and Riparian Conservation Areas)* – Use a probability threshold of 0.7 or higher as defined in Marking Guidelines for Fire-Injured Trees (Smith and Cluck 2011) and a hazard tree rating of 6 or 7 as defined in the hazard tree guidelines (Angwin et al. 2022) when identifying hazard trees for removal within 1.5 site potential tree heights if upslope from the road, and 1 site potential tree height if downslope from the road, or 150 feet, whichever is greatest, from all perennial and intermittent streams.

Schedule: Prior to project implementation

Responsible Party: FS Timber, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-17: *Fiber netting and Frogs* - Tightly woven fiber netting or similar material shall not be used for erosion control or other purposes within suitable habitat to ensure the foothill yellow-legged frog, Sierra Nevada yellow-legged frog, mountain yellow-legged, or cascade frog do not get trapped, injured, or killed.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-18: *Borate and Frogs* - Within 500 feet of known occupied sites for the Cascades frog, foothill yellow-legged frog, and Sierra Nevada yellow-legged frog, design borate applications to avoid adverse effects to individuals and their habitats.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-19: *Refueling and Critical Aquatic Refugia* - Prohibit storage of fuels and other toxic materials within riparian conservation areas and critical aquatic refuges except at designated administrative sites and sites covered by a special use authorization. Prohibit refueling within riparian conservation areas and critical aquatic refuges unless there are no other alternatives. Ensure that spill plans are reviewed and up to date.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-20: *Stream Crossings and Water Drafting Sites* - Ensure that culverts or other stream crossings do not create barriers to upstream or downstream passage for aquatic-dependent species. Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat. Where possible, maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows, wetlands, and other special aquatic features.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-21: *Stream Channels* - Determine if the level of coarse large woody debris is within the range of natural variability in terms of frequency and distribution and is sufficient to sustain stream channel physical complexity and stability. Ensure proposed management activities move conditions toward the range of natural variability.

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-22: *RCA's and Critical Aquatic Refugia* - Allow hazard tree removal within riparian conservation areas or critical aquatic refuges. Allow mechanical ground disturbing fuels treatments, salvage harvest, or commercial fuelwood cutting within riparian conservation areas or critical aquatic refuges when the activity is consistent with riparian conservation objectives. Use low ground pressure equipment, over-the-snow logging, or other non-ground-disturbing actions to operate off of existing roads when needed to achieve riparian conservation objectives. Ensure that existing roads, landings, and skid trails meet best management practices. Minimize the construction of new skid trails for access into riparian conservation areas for fuel treatments, salvage harvest, commercial fuelwood cutting, or hazard tree removal.

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-23: *Frogs and Rain* - **Foothill yellow-legged frog, Sierra Nevada yellow-legged frog, and Cascade Frog:** For all activities in occupied or suitable habitat, if there is a 70

percent or greater forecasted rain event of 0.25-inch or greater, work activities will be postponed until site conditions are dry enough to avoid potential impacts.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-AQUA-24: *Buffers for Frogs - Foothill yellow-legged frog, Sierra Nevada yellow-legged frog, and Cascade Frog*: Within the riparian areas with known or suspected occupancy or their designated or proposed critical habitat, use handheld equipment (chainsaws) and walk in and out using the same pathway. Do not create any skid trails or burn piles within these areas. Areas of occurrence for all species include reaches 0.3 miles upstream and downstream plus all associated wet meadows. Areas of occurrence are as follows into the uplands areas: California red-legged frog: 0.3 mile Sierra Nevada yellow-legged frog and Mountain yellow-legged frog: 82 feet Foothill yellow-legged frog: 100 feet (distance may change) Yosemite toad: 0.78 mile

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Wildlife:

Mitigation Measure BIO-WILD-1: *Large downed woody material* - To the greatest extent possible, retain downed woody material with a large end diameter greater than 30 inches, or of the largest size class available, that was present prior to the wildfire. Do not buck up, and avoid moving these large, pre-existing downed logs during treatment wherever practicable.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-2: *Pre-Fire Snags and Downed Logs* - Unless a hazard to a road, trail, facility, or a threat to human safety, retain all snags and downed logs that were present prior to the recent fires. If large diameter pre-fire, old-growth, legacy trees, or snags are fallen as hazards, retain them whole as downed logs and do not buck or pile. If the downed log is a safety threat, move it to a safe location as intact as possible. Large-diameter and old-growth conifer snags or legacy trees with deformities such as cat faces, broken tops, hollows, or cavities are prioritized for retention when evaluating fuel levels.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-3: *Hardwood snags* - Unless a hazard to a road, trail, or facility, retain all hardwood snags (larger than 16 inches diameter at breast height), legacy, and old-growth trees and other snags.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-4: *Downed Logs* - Unless a hazard to a road, trail, or facility, where available retain an average of 5 to 8 downed logs per acre in uplands and 4 to 6 downed logs per acre in riparian areas of the largest size class (larger than 20 inches diameter at breast height, over 10 feet in length), or to specifications needed to meet plan requirements. Preference is to retain logs within riparian areas and away from roads. Numbers of downed logs can vary on any particular acre and should be an average for the landscape or treatment area.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-5: *Bald Eagle*: Hazard trees located within 0.25 mile of active bald eagle territory will be evaluated by a biologist prior to felling to establish whether they contain nests or are important pilot or perch trees. If a hazard tree contains a nest, or is an important pilot tree, it will not be felled between January 1 and August 31 unless it is an immediate threat to human safety. No project actions that result in loud or continuous noise above ambient levels within 0.5 mile of an active bald eagle nest will occur from January 1 through August 31 or an occupied bald eagle winter roost from November through March 1.

Schedule: Prior to project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-6: *Sensitive Bats*: Where caves or mines are located within 250 feet of the project boundaries, a Forest Service cave coordinator, in coordination with a biologist, would be consulted and a buffer flagged on the ground identifying an equipment exclusion zone. The following protective measures would apply: No noise generating or habitat modification activities will take place within 250 feet from caves, mines, and mine adits to protect known or potential sensitive bat species (Townsend's big-eared bat, pallid bat, and fringed myotis) roost sites. Options for pile burning and felling around caves or mines include the following: pile burning and felling imminent safety threats only (hazard trees with a high hazard rating within 1.5 tree lengths of a road, trail, or facility) outside the March 1 through August 31 breeding

season or pile burning during the March 1 through August 31 breeding season only under prevailing wind conditions that disperse smoke away from cave and mine entrances.

Schedule: Prior to project implementation

Responsible Party: FS Wildlife Biologist, FS Cave Coordinator, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-7: Limited Operating Periods (LOPs) - Limited operating period is a period of time to protect species from disturbance that could result in loss of fecundity (this year's young would not be conceived or birthed, young or eggs would be kicked out of den or nest, or otherwise be disturbed and not successfully survive to a juvenile or adult state) or a loss of life (migration).

Limited operating period timeframes examples (not all inclusive; others are listed in other mitigation measures):

-- Fisher: March 1 to June 30

-- Marten: May 1 to July 31

-- Sierra Nevada red fox: January 1 to June 30

The limited operating period could be lifted if one of the assumptions is met:

-- Species is not within the area as determined by protocol level surveys

-- Area no longer has appropriate habitat or habitat components for the species to reproduce in the area (post-fire no longer meets species needs)

Schedule: Prior to and during project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-8: Marten and Fisher - Retain some slash piles for marten escape cover and prey habitat, where biologists have determined that cover and/or connectivity could benefit marten or fisher habitat (i.e., along outer edges of canopy openings and riparian buffers). The number and location of slash piles will vary and will be determined by biologists on a site-specific basis. When feasible, piles should contain large and small diameter logs, have enough interstitial space to allow for marten or fisher occupancy, and be at least 6 feet by 8 feet in diameter. Piles would be clearly marked to not be burned. Pile specifications will be adapted to on-the-ground conditions.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-9: Marten Dens - Maintain a 100-acre buffer from May 1 to July 31 for all active marten den sites. Protect marten den site buffers from disturbance from vegetation treatments with a limited operating period from May 1 through July 31 as long as habitat remains suitable or until another regionally approved management strategy is implemented. The limited operating period may be waived for individual projects of limited scope and duration, when a biological evaluation documents that such projects

are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-10: Fisher: In high quality reproductive and potential fisher denning habitat and along Maintenance Levels 2 and 3 roads, implement hazard mitigation options other than complete removal for conifer snags larger than 35 inches diameter at breast height and hardwood snags larger than 27 inches diameter at breast height when it is safe to do so. Such options include cutting the hazard tree as high as possible to leave a portion of the trunk (10 to 20 feet tall) standing to provide potential microsites. Leave 15 to 20 feet of the thickest part of the trunk behind as a large log, particularly if it is decayed. When hazard tree removal creates continuous areas with canopy cover less than 40 percent, leave 1 to 2 large trees (larger than 30 inches diameter at breast height) per acre on the ground as coarse woody debris to enhance habitat quality and connectivity. This will facilitate crossing by fishers and limit the potential for habitat fragmentation.

Schedule: Prior to and during project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-11: Fisher Dens - Protect any known fisher den site buffers from vegetation treatments disturbance with a limited operating period from March 1 through June 30, as long as habitat remains suitable or until another regionally approved management strategy is implemented. The limited operating period may be waived for individual projects of limited scope and duration, when a biological evaluation documents that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Avoid fuel treatments within any known fisher den site buffers to the extent possible. If areas within den site buffers must be treated to achieve fuels objectives for the urban wildland intermix zone, limit treatments to hand clearing of fuels. Use piling to treat surface fuels during initial treatment. Burning of piled debris is allowed in fall and winter.

Schedule: Prior to and during project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-12: Fisher Habitat - In high and moderate quality reproductive fisher habitat (Thompson et al. 2021; habitat model) in low severity and unburned areas, apply a limited operating period during the denning season (March 1 through June 30). Use the programmatic biological opinion definitions for potential and high-quality denning habitat for areas that the habitat model does not cover. The limited operating period may be waived for individual projects of limited scope and duration if pre-project surveys document absence of denning fisher (Tucker et al. 2020). In areas of moderate burn severity (25 to

75 percent basal area loss), a biologist will assess the area to determine if potential habitat remains and the limited operating period should be applied.

Schedule: Prior to and during project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-13: *Sierra Nevada red fox:* A biologist will validate detection of a Sierra Nevada red fox. When verified sightings occur, conduct an analysis to determine if activities within 5 miles of the detection have a potential to affect the species. If necessary, apply a limited operating period from January 1 to June 30 to avoid adverse impacts to potential breeding. Evaluate activities for a 2-year period for detections not associated with a den site.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-14: *Gray wolf:* If dens or rendezvous sites are within 1 mile of the work activity, the biologist will establish a buffer to seasonally restrict activities from April 1 through July 15 between the proposed activity and the den site or rendezvous site. The buffer will be at least 1 mile but is likely to be irregularly shaped based on topography and concerns for revealing the exact site location. The biologist is expected to coordinate with California Department of Fish and Wildlife, and the U.S. Fish and Wildlife Service as appropriate, when determining whether dens or rendezvous sites are present and when designating buffers.

Schedule: Prior to and during project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-15: *Snags -* Retain four of the largest snags per acre larger than 15 inches diameter at breast height following plan direction, and where possible, retain 5 to 10 tons per acre of the largest downed logs. Preference is to retain the largest downed logs present prior to the fire at least 20 inches in diameter and more than 10 feet in length. If areas are deficient in logs, retain these large, downed logs whole in stands and do not buck or pile. Within perennial stream riparian buffers retain large, downed woody material for wildlife. Follow all relevant plan direction.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-16: *LOPs for Northern Goshawks and CA Spotted Owls* - Maintain a seasonal limited operating period within 0.25-mile of known **California spotted owl and northern goshawk** nests or within protected activity center boundaries during the breeding season (March 1 to August 15 for spotted owls; February 15 to September 15 for goshawks) unless surveys confirm they are not nesting. The limited operating period would prohibit mechanical activities such as tree felling, machine piling, major road maintenance, or other operations that generate loud or continuous noise within approximately 0.25-mile of the activity center, unless surveys confirm that California spotted owls or northern goshawks are not nesting. If the nest stand within a protected activity center is unknown, either apply the limited operating period to a 0.25-mile area surrounding the protected activity center, or survey to determine the nest stand location.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-17: *Activities in Northern Goshawk and CA Spotted Owl PACs* - No tree removal would occur in California spotted owl or northern goshawk protected activity centers. Trees identified as hazards, located within spotted owl or goshawk protected activity centers, which are larger than 30 inches diameter at breast height would be left on-site as whole downed logs (and not bucked up or removed) unless they would exceed desired fuel levels for the area. Do not locate log processing landings in northern goshawk or California spotted owl protected activity centers.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-18: *Great gray owl:* Apply a limited operating period, prohibiting vegetation treatments within 0.5 mile of an active great gray owl nest stand, during the nesting period (typically March 1 to August 15). The limited operating period may be waived for vegetation treatments of limited scope and duration, if a biologist determines that such projects are unlikely to result in breeding disturbance considering their intensity, duration, timing, and specific location. Where a biologist concludes that a nest site would be shielded from planned activities by topographic features that would minimize disturbance, the limited operating period buffer distance may be reduced.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure BIO-WILD-19: *Sandhill Cranes* - If **sandhill cranes** are observed within the project area before or during project implementation, a limited operating period will be in effect from April 1 through August 1 within one-half mile from occupied areas. If surveys indicate that cranes are not nesting,

then the limited operating period for that year would not be required. Surveys of potential meadows are needed each year to establish nesting status.

Schedule: During project implementation

Responsible Party: FS Wildlife Biologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Cultural Resources:

Mitigation Measure CULT-1: *National Historic Preservation Act* - Compliance with National Historic Preservation Act Section 106 will be fulfilled in accordance with the provisions of the R5 PA. Heritage program specialists will be involved early in planning processes for treatments to identify cultural resources at risk and determine effects. Measures to avoid adverse effects recommended by the Heritage Program Manager or Delegated Heritage Program Specialist and accepted by the Line Officer will be incorporated into treatment designs and implementation plans. Unavoidable and unanticipated adverse effects to cultural resource sites, and inadvertent discoveries, will be addressed in accordance with the provisions of R5 PA.

Schedule: Prior to project implementation

Responsible Party: FS Heritage Program Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure CULT-2: *Protection of Historic Sites and Unanticipated Discoveries* - Contracts will contain standard provisions for the Protection of Historical Sites and unanticipated discoveries (B/BT6.24 and C/CT6.24) pursuant to FSH 2409.11, 61.11b. Forest Service project administrators and/or designated Heritage Program Staff will review cultural resource site protection measures with contractors prior to the start of activities.

Schedule: Prior to project implementation

Responsible Party: FS Heritage Program Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure CULT-3: *Treatment Activities with Cultural Site Boundaries* - No treatment activities will occur within cultural site boundaries unless approved by the Heritage Program Manager or Delegated Heritage Program Specialist in accordance with provisions of the programmatic agreement.

Schedule: Prior to and during project implementation

Responsible Party: FS Heritage Program Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure CULT-4: Human Remains - Discoveries of human remains will be treated in accordance with provisions of the R5 PA (Stipulation 7.9: Human Remains).

Schedule: During project implementation

Responsible Party: FS Heritage Program Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Geology and Soils:

Mitigation Measure GEO-1: Detrimental disturbance – Limit total soil detrimental disturbance (compaction, displacement, and total porosity loss) to less than 15 percent of an activity area. Landings and skid trails will be considered part of an activity area.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-2: Slopes – Limit all mechanical operations to slopes less than 35 percent. In areas where sustained slopes exceed 35 percent, limit mechanical operations such as skidding, tractor piling, grapple piling and mechanized tree felling except where supported by on-the-ground evaluation by an interdisciplinary team that includes a watershed specialist. Trees are permitted to be hand-felled and end-lined on slopes over 35 percent (within unburned and low soil burn severity areas only), but any furrow produced by end-lining that exceeds 25 feet long by 6 inches deep shall be recontoured (“filled in”) to prevent concentrated flow and hillslope erosion.

Schedule: Prior to and during project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-3: Soil Moisture - Operate mechanical equipment when soil moisture is less than 20 percent by weight. Use Forest Service standard contract provision Erosion Prevention and Control to suspend operations due to the rainy season, high water, and other adverse operating conditions, to protect resources. If Forest Service soil scientist or hydrologist is unavailable to sample soil, contract administrators shall use ball method to test for operability.

Schedule: Prior to and during project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-4: *Pivoting of Machinery* – Pivoting of machinery should be avoided to prevent soil displacement in high soil burn severity areas.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-5: *Slash* – Activity generated slash may be machine or hand piled on slopes less than 35 percent; and hand piled on slopes greater than 35 percent.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-6: *Soil Cover* - During management activities, maintain (or add to the extent feasible in deficient areas) an average of 50 percent effective soil cover in treatment areas that is well-distributed and generally in the form of fine organic matter. Where feasible, maintain 85 percent or more effective soil cover in riparian areas and on slopes greater than 25 percent, and 70 percent effective soil cover on areas with high soil burn severity. Management activities in areas with ecological types that cannot normally support 50 percent soil cover shall be considered individually for soil cover needs.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-7: *Woody debris* – Maintain coarse woody debris for soil organisms based on ecological type and in consultation with wildlife and fuels specialists.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-8: *Existing Landings and Skid Trails* – Reuse existing landings and skid trails wherever possible. Placement of landings and skid trails should avoid, where possible, high soil burn severity areas.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-9: Waterbars - All skid trails will be waterbarred and have slash scattered on them to provide a minimum of 50 percent cover where conditions allow. Where suitable material exists, post treatment soil cover will range from 50 to 70 percent, with variations resulting from slope steepness and fuel reduction treatments.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-10: New Landings - New landings will be located on gentle slopes (less than 20 percent) to minimize earthwork, and will avoid unstable areas, steep slopes below landslide benches, and slope positions where they could deliver sediment to streams. Cuts and fills will not exceed 5 feet in height unless field-reviewed and approved by an earth scientist beforehand. Landings will have natural, non-constructed designs. All new landing fill slopes and access road fill slopes (greater than 100 square feet) would be mulched initially, and then the mulch would be maintained throughout the life of the project.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-11: Tilling - Following completion of all management activities, till (subsoil to 18 inches) with a winged-subsoiler (preferred) all landings identified for rehabilitation, and main skid trails (up to 200 feet entering landings) that have fine textured soils. Tillage will be completed outside of the tree dripline so as not to impact root systems. For rocky soil, scarification will be used to restore sites. These areas should be mulched using certified weed-free materials or on-site slash that is lopped and scattered or chipped at a rate of 1.5 to 2 tons per acre (approximately 4 to 6 inches in depth) over a minimum of 75 percent of the exposed soils, where necessary, to prevent erosion.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-12: Ultramafic Soils - All field personnel who will be working near earth-moving, or other dust-producing activities in areas underlain by ultramafic rock will be informed that naturally occurring asbestos commonly occurs in that rock, and they will be provided with a map showing such areas.

Schedule: Prior to project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-13: Ultramafic Soils and Dust Abatement - Dust production in ultramafic areas will be prevented or minimized by applying effective dust abatement measures, such as: applying water or other dust inhibitors to materials being worked. Where dust prevention in ultramafic areas is not possible, appropriate protection and mitigation measures will be applied so that Forest Service and contractor field personnel will not inhale such dust. These measures include but are not limited to closing windows on vehicles, turning on positive ventilation systems, and using appropriate air filtration masks.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-14: Ultramafic Soils and Waste Rock - If rock or soil waste is generated from ultramafic areas, such waste will be disposed of only where the underlying rock is also ultramafic, and it will not be mixed with other waste from non-ultramafic areas. When transporting naturally occurring asbestos-containing material, avoid overloading trucks and cover with tarps to reduce dust. Ensure that piles of excavated material are wet and cover with tarps to reduce dust.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-15: Ultramafic Soils and Mechanical Operations - Mechanical operations should operate on slightly moist or moist soils to reduce dust levels within area that could contain naturally occurring asbestos in ultramafic soils.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure GEO-16: Ultramafic Soils and Side cast - Recommend that side casting of material should be kept to a minimum and ample watering of roads or areas where ultramafic material exists to minimize exposure to potential naturally occurring asbestos.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Hydrology:

Mitigation Measure HYD-1: Equipment Exclusion Zone (EEZ)– Equipment exclusion zones will be established to protect aquatic resources and water quality in the post-burn landscape based on soil burn severity and time since the fire (See Table 1).

Table 1. Aquatic management zone types, conditions, and associated equipment exclusion zone buffers

Aquatic management zone type	Time since fire occurred (years)	Soil burn severity*	Minimum equipment exclusion zone buffer width (feet)
Perennial, intermittent, and ephemeral streams, special aquatic features, lakes, wetlands, springs, landslide areas	Greater than 2 years	Moderate or High	100
Perennial, intermittent, and ephemeral streams, special aquatic features, lakes, wetlands, springs, landslide areas	Greater than 2 years	Low or Unburned	50**

Refers to most prominent soil burn severity within the aquatic management zone, as identified in burned area emergency response soil burn severity maps. For mosaic burn, defer to the most restrictive buffer width.

**Exception per mitigation measure BIO-AQUA-15 within suitable habitat for aquatic and terrestrial Regional Forester sensitive species, implement a minimum 100-foot equipment exclusion zone around perennial and intermittent rivers, streams, other waterbodies, and wet/sensitive areas including seeps, springs, and meadows.

Schedule: Prior to and during project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-2: Wet weather - All ground-disturbing activities within or outside of the normal operating season (May 1 to October 31) will be implemented according to the Lassen National Forest wet weather operation standards.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-3: High Priority Soils - High-priority wet, sensitive, or compactable soil sites (WETNESS sites identified by the hydrologist) will be field reviewed by a hydrologist, soil scientist, or designee to determine site sensitivity and applicable equipment exclusion zone.

Schedule: Prior to project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-4: Roads - Road sites identified by the hydrologist or designee as having high sediment delivery potential will be field reviewed prior to contract development to identify: (1) if mitigations are needed, and (2) what site-specific best management practices or road improvements are appropriate.

Schedule: Prior to project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-5: Skid Trail Stream Crossings- Designated skid trails crossing ephemeral stream channels may be approved for access to otherwise inaccessible areas, but only upon consultation with an aquatic specialist or designee.

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-6: Skid Trails and Landslides - No skid trails will be built on active landslides or inner gorges, and no existing skid trails on active landslides or inner gorges will be used.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-7: Refueling - Refueling will not take place within aquatic management zones except at designated landings in locations where most disconnected from water resources. A spill containment kit will be in place where refueling and servicing take place.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-8: Borate - Borate will not be applied to stumps within 25 feet from the stream channel. Large quantities of borate will not be stored, mixed or handled within 100 feet of any stream channel, wetland, or wet area (or farther as needed to ensure plan compliance). Follow label instructions for use near waterbodies. Spills within aquatic management zones will be immediately reported to the local Forest Service watershed specialist.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-9: *Equipment Exclusion Zones* - All equipment exclusion zones will be flagged, signed, or both within proposed treatment units and identified as “equipment exclusion” on project maps or as “buffer strips” in contracts.

Schedule: Prior to and during project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-10: *Tree Cutting* –Trees providing bank stability on fish-bearing streams should not be cut where possible (where they don’t pose an imminent threat to life and safety). Trees will be directionally felled away from streambank where possible and as safety allows or unless otherwise approved by an aquatics specialist or designee.

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-11: *Heavy equipment* – Off-road heavy equipment access is prohibited within the Equipment Exclusion Zone. This includes skidders, forwarders, masticators, chippers, and more. Heavy equipment may operate from the roadway within the equipment exclusion zone. There would be no off-road heavy equipment use on slopes greater than 35 percent for low or unburned soil burn severity, or 25 percent for high or moderate soil burn severity within the Aquatic Management Zone.

Schedule: During project implementation

Responsible Party: FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-12: *Commercial Product Removal* – Commercial product removal may occur within the aquatic management zone and the equipment exclusion zone where fuel loading is excessive and where forest plan standards for large or coarse wood are met, so long as equipment exclusion in the equipment exclusion zone restrictions can be met. Aquatics specialists and fuels specialists should be consulted for determination of “excessive fuel loadings.”

In the equipment exclusion zone, yarding or end-lining may be used to remove forest wood products in low soil burn severity areas with slopes less than 25 percent. There would be no yarding or end-lining in the equipment exclusion zone in areas of high or moderate soil burn severity. Exceptions may be considered where the equipment exclusion zone is located on the uphill side of a road on a road that runs parallel to a stream, provided that: (1) adequate road drainage is maintained and (2) the site has site-specific approval by an aquatics specialist. All furrows created in the aquatic management zone or equipment exclusion zone will

be fully repaired (recontoured and covered with effective ground cover or erosion control).

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-13: Skidding – Skidding would not occur within the equipment exclusion zone.

Exceptions may be considered on the uphill side of the road on roads that parallel streams, if approved by an aquatic specialist and providing that proper road drainage is maintained. All skid trails in the aquatic management zone would have site-specific mitigations (such as erosion control), as determined by an aquatic specialist, and would be fully repaired (decompacted and covered with effective ground cover or erosion control).

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-14: Stream crossings – There would be no temporary stream crossings, except where approved by an aquatic specialist. Exceptions would not be allowed on perennial streams, streams with flowing or standing water, areas of high and moderate soil burn severity, or on areas of low soil burn severity with slopes greater than 25 percent. All stream crossings in the aquatic management zone would be fully repaired (recontoured, decompacted, and covered with effective ground cover or erosion control).

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-15: Landings – Landings would be minimized in the aquatic management zone. There would be no new landings in the aquatic management zone, but existing landings may be used in the outer aquatic management zone outside of the equipment exclusion zone. Exceptions to these restrictions may be considered on the uphill side of the road on roads that parallel streams, if approved by an aquatic specialist, and providing that proper road drainage is maintained. Exceptions would not be allowed on areas with high or moderate soil burn severity or areas of low soil burn severity with slopes greater than 25 percent. All landings in the aquatic management zone would be fully repaired (decompacted and covered with effective ground cover or erosion control).

Schedule: Prior to and during project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-16: *Slash piles* – Piles would be piled by hand within the equipment exclusion zone. Large and coarse wood interacting with the stream or active floodplain would not be piled unless the fuels hazard is excessive and forest plan standards for wood are met for a given stream reach. Pile size in the equipment exclusion zone would be limited to approximately 5 feet by 5 feet by 6 feet.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-17: *Pile burning* – Hand piles within the equipment exclusion zone would be located greater than 50 feet from streams and 25 feet from groundwater-dependent ecosystems, meadows, springs. Pile burning would aim for low soil burn severity and minimize spread to the extent possible.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-18: *Chipping or Masticating* – Chippers or masticators may operate within the equipment exclusion zone on existing roadbeds. Within the equipment exclusion zone there would be no deep concentrations (greater than 4 inches) of chips or masticated material. Chips would not be directed at stream channels, wet areas, or waterbodies. There would be no deep concentrations of chips in road ditch lines, or anywhere that could interfere with proper road drainage, within the aquatic management zone.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-19: *Firewood cutting* – No firewood cutting within the equipment exclusion zone. Firewood piles should follow guidelines for “landings” as described previously.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure HYD-20: *Canopy Cover* - In unburned areas or areas burned with low burn severity, avoid all loss of canopy cover to the extent possible. Retain canopy cover above 60 percent on average for a given treatment unit.1 except where conditions pose an imminent threat to life and safety. Identify unburned and low burn severity areas on site-specific maps prior to implementation.

Schedule: During project implementation

Responsible Party: FS Fisheries Biologist, FS Hydrologist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Recreation:

Mitigation Measure REC-1: *Recreational Sites* - Avoid implementing activities within the boundaries of developed recreational sites during recreation season (May 15 through September 15). Minimize impacts to high-traffic recreation sites both day and night. These sites would include concession and Forest-run campgrounds and day use areas, popular trails, or trailheads. If hazard tree removal is necessary to address an emergent public safety concern, complete activities prior to opening for the season or issue a temporary closure.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-2: *Signage* - Provide safety signing along trails and roads, as well as trail closures in active project areas.

Schedule: Prior to and during project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-3: *Public Access* - Maintain continued public and permit holder access during implementation, whenever feasible. If access cannot be maintained, please consult with District Recreation Staff for coordination and information dissemination to establish alternative routes or temporary closures.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-4: *Visitor Information* - Provide visitor information about area, road, and trail closures, or other recreation setting changes caused by project activities in news releases, on-site, and on the national forest's website.

Schedule: Prior to and during project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-5: *Project Related Woody Material and Recreational Sites* - Completely remove all project-related woody material from developed and dispersed recreation sites including logs, branches, slash, and more, in a manner that minimizes disturbance to soil and natural forest duff layers, rehabilitate soil disturbance to natural existing condition. Use local leaf litter and small woody debris to disguise project-related ground disturbance within sight of roads, trails and within campgrounds.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-6: *Stumps* - In areas within all developed recreation sites (campgrounds, day use sites, trailheads, or others), flush cut all stumps, unless stumps are designated for grinding.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-7: *Landings* - Locate new landings away from developed and dispersed recreation areas (staging areas) where feasible. Avoid placing landings and other centralized project activities near private property.

Schedule: Prior to and during project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-8: *Replacement of Signage and Barriers* - Protect all improvements including trails, roads, campground facilities, water system features, signs, barriers, mines, or bridges. If any signage or barriers (including boulders or fencing) or improvements are removed or damaged, they must be reinstalled in the same location and manner immediately following vegetation management operations.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-9: *Non-Motorized System Trails* - Minimize overlaying skid trails and haul roads on non-motorized system trails. If trails are used as skid trails or haul roads, trail cleanup and rehabilitation will be included in the contract. Skid trail crossings across designated forest trails and roads will be kept to a minimum. Any crossings shall be perpendicular to designated forest trails and roads. To reduce the potential for establishment of user created routes, rehabilitation must be completed in a timely manner to ensure the

public does not begin using them for motorized or non-motorized recreation. The rehabilitation plan shall include returning to natural contour, scarification, seeding with native mix and installing natural barriers as needed. Trail width shall not be increased. Changes to trail alignment and surfacing will be minimized; the trail will not be straightened, nor its surface changed with an alternate material unless such actions are needed to enhance the trail and protect resources. Trees to be removed along trails will be designated and remaining trees left unmarked. Stumps will be cut as low as possible, and cuts angled away from trails.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-10: *Protect Range Improvements* - Protect range improvements and repair any damage in consultation with the range permittee.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, Range Permittee, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-11: *Temporary Closure of Recreational Areas* - Recreation areas (designated roads, trails, trailheads, staging areas, and dispersed camp sites) may be temporarily closed to provide for public safety during active tree removal operations, but would otherwise remain open unless specifically agreed to by the recreation officer or trails manager.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-12: *Limit Trail Closures* - Limit all closures of trail segments to Monday through Friday, excluding Mondays of holiday weekends (Memorial Day, Labor Day, or others). No closures will be authorized on weekends. All trails shall be opened for safe use on weekends and holidays.

Schedule: During project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Mitigation Measure REC-13: *Public Notification* - Provide for public safety and education by posting signs to inform public of project activities. Whenever possible, post notices on forest website prior to hazard tree cutting. Keep information current.

Schedule: Prior to and during project implementation

Responsible Party: FS Recreational Specialist, project partners, and project contractors

Verification of Compliance:

Monitoring Party: Forest Service and Project partner implementing the project.

Initials: _____

Date: _____

Tribal Cultural Resources:

Mitigation Measure TRIBE-1: Tribal Consultation - Tribal consultation pursuant the NHPA will occur in accordance with the R5 PA for each hazard tree undertaking. Forests will provide tribal representatives the opportunity to monitor treatment activities, if so requested.

Schedule: Prior to and during project implementation

Responsible Party: FS Heritage Program Specialist, Tribal Representatives, Project partners implementing the project and project contractors

Verification of Compliance:

Monitoring Party: Project partner implementing the project.

Initials: _____

Date: _____

A copy of the completed MMRP will be forwarded to: Honey Lake Valley Resource Conservation District (HLVRCD), 170 Russell Ave., Susanville, CA 96130.

APPENDIX B

Best Management Practices (BMPs)

All proposed activities will adhere to the National Best Management Practices for Water Quality Management on National Forest System Lands (USDA Forest Service 2012), which incorporate the Region 5 Water Quality Management Handbook (FSH 2509.22 – Soil and Water Conservation Handbook, Chapter 10 – Water Quality Management Handbook, 2011), to protect soil, water, aquatic, and riparian resources. The following is a list of the most relevant best management practices; they are not repeated in full here and are incorporated by reference. A more detailed description of how the best management practices will be implemented for this project is available in the project file. These project-specific best management practices will be carried forward into the contract document.

- AqEco-2. Operations in Aquatic Ecosystems (applies for all activities).
- Chem-2. Follow Label Instructions (Fungicide application).
- Chem-3. Chemical Use by Water Bodies (Fungicide application).
- Chem-5. Chemical Handling and Disposal (Fungicide application).
- Fire-2. Use of Prescribed Fire (applies for pile burning activities).
- Road-4. Road Operations and Maintenance (applies for road maintenance).
- Road-9. Parking and Staging Areas (applies for all activities).
- Road-10: Equipment Refueling and Servicing (applies for all activities).
- Veg-2. Erosion Prevention and Control (applies for commercial or hand tree removal).
- Veg-3. Aquatic Management Zones (applies for commercial or hand tree removal and pile burning within aquatic management zones) (See also Section III.B.)
- Veg-4. Ground-Based Skidding and Yarding Operations (applies for commercial tree removal).
- Veg-6. Landings (applies for commercial or hand tree removal).
- Veg-8: Mechanical Site Treatment (applies for commercial or hand tree removal and pile burning).
- WatUses-3: Administrative Water Developments (applies to water drafting used for any activities).

PREPARERS OF THIS DOCUMENT

Tim Keeseey
Ecologist/Registered Professional Forest (RPF #3134)
TCK Ecological Consulting
P.O. Box 9335
Chico, CA 95927
(530) 260-0934
timkeeseey@tckecological.com

Kelsey Siemer, District Manager
Honey Lake Valley Resource Conservation District
170 Russell Ave., Suite C
Susanville, CA 96130
(530) 257-7271
kmarks@honeylakevalleyrcd.us

Cade Mohler (RPF #2986), Managing Director
Lassen Fire Safe Council, Inc.
P.O. Box 816
Susanville, CA 96130

EXPERTS CONSULTED

Specialists in Aquatics and Fisheries, Wildlife Biology, Botany, Archaeology, Climate Change, Hydrology, Fire and Fuels, Soils, Recreation, and Scenery from the:

Lassen National Forest
Eagle Lake Ranger District
477-050 Eagle Lake Rd.
Susanville, CA 96130

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