

**DRAFT
INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION**

**SWAIN MEADOW RESTORATION PROJECT
PLUMAS COUNTY, CALIFORNIA**

Prepared for

Forest Creek Restoration, Inc.

Prepared by



VESTRA Resources, Inc.
5300 Aviation Drive
Redding, California 96002

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INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

SWAIN MEADOW RESTORATION PROJECT

1.0 PROJECT INFORMATION

- Project Title:** Swain Meadow Restoration Project
- Lead Agency/Contact:** Lynn Coster
Regional Water Quality Control Board (RWQCB)
- Project Location:** Project area is located within the Swain Management Area, Almanor Ranger District, Lassen National Forest.
- Applicant:** Forest Creek Restoration, Inc. (FCR)
P.O. Box 125, McArthur, California 96056
- Consultant/Prepared by:** VESTRA Resources, Inc.
5300 Aviation Drive
Redding, California 96002
(530) 223-2585 (office)
(530) 223-1145 (facsimile)
- General Plan:** Suitable Forest Land, Regulated Modified Timber Yield, Lassen National Forest (LNF)
- Zoning:** General Forest, General Agriculture, and Agricultural Preserve
- Description of the project:** Meadow restoration including riparian/water way improvements on 236 acres of LNF in Swain Meadow located within the Robber's Creek Watershed
- Surrounding Land Uses and Setting:** Forest Land and Recreation
- Other Public Agencies Whose Approval May be Required:**
- Lassen National Forest, Almanor Ranger District, NEPA/FONSI Document
 - U.S. Army Corps of Engineers, Clean Water Act Section 404 Permit
 - Central Valley Regional Water Quality Control Board, Clean Water Act Section 401 Water Quality Certification or Waste Discharge Requirements

Environmental Factors Potentially Affected:

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.

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

DETERMINATION; (to be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

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

Prepared by:

Date

Reviewed by:

Date

2.0 PROJECT DESCRIPTION

2.1 Introduction

Forest Creek Restoration, Inc. (FCR), and other partners are proposing to restore meadow and aspen habitat within Swain Meadow. This meadow is located within the Robbers Creek Watershed.

Swain Meadow Restoration Project is a subset of a larger planning project referred to as the Robbers Creek Watershed Restoration Project. Additional treatments outside of the meadow include forest health work and aspen restoration. This Initial Study focuses specifically on the Swain Meadow restoration portion of the work. The project partners include: California Department of Forestry and Fire Protection (CDF), Point Blue Conservation Science, U.S Forest Service (USFS), Sierra Institute for Community and Environment, and FCR. The Swain Meadow restoration portion of the project is located in Plumas County within the LNF. The project location is shown on Figure 1. An Environmental Assessment (EA) was prepared and a Finding of No Significant Impact (FONSI) was adopted in December 2020 for the entire Robber's Creek Project which is incorporated herein by reference. The EA is attached as Appendix A.

Swain Meadow is a low-gradient riparian system (primary tributary is Robbers Creek) with loss of hydrologic function. The meadow encompasses approximately 236 acres and is surrounded by lava outcrops and lodgepole pine forest. The project site includes the entire meadow to the tree line as well as the potential borrow area and Forest Service access road. The potential borrow area is located offsite on private land. Project area is shown on Figure 2. Swain Meadow has had a significant decline in hydrologic function due to the historic uses and narrowing floodplains. Channel incision begins in the valley as it broadens on the alluvial fan.

The Swain Meadow Concept Restoration Design Plan (SMCRDP) is included as Appendix B. The overall objective of the Swain Meadow Restoration Project is to restore meadow hydrologic function. The design elements include reconstructing riffles (also known as riffle augmentation) in the creek channels and constructing Beaver Dam Analogs (BDA) in the upper reaches, downstream of the existing beaver dams and where willows are present. In addition, roads and former ditches will be contoured to match natural topography and larger trees will be placed along the meadow margin. Design features of Beaver Dam Analogs (BDA) and riffle augmentation are shown on Figures 3 and 4, respectively.

California Department of Forestry and Fire Protection has funded this sub-project effort from a select group of watershed health projects identified by the South Lassen Watershed Group. A diverse team of partners are assisting with the restoration design and permitting. The objective is to ensure this project is well vetted with project partners and the public and leads to securing funds for implementation in the near future.

The SMCRDP is based on a geomorphic assessment, hydrological analysis, Natural Resources Conservation Service (NRCS) soil report, and collection and analysis of topographic data from field surveys.

2.2 Existing Conditions

The following information on the existing conditions of the project site was obtained from the SMCRDP. Swain Meadow is characterized as a riparian, low-gradient (<2 percent) hydrogeomorphic type. It is characterized as a stream channel through the majority of the meadow. This channel has riffle-pool morphology throughout the meadow reach. Vegetation within the entrenched channel is dominated by mesic herbaceous vegetation (i.e. *Carex*, *Juncus*, *Eleocharis*) with the presence of occasional willow (*Salix* spp.). Incision has resulted in desiccation of the meadow, particularly farther away from the flow path, and formation of secondary channels which have increased mesic vegetation cover. Higher floodplain elevations support annuals and meadow species more adapted to dryer conditions (e.g. *Poa pratensis*).

Qualitative and quantitative analysis from reports listed in Section 2.1 of the SMCRDP verifies the degraded condition of the channels. Information leading to this determination includes:

- 1) Smaller channels with consistent riffle-pool morphology are present on the floodplain at slightly lower elevations or the same elevation as existing oversized channels;
- 2) Headcuts are present adjacent to the existing oversized channels and are advancing into the floodplain or into existing stable surface flow features;
- 3) Oversized channels lack continuity between the riffles and floodplain along their longitudinal profile and active widening is occurring in linear reaches and/or point bars are not forming opposite of the erosion;
- 4) Linear ditches were historically dug to either drain or “irrigate” areas of the floodplain;
- 5) Channel capacity is three or four times greater than expected as reference channels are present immediately upstream or adjacent to oversized channels on the site.

The meadow channels have multiple flow paths. Three of these are much greater in size and occur on the eastern floodplain margin. A fourth is located to the west and is only slightly incised. Many other smaller flowpaths occur to the west and throughout the meadow near the larger channels. In general, the floodplain is nearly flat across most transects, but a slight tilt to the east seems to be the trend. The base elevation of the two larger channels is 2 to 3 feet lower than those of the smaller channels, and this attribute is resulting in meadow desiccation to the channels and floodplain to the west. Field surveys conducted in 2019 during peak runoff found most all channels activated within the meadow and about 60 to 70 percent of the entire meadow was under water. As flood flows receded, the two larger channels contained all surface flow.

Based on the various types of potential natural and human induced disturbances, the specific mechanisms that likely led to the observed degraded channels at the sites were a combination of altered riparian vegetation from historic overgrazing, the creation of linear surface flow features, construction of bridges/culverts, loss and removal of larger trees falling into and remaining within the meadow, and the loss of beaver. Oversized channels that are less sinuous than expected are visible in the earliest aerial photographs of the site (i.e. 1941) and roads and ditches were already present. A historic road bisects the meadow and two relic wooden bridge crossings remain. Creation of linear surface flow paths could easily have been created from a variety of forms (livestock, human paths from wagons and/or automobiles, horseback). All of these activities have been documented within the site and region. While no evidence was found of direct eradication of willows at the site, this practice has been documented in the region from other sites. In addition, the intermittent nature of the meadow likely made beaver persistence difficult and occurrences sporadic. If the site has undergone significant loss of willow, this in turn would negatively affect beavers. Monitoring of the site in the last 10 years has concluded beavers are absent for periods of time.

The construction of roads and associated bridges/culverts and rail grade across the meadow has various effects on channel and floodplain conditions. First, the higher elevation of the road grade across the floodplain restricts flow to the culvert and/or small bridge and blocks flow in smaller channels. This typically results in incision and lateral channel erosion downstream of the bridge/culvert constriction, because high flows concentrate and flow through the constriction at greater velocities and water surface height rises within the channel due to the backwater effect. The greater velocity results in higher shear stress and channel incision. This incision typically propagates upstream into the meadow above the constriction points.

In addition to channel effects from the railroad grade, several geomorphic attributes of trails contribute to incision. First, trails often run parallel to the valley slope rather than following a meandering path like the natural channel. A more linear path has a shorter distance and therefore a greater slope compared to a sinuous path; and slope is one of two variables (the other being water surface height) that contributes to greater velocity and shear stress. Second, a trail has greater vertical depth relative to width, and this geometry concentrates flow resulting in a greater water surface height within the path, further adding to shear stress. Third, and more importantly for this site, the trail compromises the cohesiveness of the sod layer on the meadow surface, often resulting in suppressed and stressed vegetation. Additionally, during drought periods or heavy trail use, dead or dying roots expose soil within the trail. This final mechanism, when combined with the previous two, results in the rapid development of a new surface flow path when conditions align (e.g. more linear feature, deep and narrow path, sod layer compromised) during flood flows. These three conditions can occur for a long stretch of the meadow or a short section; however, regardless of the length, nick points can develop and begin the incision process.

Heavy livestock grazing can negatively affect channels by widening them. Cattle cause bank sloughing, particularly when grazing occurs during the wet season (i.e. spring and early summer). Cattle frequently cross the stream, usually where the water surface height is shallow in riffles. The erosion along the riffle creates an exposed soil layer along the margin of the riffle and floodplain, and this area becomes highly susceptible to incision. As the channel widens, the base elevation continues to drop and less flows inundate the floodplain. This process (i.e. incision and lowered groundwater) results in lower abundance and density of *Carex* and *Juncus*, two genera that have deep roots and are highly resistant to erosion. The process also leads to meander cutoffs and the channel widens and “consumes” former meanders, creating a greater slope in the newly widened channel. Other species colonize the new channel margin (e.g. clover, tufted hair grass), but their root structure is less dense and they erode more easily. These patterns and vegetation characteristics are prevalent in Swain Meadow along the channel margins. Only highly stable riffles and channels occur where dense *Carex* and *Juncus* extend into the floodplain for 5 to 10 feet away from the narrow channel.

An added stressor to these human induced impacts is the natural variability of weather patterns when periods of drought are followed by wet seasons. The drought period suppresses vegetation even more, resulting in stressed vegetative conditions, or even changes in species composition. This is particularly important for systems with high variability in flow duration. The riffles within the system change during these extremes. For example, in Swain Meadow, periods of drought and infrequent duration result in riffles becoming completely covered in dense sod, mostly consisting of *Juncus* and *Carex* species. As described earlier, the roots of these species are very dense, deep, and resistant to erosion and long periods of flow duration. However, during years with long flow duration, the species have difficulty persisting and flow over them creates a narrow channel within the root structure, eventually eroding the 1 to 1.5 feet of sod material. The sod material is then replaced with small-grained gravel. Once the creek quits flowing, the plants recolonize and begin developing cover within the gravel again.

2.3 Design/Construction Overview

As described in the SMCRDP, the overall objective of the restoration design is to restore hydrologic function of the meadow system. Plan view maps, longitudinal profiles, and pre and post figures for proposed design elements are included in Appendix B. The design elements include reconstruction of riffles in the larger and incised channels and some of the smaller channel reaches. In addition, several BDAs will be constructed in the upper reaches downstream of existing beaver dams and where willows are present. Finally, artificial roads and former ditches will be recontoured to match natural topography and larger trees will be filled and placed along the meadow margin. Reconstruction of riffles will be referred to as “riffle augmentation” for the remainder of this report. Both techniques (riffle augmentation and BDA construction) seek to use native material sourced onsite or offsite, and both will reconnect the stream to the floodplain so that flood flows more frequently access the floodplain and the existing channels do not “drain” the adjacent meadow.

This design approach will restore the physical processes within Swain Meadow responsible for formation of the meadow. It was selected over multiple other options as it has the greatest likelihood of immediate success and the least impacts in the short and long-term.

The design approach for the project area was selected over others (e.g. pond and plug, channel fill, rocked grade control structures-riffles) for several reasons. First, the site is intermittent and it is highly unlikely that the project reach ever supported beaver on a continuous basis. While beaver likely historically colonized Robbers Creek in the project area, the intermittent nature of the system would likely have precluded continuous years of occupancy. It is also unclear if the project area ever supported any dense willow habitat that could be used for constructing dams and provides food for beavers throughout most of the meadow.

Visual inspection of sediment supply in the project area during the last two springs (i.e. peak flows) was low and primarily the result of lateral channel erosion from the existing channel. Most of the sediment observed during peak runoff is fine-grained material in suspension. The use of cobble or larger-size rock for riffles or grade control structures would visually look unnatural as this type of material is not found in this meadow system. While use of rock would result in reconnecting the channels to their floodplain, the material would be expensive to purchase, transport, and place for the construction of riffles. Use of nearby native material is a cost-effective approach that results in desired outcomes in a short amount of time (e.g. less than five years). Development of sod riffles, rather than rocked riffles, is similar to pre-disturbance channel substrate. Finally, a channel fill or pond and plug approach would achieve desired results in the short term and be cost effective. However, project partners preferred the proposed combination of BDAs and riffle augmentation as it would lessen the disturbance of meadow and upland vegetation (if ponds were created within the floodplain or material borrowed adjacent to the meadow) and reduce the number of surface flow features on the floodplain.

2.3.1 Beaver Dam Analog

Twenty BDAs are proposed within the existing channel of Robbers Creek in the upper portion of Swain Meadow (Figure 2). Design criteria for BDA locations included: 1) creating continuity of floodplain access and grade control; 2) anchoring BDA edges with existing willow clumps along the stream bank; 3) aggrading incised reaches; 4) redirecting surface flow to the valley low or to remnant channels; 5) ensuring fish passage; and 6) retaining some existing deep pools.

The rationale for the BDA design criteria was based on several factors. Most importantly, the BDAs serve as opportunities for beaver to regularly maintain for the desired project objectives. There is also interest in learning how much sediment these structures can trap and aggrade a stream channel in a system such as Robbers Creek with very low sediment supply. The complexity of the reach (consisting of a narrower floodplain compared to the reach downstream), presence of willow, and multiple channel features without grade control continuity make

hydrologic restoration challenging for this section of stream and floodplain. The BDAs are considered a “soft” approach, with a low cost, that may provide some channel stability and aggrade the channel.

The BDA structures will be built by hand. As designed, each structure consists of 12 to 25 (depending on channel width) 10-foot long, 4- to 6-inch diameter posts, driven approximately 3 to 6 feet deep into the streambed using a hand-held post pounder or a pounder attached to a portable, hydraulic-powered generator. Posts are placed 16 to 20 inches apart. Once driven into the bed, the posts are cut flush with the top of the bank. Bank height from the channel bottom varies between 2 and 6 feet. Willow branches sourced locally at the site will be hand transported to the BDA, then woven through the upright posts. The structures will be packed with fine vegetative material such as sod/soil, pasture hay, and other nearby native material (e.g. shrubs, other tree branches). Streambed cobble and small lava rock may also be placed within the channel on the upstream and downstream sides of the structure to reduce scour, but meadow sod and mud from the channel are preferred.

Figure 3 illustrates the basic concept of a BDA and construction detail. The BDA design proposed for use in Swain Meadow varies slightly from the illustration on Figure 3, in that a cobble/rock apron or multiple tree branches may be placed on the downstream or upstream sides of the structure to protect from scour. Cross-sectional height of the BDAs will vary depending upon the intended function. BDAs will be constructed to provide a primary function of either 1) redirecting flow to the valley low or remnant channel or 2) serving as grade control and passing primary flow over the structure. The height of the BDAs will serve to redirect flow will be set equal or slightly higher (1 to 2 inches) above the tops of banks.

2.3.2 Riffle Augmentation

Riffle augmentation will treat the existing incised channels by raising the base elevation of riffles. Sod from the existing channel and floodplain will be used to aggrade riffle locations and create continuity in the longitudinal profile for the entire reach of treated channel (see Figure 4). For each riffle, existing sod material within the channel will be removed, then imported alluvium from nearby borrow areas will be transported and added to each riffle. Sod removed from the channel will then be placed back to reconstruct the riffle. In instances where more sod is needed, sod will be removed from gully reaches (most sod) and adjacent floodplain areas (less sod). When material is removed from the floodplain, collection will occur in patterns similar to geomorphic features (i.e. older meander scars). New sod is expected to develop in a short time period in these areas (< 3 years). A final approach for sod removal in floodplains is to remove sod in areas, use it for the riffle, fill the small borrow area with imported alluvium, then transplant it with smaller starter sod plugs (2 to 3 inch) to rapidly recover the small borrow area.

The design criteria for each reach of treated channel (i.e. two larger channels and one smaller to the west) seek to reestablish riffles of similar composition prior to degradation. It will consist of rebuilding existing degraded riffles and adding new

ones (Figure 4). The distance of the existing channel reaches proposed for treatment is approximately 14,500 feet. A total of 393 riffles will be constructed. The design criteria for the riffles have been developed for a flow of approximately 25 cubic feet per second (cfs), corresponding to a return interval of between one and two years. The slope of the riffles will vary between 0.3 percent and 1.0 percent and pools will be generally evenly spaced (i.e. every 25 to 30 feet). Channel slope in each reach is approximately 0.23 percent. Riffle placement utilizes areas where existing riffles are present and areas of the channel where the base elevation is higher. The intent is to retain existing habitat complexity (i.e. deep pools) where present. The technique will consist of placing a soil/sod mix to function as a riffle and the crest will be set to an elevation approximately 0.5 feet to 0.8 feet below the top of the bank. A slightly concave shape will be developed into the riffle so that low flows are concentrated near the center of the structure on sod. A biodegradable jute fabric that is resistant to flows will be placed on some of the riffles (25 to 75 percent) for added erosive resistance and assistance with establishing sod.

These criteria are based on partially functional riffles at the site and functional riffle/pool sequences at analogs within nearby meadow systems. The decision to use sod rather than rock was based on a desire to create riffles that were present prior to disturbance. Constructing riffles with rock or cobble of a larger size would provide greater structural integrity, but would not provide any spawning habitat and would not reflect the prior natural bed material. Ample sod of good integrity is available near the channel to provide the necessary structural grade control for the amount of flow and slope on the riffles.

2.3.3 Borrow Areas

Three different borrow areas were identified that could provide fill for riffle augmentation. The proposed borrow site is located at an existing source on private land where a recent road construction project generated appropriate alluvium (i.e. Roney site). Other sources are located on USFS land and would require tree removal.

2.3.4 Lowering and Aggrading Roads and Ditches

Two roads are proposed to be treated (Figure 5). The elevation of the first road (30N61), which bisects the meadow, needs to be lowered, on average, one foot. Most all of the material for the road appears to have been generated from the adjacent floodplain, so a limited amount of imported fill is anticipated to be required. The second road (30N31) has created an artificial channel feature along the meadow margin. The channel enters from the west. This road turns south and runs downslope for a distance of approximately 200 feet. Intermittent “plugs” will be created within the lowered road surface to redirect water into the meadow rather than flowing down and eroding the roadbed. Finally, three linear ditches, all located on the western floodplain margin, will be intermittently filled to match adjacent topography and redirect flow to lower elevations. Similar to the cross-valley road,

most of the material required to create the ditch is stockpiled on the adjacent floodplain.

2.3.5 Riparian Planting

A riparian planting plan will be developed to establish willow and other species along the existing and remnant channels. The planting palette will include locally adapted species and species likely to succeed through time as the climate changes. Willow planting will likely include a combination of techniques, including the use of locally sourced cut willows, with installation in spring and fall. Standard pole cutting practices for willows will be used.

2.3.6 Placement of Trees

Historically, large trees fell into the meadow along the meadow margins. This process rarely occurs now as woodcutters generally remove large trees in the fall for firewood. Also, there is decreased density of trees growing along the meadow margin, particularly the eastern margin, due to the presence of an existing road. Felling of smaller trees (less than 1 foot in diameter at breast height (DBH)) is proposed across the eastern margin into the meadow at regular intervals (e.g. every 100 feet). This will serve to provide wood, capture debris and sediment, and discourage livestock trailing along the meadow margin. This technique is also hoped to minimize human activity along the margin and discourage people from driving onto the meadow; however, it may have the opposite affect if woodcutters decide to remove the downed trees.

2.3.7 Access

Good access to the site is available from County Road A21 (Mooney Road) and Forest Service roads to the west and east sides of the meadow. No new roads are required for construction.

2.4 Repair and Maintenance

Maintenance and repairs to BDAs and/or riffles may be required to maximize their effectiveness over a 5- to 10-year period. Repairs and maintenance would be site specific and depend on how water is influencing or changing the meadow surface following initial installation. Repairs to riffles may be triggered where augmentation is needed to promote more floodplain connectivity. Repairs may also be justified where there is erosion on the crest of a riffle. Where beavers have not taken on maintenance of BDAs, some annual maintenance of BDA structures may include adding sod plugs, incorporating more willow or material to ensure their effectiveness. Additional BDAs may be added to capture sediment from erosion features that have started to form or to influence the flow of water over the floodplain.

2.5 Project Schedule

Project activities would occur between 7:00 a.m. and 5:00 p.m., seven days per week, over a projected 30-day timeline. Seasonal restrictions are in place for winter recreation (cross-country ski, snowmobile) from December 26 through March 31 annually for Forest Service (FS) Road 30N31 (shown on Figure 5). Work will not begin until snow is gone and roads are dry and clear.

To minimize negative effects associated with in-channel restoration work, stream channel treatments in Swain Meadow will occur when in-channel flow has ceased. If stream flow within Swain Meadow is present throughout the entire year (e.g., following exceptionally high winter precipitation totals), treatment activities will be performed when stream flow has reached base flow conditions.

Due to the potential occurrence of special-status species within the project area, Limited Operating Periods (LOPs) have been designated and would be implemented if determined to be applicable through site surveys prior to initiation of project activities. Potential project LOPs are summarized in Table 2-1.

Table 2-1	
POTENTIAL LIMITED OPERATING PERIODS (LOP)	
Objective	Schedule
Winter Recreation	December 26 to March 31
California Spotted Owl	March 1 to August 15*
Northern Goshawk	February 15 to September 15*
Sandhill Crane	March 1 to June 1
Beaver	December to March
Fisher	March 1 to June 30
*If species is confirmed within management area	

2.6 Transportation

In order to provide access for implementation of the proposed Swain Meadow Restoration Project, existing forest system and non-system roads in the project area would be utilized. The site would be accessed and navigated using ATVs or UTVs and pickup trucks. Staff would likely camp at the site, travel once per week for a total of four commute trips. The average commute distance to and from the site is 240 miles.

2.7 Integrated Design Features

Integrated Design Features (IDFs) included in the Robbers Creek Watershed Restoration Project will be implemented for the Swain Meadow Restoration Project. The IDFs are included as Appendix B in the attached EA (Appendix A). The IDFs are resource protection measures that are developed by specialists and incorporated as

part of the project. They are project specific and are in addition to Best Management Practices (BMP) and standards and guidelines from the Lassen National Forest Land and Resource Management Plan (LRMP), as amended. These design features are also included to provide implementation parameters that would be incorporated into treatments, contracts, or used to guide USFS personnel.

Integrated Design Features (IDF) applicable to the Swain Meadow Restoration Project that are required to reduce potentially significant impacts are included as mitigation measures in this document.

3.0 ENVIRONMENTAL CHECKLIST

I. AESTHETICS				
Except as provided in Public Resources Code Section 21099, Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Swain Meadow is located within the LNF. USFS has developed a visual resource management system in the LNF Land and Resource Management Plan (LRMP) to assess current and potential visual resources. According to the LRMP, the forest historically has presented a largely undisturbed, natural landscape to public view, but the resource trend has declined somewhat for the last 40 years as a result of road construction, timber harvesting, structures, brush field clearing, and utility corridors. The adopted visual quality objective in the LRMP for the project area is Partial Retention (PR).

The Plumas County General Plan contains a list of Scenic Areas which identifies specific areas in Plumas County including meadows and areas along peaks and waterways. Swain Meadow is not included in the list of Scenic Areas.

Discussion

a) The project includes restoration activities within Swain Meadow. The project will result in short-term visual impacts (presence of equipment and ground disturbance within the meadow) during restoration activities. Equipment will be removed upon completion of activities (anticipated to occur over 30 days and during maintenance as needed). The project will restore the physical processes within Swain Meadow responsible for formation of the meadow and also includes recontouring of artificial roads and former ditches to match natural topography. Impacts to scenic vistas will be **less than significant**.

b) County Road A-21 is not a state scenic highway. The project is not located within or adjacent to a state scenic highway. **No impact.**

c) Five observation locations along Lassen County Road A-21 were analyzed to determine if the project site would be visible to the public from County Road A-21. The potential visual observation locations are depicted on Figure 6. The viewshed area visible from each observation point along County Road A-21 is shown on Figures 6A through 6E. Based upon this analysis, no areas of the project site are visible to the public from County Road A-21.

During restoration activities, equipment used for repair and work areas will be visible only to forest users recreating adjacent to and within the meadow. Work is estimated to occur over 30 working days with maintenance conducted as needed. The site is currently a partially degraded meadow with limited function. This project will enhance aesthetics via promotion of aquatic habitat by stabilizing the creek channel to reduce bank erosion as well as recontouring roads and ditches within the meadow. This project meets the visual resources opportunity listed in the LNF LRMP to use visual enhancement measures to improve the scenic quality in Partial Retention and Retention Areas. The project will not degrade the existing character or quality of public views of the site and its surroundings. **No impact.**

d) The project will not result in any sources of light or glare at the project site. **No impact.**

II. AGRICULTURE AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining impacts to forest resources including timberland are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature that could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

This project site is located within the LNF. Land within the project boundary is zoned by Plumas County as Agricultural Preserve, General Agriculture, and General

Forestry. As shown on Figure 7A, the majority of the project area is zoned as Agricultural Preserve. The General Plan Land Use of the project site is “suitable forest land, regulated modified timber yields” (Figure 7B). The project is in a natural wet meadow. Livestock grazing occurs at the site.

Important farmland is mapped by the Department of Conservation Farmland Mapping and Monitoring Program (FMMP). For environmental review purposes under CEQA, the categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land constitute “agricultural land” (Public Resources Code Section 21060.1). The remaining categories are used for reporting changes in land use as required for FMMP’s biennial farmland conversion report. Lassen and Plumas counties are not included in the FMMP database.

Prime Farmland: Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Farmland of Statewide Importance: Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

Unique Farmland: Farmland of lesser quality soils used for the production of the state’s leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.

Farmland of Local Importance: Land of importance to the local agricultural economy as determined by each county’s board of supervisors and a local advisory committee. In some counties, Confined Animal Agriculture facilities are part of Farmland of Local Importance.

Grazing Land: Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen’s Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.

Discussion

a) There is no prime farmland, unique farmland, or farmland of statewide importance within the project vicinity or within the project site. The project site has been historically used for grazing of livestock. The project will not convert the use of the project site. The project will not convert farmland to a non-agricultural use. **No impact.**

b) The project site is zoned General Forest, General Agriculture, and Agricultural Preserve. There is no Williamson Act contract for the property. The project will not conflict with the zoning of the project site. **No impact.**

c) Conversion is defined as transforming timberland to a non-timber growing use with:

- (a) Future timber harvests will be prevented or infeasible to a non-timber growing use through activities thereon; or
- (b) Stocking requirements of the applicable district forest practice rules will not be met within five years after completion of timber operations; or
- (c) There is a clear intent to divide timberland into ownerships of less than three acres.

The project is located within a meadow. The project does not conflict with existing zoning or cause rezoning of forestland or timberland. The project is surrounded by forest but will not affect forestland, and would not result in conversion of forest to a non-timber growing use. **No impact.**

d) The project is located within Swain Meadow and will not affect surrounding forestland. The project will not result in a permanent loss of forestland or the conversion of forestland to non-forest use. **No impact.**

e) The project is a meadow restoration and following restoration limited grazing will be allowed. Grazing will be restrained only for a period of time to ensure restoration success. The project will not result in permanent conversion of farmland or forestland to non-agricultural or non-forest uses. **Less-than-significant impact.**

III. AIR QUALITY Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

The project site is located in the Mountain Counties Air Basin. The air basin includes the counties of Plumas, Sierra, Placer, El Dorado, Calaveras, Amador, Tuolumne, and Mariposa. Plumas County is the northernmost county in the air basin.

The Northern Sierra Air Quality Management District (District) provides regulatory oversight for air quality regulations. The District was formed in 1986 by the merger of the Air Pollution Control Districts of Nevada, Plumas, and Sierra counties. The District is required to achieve and maintain federal and state ambient air quality standards which have been established to protect human health.

Air pollution is regulated by two types of standards: emission standards and ambient air quality standards. Emission standards are the levels of air pollutants allowed to release to the atmosphere. Ambient air quality standards are the levels of air pollutants that if exceeded are considered unhealthy to breathe. If there are no violations of ambient air quality standards, the area is considered to be in attainment. If there have been violations of air quality standards, the area is considered to be in non-attainment for the specific pollutant. Air monitoring equipment is used to determine attainment levels. The District is required to maintain an inventory of emissions. This is completed by the permitting of certain activities and the inventory of other activities. Based on the District's website, most of the air pollution generated in the District is from vehicles and wood consumption. The District noted that the pollutants of concern in the District include ozone, particulate matter, and air toxins.

Air Quality Standards

National Ambient Air Quality Standards are determined by the U.S. Environmental Protection Agency (EPA). The standards include both primary and secondary ambient air quality standards. Primary standards are established with a safety margin. Secondary standards are more stringent than primary standards and are intended to protect public health and welfare. States have the ability to set standards

that are more stringent than the federal standards. Federal and state ambient air quality standards have been established for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), suspended particulates (PM₁₀), and lead.

The California Air Resources Board (CARB) also established ambient air quality standards for common pollutants. These ambient air quality standards represent safe levels of contaminants that avoid specific adverse health effects associated with each pollutant. The federal and California State ambient air quality standards are summarized in Table 3-1 for important pollutants. The federal and state ambient standards were developed independently, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California State standards are more stringent. This is particularly true for ozone and particulate matter between 2.5 and 10 microns in diameter.

Table 3-1 FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS			
Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	--	0.09 ppm
	8-Hour	0.075 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.05 ppm	--
	1-Hour	--	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	--
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	--	0.25 ppm
PM ₁₀	Annual	--	20 ug/m3
	24-Hour	150 ug/m3	50 ug/mg
PM _{2.5}	Annual	15 ug/m3	12 ug/m3
	24-Hour	35 ug/m3	--
Lead	30-Day Avg.	--	1.5 ug/m3
	3-Month Avg	1.5 ug/m3	--

In accordance with the California Clean Air Act, CARB is required to designate areas of the state as “attainment,” “nonattainment,” or “unclassified” with respect to applicable standards. An “attainment” designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A “nonattainment” designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation

can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An “unclassified” designation signifies that the data do not support either an attainment or nonattainment status. Plumas County is classified non-attainment for PM 10 (state).

The U.S. EPA designates areas for ozone (O₃), carbon monoxide (CO), and nitrogen dioxide (NO₂) as “does not meet the primary standards,” “cannot be classified,” or “better than national Standards.” For sulfur dioxide (SO₂), areas are designated as “does not meet the primary standards,” “does not meet the secondary standards,” “cannot be classified,” or “better than national standards.” However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The subcategories for nonattainment status (serious, severe, and extreme) are also used by U.S. EPA. In 1991, new nonattainment designations were assigned to areas that had previously been classified as Group I, II, or III for PM₁₀ based on the likelihood that they would violate national PM₁₀ standards. All other areas are designated “unclassified.” Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards.

Toxic Air Contaminants (TACs)

TACs are pollutants that may be expected to result in an increase in mortality or serious illness or that may pose a present or potential hazard to human health. Health effects include cancer, birth defects, neurological damage, damage to the body’s natural defense system, and diseases that lead to death. Although ambient air quality standards exist for criteria pollutants, no such standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the CARB has consistently found that there are no levels or thresholds below which exposure is free of risk. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor called a Hazard Index is used to evaluate risk. In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (Assembly Bill 1807) created California’s program to reduce exposure to air toxics. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory and notification of people exposed to a significant health risk and sensitive receptors.

Air Emission Estimates

An Air Quality Analysis was completed for the project by RCH Group and is included in Appendix C. The project could affect air quality during project operations including by use of equipment such as excavators and loaders, truck trips, and soil

disturbance. The methods used in the Air Quality Analysis are consistent with those described in the District's *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects*. The Air Quality Analysis includes a review of criteria pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (coarse or PM₁₀), and particulate matter less than 2.5 micrometers (fine or PM_{2.5}). The regulatory models and equipment and vehicle trip assumptions used to estimate the air quality impacts are listed in the Air Quality Analysis.

The daily emissions generated by the project are included in Table 3-2.

Table 3-2 DAILY EMISSIONS (pounds)						
Emission Source	ROG	CO	NO_x	SO₂	PM₁₀	PM_{2.5}
Onsite Equipment	0.48	3.51	4.12	0.02	0.11	0.11
Employee Vehicles	0.07	3.19	0.33	0.01	0.13	0.05
Transport Trailers	0.61	1.62	9.33	0.03	0.30	0.21
Haul Trucks	0.43	1.15	6.63	0.02	0.22	0.15
Material Handling	--	--	--	--	0.54	0.08
Grand Total	1.59	9.48	20.4	0.07	1.30	0.59
Significance Threshold	136	-	136	-	136	-
Exceeds Threshold?	No	-	No	-	No	-

Discussion

a) The project will generate emissions during project operations (including worker trips, equipment such as excavations and loaders and soil disturbance). The project is anticipated to occur over 30 work days. Maintenance and repairs to BDAs and or raffles may be required to maximize their effectiveness over a 5- to 10-year period. There are no applicable air quality plans for the portion of Plumas County where the project is located. Since there are no applicable air quality plans to evaluate consistency with, thresholds and methodologies from the *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects* were used to evaluate the potential impacts of the project. The thresholds of significance applied to assess project-level air quality impacts are:

- Daily emissions of up to 24 pounds per day of ROG and NO_x and up to 79 pounds per day of PM₁₀ (Level A)
- Daily emissions of 24 to 136 pounds per day of ROG and NO_x and 79 to 136 pounds per day of PM₁₀ (Level B)
- Daily emissions of greater than 136 pounds per day of ROG, NO_x, and PM₁₀ (Level C)

The District has developed a tiered approach to significance levels; a project with emissions qualifying it for Level A thresholds (i.e., all projects with emissions greater than zero) should require the most basic mitigation. Projects that qualify for Level B should require more extensive mitigation, and projects that qualify for Level C should require the most extensive application of mitigation. The tiered thresholds include Levels A, B, and C for a project's estimated emissions of criteria pollutants in pounds per day.

If unmitigated emissions of ROG, NO_x, and/or PM₁₀ exceed 136 pounds per day (Level C), then there is a potentially significant impact; if mitigated emissions of ROG, NO_x, and/or PM₁₀ still exceed 136 pounds per day (Level C), then there is a significant and unavoidable impact. Unmitigated emissions below Level C would result in an impact that is potentially significant and mitigation is required; following implementation of mitigation (as specified separately for Level A and Level B), emissions would be **less than significant**. The District guidelines recommend that projects with higher emissions (Level C) should automatically mitigate more emissions than a lower-impact project (Level A). Also according to the guidelines, if a new project is unable to provide adequate onsite mitigation of its long-term air quality impacts, an offsite mitigation program may be necessary.

As shown in Table 3-2, the project does not exceed Level A thresholds. Level A projects require the most basic mitigations. **Mitigation Measures (MM) AQ-1 through AQ-3** are included in the Air Quality Analysis to reduce the air quality impacts of the project. This impact would be **less than significant with mitigation incorporation**.

b) Plumas County is unclassified or in attainment for all State air quality standards with the exception of PM₁₀. Plumas County is in attainment for all NAAQS with exception of the Portola area (including Sloat, Cromberg, Johnsville, Mohawk, Graeagle, Blairsden, Clio, Portola, Beckwourth, and Lake Davis) which is in nonattainment for PM_{2.5}. There are several ambient air monitoring stations in Plumas County (each measures only PM_{2.5}) in Chester, Portola and Quincy. The Chester air quality monitoring station is located on 1st Avenue in Chester and is the closest air quality station to the Swain Meadow area. Chester is unclassified or in attainment for all State air quality standards.

The project could generate particulate matter emissions during meadow restoration activities. Fugitive particulate matter emissions are expected from the handling and storage of soil material. As shown in Table 3-2, the daily emissions of ROG, CO₂, NO_x, SO₂, PM₁₀, and PM_{2.5} will be within NSAQMD Level A thresholds. In addition, the project will occur over a short time period and **Mitigation Measures (MM) AQ-1 and AQ-2** would minimize emissions of particulate matter from the project. This impact is **less than significant with mitigation incorporation**.

c) Sensitive receptors (e.g., children senior citizens and acutely or chronically ill people) are more susceptible to the effect of air pollution than the general population. Land uses that are considered sensitive receptors typically include

residences, schools, parks, childcare centers, hospitals, convalescent homes, and retirement homes. The closest community is more than 8 miles from the project site. This project will not expose sensitive receptors to substantial pollutant concentrations. **No impact.**

d) Odors are not generally regarded as a physical health risk attributed to the chemical composition causing an odor. However, manifestations of a person's reaction to strong odors can range from psychological (e.g., irritation, anger, anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals are able to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be acceptable to another (e.g., fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected, and a transient odor is more likely to result in complaints than a constant one. This is caused by a phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, odors could be emitted from equipment and vehicles using diesel fuel. These odors would occur during a short period and would occur more than 8 miles from the closest community in Westwood. This impact would be **less than significant**.

Air Quality Mitigation Measures

The proposed project would be required to implement **Mitigation Measures (MM) AQ-1 through AQ-3** to reduce air quality impacts:

MM AQ-1: Preparation of a Dust Control Plan

District Rule 226 (Dust Control) states, "A dust control plan must be submitted to and approved by the Air Pollution Control Officer before topsoil is disturbed on any project where more than one acre of natural surface area is to be altered or where the natural ground cover is removed." This applies to clearing as well as grading. For smaller projects, "reasonable precautions" (such as watering as

necessary) must be taken to prevent dust emissions. Accordingly, the applicant shall reduce fugitive dust by implementing the following basic control measures:

- All material excavated, stockpiled, or graded shall be sufficiently watered, treated, or covered to prevent fugitive dust from leaving the property boundaries and/or causing a public nuisance. Watering during summer months should occur at least twice daily, with complete coverage of disturbed areas.
- All areas with vehicle traffic shall be watered or have dust palliative applied as necessary to minimize dust emissions.
- All onsite vehicle traffic shall be limited to a speed of 15 mph on unpaved roads.
- All land clearing, grading, earth moving, or excavation activities on a project shall be suspended as necessary to prevent excessive windblown dust when winds are expected to exceed 20 mph.
- All inactive portions of the development site shall be covered, seeded, or watered or otherwise stabilized until a suitable cover is established.
- All material transported offsite shall be either sufficiently watered or securely covered to prevent it being entrained in the air, and there must be a minimum of six inches of freeboard in the bed of the transport vehicle.
- Utilize wheel washers, rumble grate, and paving of internal roads or use of dust palliatives on roads to eliminate track out.
- Paved streets adjacent to the project shall be swept or washed at the end of each day, or more frequently if necessary, to remove excessive accumulations or visibly raised areas of soil which may have resulted from activities at the project site.
- Prior to final occupancy, the applicant shall re-establish ground cover on the site through seeding and watering.

MM AQ-2: Reduce Exhaust Emissions

The applicant shall implement the following measures to reduce exhaust emissions:

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a

certified mechanic and determined to be running in proper condition prior to operation.

- All diesel-powered equipment greater than 50 horsepower (hp) shall be equipped with engines that meet or exceed CARB Tier 3 or better off-road emission standards with the most efficient Verified Diesel Emissions Control Strategies available for the engine type, such as Level 3 Diesel Particulate Filters.

MM AQ-3: Fugitive Dust Notification

A publicly visible sign shall be posted with the telephone number and person to contact regarding fugitive dust and/or odor complaints. This person shall respond and take corrective action within 24 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

IV. BIOLOGICAL RESOURCES				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IV. BIOLOGICAL RESOURCES				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Vegetation Communities

The project area is located within the Swain Meadow area found within Robber's Creek Watershed. Vegetation in the Robber's Creek Watershed has been identified via the CDFW's Vegetation Classification and Mapping Program data and field surveys as Lodgepole Pine, Montane Riparian, and Wet Meadows. The vegetation communities contained within Swain Meadow are summarized below. California Wildlife Habitat Relationships (CWHHR) types are identified in Figure 8.

Lodgepole Pine

Lodgepole pine habitat type usually demonstrates open stands with little understory overwhelmingly dominated by lodgepole pine (*Pinus contorta*). Occasional associates include aspen (*Populus tremuloides*) and mountain hemlock (*Tsuga mertensiana*). Understory composition is correlated with overstory density, and can range from virtually absent to a rich herbaceous layer at meadow boundaries. Lodgepole pine demonstrates the ability to rapidly recolonize a site following a disturbance, and is known to invade meadow habitats, creating new, dense stands. Lodgepole pine habitat comprises 30.2 acres of the project area and is concentrated along the edges of the meadow.

Montane Riparian

The montane riparian habitat type is generally characterized as a narrow, often dense grove of deciduous tree with a sparse understory. The structure and composition varies widely with geography and elevation. In northeastern California, black cottonwood (*Populus trichocarpa*) and alders (*Alnus* sp.) are dominant components of this habitat type with Oregon ash (*Fraxinus latifolia*), willow (*Salix* sp.), and a high diversity of forbs are common associates. The habitat transition with surrounding non-riparian habitats is often abrupt, especially with steep terrain. Montane riparian habitat within the project area includes 1.3 acres.

Wet Meadow

Wet meadow habitat type is generally characterized by having a simple structure consisting of a layer of herbaceous plants. Shrub or tree layers are usually absent, but may be an important feature of the meadow edge. Wet meadow habitat compositions vary widely with geography, elevation, aspect, and other factors, but several genera are common in wet meadows throughout the state: *Agrostis*, *Carex*, *Danthonia*, *Juncus*, *Salix*, and *Scirpus*. Wet meadow habitat types are generally located in close proximity to intermittent or perennial streams. Wet meadow habitat accounts for 172.5 acres of the project area.

Special-Status Species

A list of regionally occurring special-status plant and animal species was compiled based on a review of pertinent literature, the results of the field surveys, a review of the USFWS species list and California Natural Diversity Database (CNDDB), and of California Native Plant Society (CNPS) database records.

In addition, Biological Evaluations (BE) for R5 Forest Service Sensitive Plant Species and Terrestrial Wildlife were completed for the Robber's Creek Watershed Project which includes the Swain Meadow Restoration Project area. These BEs contain information about federally listed species and Forest Service sensitive species in the project area.

Special-Status Plant Species

Special-status plant species include plants that are (1) designated as rare by CDFW or USFWS or are listed as threatened or endangered under the California Endangered Species Act (CESA) or ESA; (2) proposed for designation as rare or listing as threatened or endangered; (3) designated as state or federal candidate species for listing as threatened or endangered; and/or (4) ranked as California Rare Plant Rank (CRPR) 1A, 1B, 2A, or 2B. A list of regionally occurring special-status plant species was compiled based on a review of pertinent literature, the results field surveys conducted at the project site, a review of the USFWS species list and California Natural Diversity Database (CNDDB), and of California Native Plant Society (CNPS) database records.

Special-status plants identified onsite or possibly occurring onsite include:

- Davy's Sedge (*Carex davyi*)
- English Sundew (*Drosera anglica*)
- Lassen Paint Brush (*Castilleja lasenensis*)
- Liddon's Sedge (*Carex petasata*)
- Mingan Moonwort (*Botrychium minganense*)
- Northwestern Moonwort (*Botrychium pinnatum*)
- Slender Orcutt Grass (*Orcuttia tenuis*)
- Western Goblin (*Botrychium montanum*)
- Woolly-Fruited Sedge (*Carex lasiocarpa*)

A discussion of possible impacts to these special-status plant species is included under discussion a) below.

Special-Status Wildlife Species

Special-status animal species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) identified as state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as Species of Special Concern or California Fully Protected Species. A list of regionally occurring special-status wildlife species was compiled based on a review of pertinent literature and consultations with the USFWS Information for Planning and Consultation (iPAC) database, CNDDDB database records, and a query of the California Wildlife Habitats Relationship (CWHHR) system. The CNDDDB query results are shown on Figure 9.

In addition, the Biological Evaluation prepared for the Robber's Creek Watershed Restoration Project (which includes the Swain Meadow Restoration Project) includes information about federally listed and Forest Service Sensitive Species in the project area.

The Almanor Ranger District has conducted forest carnivore surveys via baited camera stations since 1996. This survey effort covered the Robbers Creek Project area from 2000-2010 in the summer and winter seasons. The targeted species for this survey effort were Pacific marten, Pacific fisher, Sierra Nevada red fox, as well as other forest carnivores such as gray wolf and wolverine. In addition to the above-mentioned surveys, a carnivore camera survey grid specific to the Robbers Creek project was established in the fall of 2017 and 2018. This effort followed the R5 carnivore camera protocol and failed to document wolves.

Meadow bird species were surveyed in Robbers Creek by Point Blue Conservation Science using a standardized passive point count survey (Ralph et al. 1995). Two surveys were completed in each year from 2018 to 2020. As part of this method, a 5-minute survey was conducted at discrete locations. Each discrete location was spaced 250 meters apart through the middle of the meadow within 50 meters of low

flow stream channels. While traversing between survey locations, an area search was conducted for willow flycatcher to increase probability of detecting individuals.

Special-status species observed onsite include the Sierra Nevada red fox and willow flycatcher. Game camera surveys completed between 2000 and 2010 detected Sierra Nevada red fox on separate occasions. In 2018, two willow flycatchers were detected in the project area during passive surveys, both in Swain Meadow. One singing male was detected in the historically occupied territory at the upstream end of the meadow, and another at the meadow outlet downstream. In 2019 and 2020, the upstream territory was occupied by a singing male but the downstream area was vacant. The downstream area occupied in 2018 was searched extensively in 2019 and 2020 and flycatcher vocalizations were broadcasted for 5 minutes, but no willow flycatchers were detected. All detections were made in transit to survey locations and then subsequently detected during passive surveys, illustrating the detectability of this species by trained observers.

Special-status species observed onsite and identified via the database searches include:

- Gray Wolf *Canis lupus*
- Greater Sandhill Crane *Grus canadensis tabida*
- California Spotted Owl *Strix occidentalis*
- North American Porcupine *Aplodontia rufa californica*
- Northern Goshawk *Accipiter gentilis*
- Pacific Fisher *Pekania pennanti*
- Sierra Nevada Mountain Beaver *Aplodontia rufa*
- Sierra Nevada Red Fox *Vulpes necator*, SNRF
- Southern Long-Toed Salamander *Ambystoma macrodactylum sigillatum*
- Western Bumble Bee *Bombus occidentalis*
- Willow Flycatcher *Empidonax traillii*

Potential impacts to these special-status wildlife species are discussed under a) below.

Discussion

a) Since the overall objective is to restore hydrologic function and ecological complexity at the site, design elements should result in positive ecological outcomes for common and sensitive species. However, individual species may be temporarily affected during project implementation. The project has potential to result in direct impacts to special-status plant or wildlife species if present in the work areas when activities occur. In addition, the project could result in impacts to special-status species habitat. Noise and vibration from equipment and human disturbance could result in indirect impacts to special-status species. Impacts to special-status species are potentially significant without implementation of mitigation measure during project activities. Impacts can be reduced to **less than significant with mitigation**

incorporation.

The regionally occurring special-status species identified during the pre-survey consultation were assessed based on the potential for their habitat to occur within the proposed restoration area (see Figure 9). The habitat of each species and determination of whether the species is likely to occur in the project area is summarized in Table 3-3. The potential impacts to these species as well as migratory birds from the project are discussed below.

Potential Impacts to Special-Status Plant and Wildlife Species

Davy's Sedge

Carex davyi

Davy's sedge can be found in subalpine coniferous forest and upper montane coniferous forests. This perennial herb blooms from May-August and is listed as 1B.3 in the California Rare Plant Ranking (CRPR). It does not have a federal or state listing. This species may be in decline due to grazing and logging. No known individuals occur in the project area. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project may result in a loss of habitat for this species within a subset of the project area due to alteration of upland coniferous forest to wet meadow and floodplain; however, such habitat would remain within undisturbed areas surrounding Swain Meadow as well as the abundant coniferous forest surrounding the project area. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

English Sundew

Drosera anglica

English sundew is a carnivorous perennial herb that blooms from June-September. Suitable habitat for the English sundew is bogs, fens, meadows and seeps. CRPR has this plant listed as 2B.3. It has no other state or federal listing. English sundew has been observed outside of the one-mile radius of the Swain Meadow Restoration Project area. It does have the potential to occur given its preference to wet habitats. No known individuals were observed during project planning surveys in the project area. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for English sundew because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
California spotted owl (<i>Strix occidentalis occidentalis</i>)	USFS_ S, BCC	SSC	Late seral closed canopy coniferous forest	Yes	Nesting habitat is present in forest adjacent to the meadow project area. Known PAC locations within ¼ mile of the project area will be surveyed prior to operations and an LOP applied per MM BIO-4 . Short-term disturbance in potential foraging habitat within the meadow may take place during construction.	Less-than-significant w/ mitigation
Gray wolf (<i>Canus Lupus</i>)	FE	None	Habitat generalist	Yes	Upon sighting of a gray wolf, CDFW will be consulted to determine appropriate avoidance measures. See MM BIO-2 .	Less than significant w/mitigation
Greater sandhill crane (<i>Grus canadensis tabida</i>)	USFS_ S	Threatened	Prefers open habitats (grasslands and croplands) with shallow lakes and fresh emergent wetlands	Yes	This restoration project will increase meadow moisture, area of ponded water, and herbaceous vegetation height, thus benefiting sandhill crane habitat. See MM BIO-3 .	Less than significant

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Sierra Nevada mountain beaver (<i>Aplodontia rufa californica</i>)	None	SSC	Dense riparian-deciduous and open, brushy stages of most forest types	Yes	Specific goals of this restoration project are to increase beaver habitat by restoring riffle areas and ponded water within the meadow. Breeding season occurs during the recreational LOP, so no breeding impacts are anticipated. The short duration of project construction and nocturnal behavior of the beaver make the impact less than significant for this project.	Less than significant
North American porcupine (<i>Erethizon dorsatum</i>)	--	Consultation needed	Ponderosa pine, montane hardwood-conifer, mixed conifer, montane riparian, red fir, and wet meadows	Yes	Due to rarity and large home range, presence of porcupines is not anticipated; none have been seen in Swain Meadow. If observed, CDFW will be contacted and avoidance completed per MM BIO-5 .	Less than significant w/ mitigation

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Northern goshawk (<i>Accipiter gentilis</i>)	USFS_ S	SSC	Late seral closed canopy coniferous forest	Yes	Nesting habitat is present in forest adjacent to the meadow project area. Known PAC locations within ¼ mile of the project area will be surveyed prior to operations and an LOP applied per MM BIO-6 . Short-term disturbance in potential foraging habitat within the meadow may take place during construction.	Less-than-significant w/ mitigation
Pacific fisher (<i>Pekania pennanti</i>)	USFS_ S	SSC	Late seral closed canopy coniferous forest	Yes	Resting and denning habitat do not occur within the meadow project area but could occur in the adjacent forest. Foraging habitat has the potential to occur, but extensive surveys performed in the project area have documented no fishers. If a den is located, an LOP will be applied per MM BIO-7 .	Less-than-significant w/ mitigation

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Sierra Nevada red fox (<i>Vulpes necator</i>)	USFS_S, PFE	Threatened	Mountain meadows and conifer woodlands near treeline. Some winter use of high mountain elevation	Yes	A female fox was detected 1.5 miles from the project area. Upon detection of an animal or den, LOP protection measures would be implemented per MM BIO-8.	Less than significant w/ mitigation
Southern long-toed salamander (<i>Ambystoma macrodactylum sigillatum</i>)	None	SSC	Ponderosa pine, montane hardwood-conifer, mixed conifer, montane riparian, red fir, and wet meadows	Yes	No long-toed salamander were observed in the project area. Habitat will benefit by this restoration project. The area is to be surveyed prior to construction and avoided if found per MM BIO-9.	Less than significant
Western bumble bee (<i>Bombus occidentalis</i>)	USFS_S	CE	Access to flowering plants and abandoned rodent burrows	Yes	The meadow is primarily foraging habitat which will be improved by the restoration objectives.	Less than significant

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Willow flycatcher (<i>Empidonax trailii brewsteri</i>)	USFS S, BCC	Endangered	Riparian with dense willows, upland thickets, and bushes	Yes	Project operations will take place outside of the flycatcher breeding season and will ultimately improve habitat for this species. If flycatcher are detected, an LOP will be implemented per MM BIO-10 .	Less than significant w/ mitigation
Plant Species		CALLIST/ CRPR				
Davy's sedge (<i>Carex davyi</i>)	None	1B.3	Subalpine and montane coniferous forest	No	Historic recorded locations are north of the project area. Preferred habitat is not meadow, but forested. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	No Impact
English sundew (<i>Drosera anglica</i>)	None	2B.3	Wet meadows, bogs/fens	Yes	Potential habitat present. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Lassen paintbrush (<i>Castilleja lassenensis</i>)	None	1B.3	Volcanic, meadows and seeps. Subalpine coniferous forest	Yes	Potential habitat present. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation
Liddon's sedge (<i>Carex petasata</i>)	None	2B.3	Dry or moist woodlands or meadows	Yes	Potential habitat present. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation
Mingan moonwort (<i>Botrychium minganenes</i>)	USFS_S	2B.2	Coniferous forests and marshy areas and meadows	Yes	Potential habitat present. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation
Northwestern moonwort (<i>Botrychium pinnatum</i>)	USFS_S	2B.3	Coniferous forests and grassy meadows	Yes	Potential habitat present. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation

**Table 3-3
SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS**

Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Slender Orcutt grass (<i>Orcuttia tenuis</i>)	FT	Endangered/ 1B.1	Vernal pools located to the northeast of the project area are currently fenced off for protection and are outside of the project boundary	No	No vernal pools are located within the Swain Meadow Restoration Project area. The nearest potential habitat is located 1.5 miles from Swain Meadow.	No Impact
Western goblin (<i>Botrychium montanum</i>)	USFS_S	2B.1	Dark understory of coniferous forests and moist wooded areas, along streams	Yes	Western goblin is a small fern that mostly is found in covered forested areas. There is potential for it to occur along the edges of the project area. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation
Woolly-fruited sedge (<i>Carex lasiocarpa</i>)	None	2B.3	Shores and wet areas of mountainous areas of moderate elevation	Yes	Potential habitat present. Protocol-level surveys will be completed prior to ground disturbance per MM BIO-1 ; if found onsite, the area will be flagged and excluded.	Less than significant w/ mitigation

Table 3-3 SPECIAL-STATUS SPECIES PROJECT IMPACT DETERMINATIONS						
Species	Fed	State	Habitat	Habitat Present Onsite?	Determination Justification	Project Impact Determination
Key: United States Forest Service sensitive (USFS_S), federally Endangered (FE), proposed federally Endangered (PFE); federally Threatened (FT); United States Fish Wildlife service-Bird conservation concern (BCC), Candidate Endangered (CE); California Fish Wildlife service-Species of Special Concern (SSC); California Rare Plant Ranking (CRPR), Protected activity center (PAC), Limited operating period (LOP)						

Lassen Paint Brush

Castilleja lasseensis

Lassen paint brush is a perennial herb that blooms from June-September. It prefers habitats that are volcanic, meadows seeps and subalpine coniferous forests. This delicate wildflower was identified in 2017 survey near Kings Creek Picnic Area and has now been identified at six different locations throughout Lassen Park. The nearest location is north of the Swain Meadow, outside of the one-mile radius but within the five-mile project radius. No individuals were observed during pre-project planning surveys.

New evidence of certain floral and genetic characteristics found within the Lassen paint brush have now classified it as its own species (National Park Service, 2021). This plant has a CRPR of 1B.3 and a state ranking of S3. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for Lassen paint brush because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

Liddon's Sedge

Carex petasata

Liddon's sedge is a perennial herb that blooms from May-July and can be found in broadleaf upland forests, lower montane coniferous forest, meadow and seeps and in Pinyon and juniper woodland habitats. CRPR ranks this plant as 2B.3. It is not federally listed but has a state ranking of S3. This plant has the ability to thrive in many different habitats but possibly threatened by logging, grazing, fire, and vehicle traffic. It has been observed at the northern edge of Swain Meadow. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for this species because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

Mingan Moonwort

Botrychium munganense

Mingan moonwort is a perennial rhizomatous herb that blooms from July-September. It has a diverse habitat of bogs, fens, lower and upper montane coniferous forests, meadows, and seeps, preferring habitats containing a moderate amount of moisture. The CRPR lists this plant as a 2B.2 with a state ranking of S3. Mingan moonwort has been observed on the south end of Swain Meadow and in various other locations within the five-mile radius of the project. Potential project impacts include

direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for this species because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

Northwestern Moonwort

Botrychium pinnatum

Northwestern moonwort is a perennial rhizomatous herb that blooms from July-October. This plant prefers habitats in lower or upper montane coniferous forests as well as in meadows and seeps. It has a CRPR of 2B.3 and a state ranking of S2. Northwestern moonwort has been observed northwest of the project area and within the five-mile radius of Swain Meadow. No individuals have been observed onsite during pre-project planning surveys. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for this species because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

Western Goblin

Botrychium montanum

Western goblin is a perennial rhizomatous herb that blooms from July-September. This plant prefers lower or upper montane coniferous forest habitats as well as meadows and seeps. The state ranking is S2 and CRPR is 2B.1. Western goblin has been observed within the five-mile radius to the northwest of Swain Meadow, but not within the Swain Meadow Restoration Project area. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for this species because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

Woolly-Fruited Sedge

Carex lasiocarpa

Woolly-fruited sedge is a perennial rhizomatous herb that blooms from June-July. This plant prefers habitats in bogs, fens, freshwater marshes and swamps. Its state ranking is S2 and CRPR is 2B.3. This species has been observed one mile south of

Swain Meadow. Potential project impacts include direct crushing, covering, or otherwise causing mortality of individual plants during project activities.

The project will result in improved habitat for this species because the Swain Meadow Restoration Project aims to improve stream, floodplain, and wet meadow onsite. Protocol-level surveys will be completed prior to ground disturbance in the Swain Meadow Restoration Project area. Any plants identified onsite will be flagged and avoided per **MM BIO-1**.

Gray Wolf ***Canis lupus***

In November of 2020, the gray wolf was officially removed from the Federal List of Endangered and Threatened Wildlife due to recovery. The wolf will continue to be monitored to ensure the continued success of the species by the U.S. Fish and Wildlife Service. It is listed as endangered in California by CDFW.

Wolves use many different habitat types from mountain meadow habitat to closed canopy forests (Mladenoff and Sickley 1998, Kovacs et al. 2016). They tend to avoid areas with high densities of high-use roads (Whittington et al. 2004) and open agricultural areas (Mladenoff and Sickley 1998), unless their prey are concentrating use in areas of high human use (Whittington et al. 2004). A key need for wolf management in California is research on habitat suitability in California (Kovacs et al. 2016). On a large scale, wolves are very adaptable and can occupy any habitat (Kovacs et al. 2016). Little correlation to vegetation type has been found (Fuller et al. 2003).

In the spring of 2017 wolf sign was discovered on the Eagle Lake Ranger District. Genetic sampling of scats confirmed that these were the same two individuals as had occupied the area in 2016. On July 1, 2017, a trail camera near the trap location was discovered to have recorded photographs of the female with pups. As a result, this pair and their young were officially designated as the Lassen Pack. The Lassen Pack produced litters in 2018 (five pups), 2019 (four pups), and 2020 (eight pups). A male from the 2019 litter (LAS03M) was fitted with a satellite tracking collar in May 2020 and is one of two functioning collars in the pack (CDFW 2020). In January 2020 CDFW reported that the Lassen Pack appears to be expanding landscape and habitat use northerly and southerly, beyond its previously defined home range. Wolf detections near the project area (one set of tracks within the northwestern-most portion of the project and an observation adjacent to but outside the project to the east) were made by the USFS in 2016; however, a majority of the 2016 detections were located farther outside the project to the east of Highway 44. To date, no wolf dens or rendezvous sites have been identified within the project area.

No direct effects to wolves are anticipated, and indirect impacts to prey species are expected to be minor in the short term and beneficial in the long term. It is anticipated that wolves will avoid the project area during implementation. Regardless of the whereabouts of the Lassen Pack, it is not expected that the wolves foraging or traveling through would be directly impacted by the proposed actions. Wolves

typically react to human disturbance through avoidance (Kovacs et al. 2016) and will relocate pups out of areas with active heavy equipment.

Consultation with CDFW was completed for the project. CDFW is closely tracking wolves in Lassen County and will notify USFS if wolf locations encroach within the project area at any time during project implementation. If this occurs, then consultation with CDFW and the USFWS would occur to determine the appropriate avoidance measures. Mitigations are addressed in **MM BIO-2**.

Greater Sandhill Crane ***Grus canadensis tabida***

The greater sandhill crane (crane) is a California State Threatened Species and a USFS Region 5 Sensitive Species (USDA – FS 2013). The LNF LRMP does not provide specific management guidelines for this species.

Greater sandhill cranes of the west coast are not hunted and are protected by the federal Migratory Bird Treaty Act of 1918 (CDFW 1994). Greater sandhill cranes were once common breeders throughout the intermountain west; however, populations declined drastically as a result of unregulated hunting and habitat loss during settlement of the region. In California the breeding population was reduced to fewer than five pairs by the 1940s. Fortunately, all populations of greater sandhill cranes have increased since the 1940s, and in 2014 an estimated 1,100 cranes were breeding in California (Collins et al. 2016). However, the population remains far below historic numbers. The California breeding population of sandhill cranes is the most western of five distinct populations and is named the Central Valley population after their primary wintering spot. This population breeds within six northeastern counties: Lassen, Modoc, Plumas, Shasta, Sierra and Siskiyou counties (CDFW 1994).

Within nesting territories, water and foraging areas are the primary habitat elements necessary for reproductive success. Sandhill cranes are omnivorous; in dry years, young are moved upland, where they feed primarily on grasshoppers and other insects (CDFW 1994). Adults feed on grasses, forbs, cereal crops, roots and tubers. Insects, mice, crayfish and frogs are eaten opportunistically but are not considered a major component of their diet.

Crane reproduction is significantly more successful during above normal precipitation years than during dryer periods of time. Healthy montane meadows are natural sponges that soak up spring snowmelt and provide water and wetland habitat during dry summer months. Prolonged drought conditions can have detrimental effects on crane productivity, and predation rates increase during these dry periods.

Swain Meadow has experienced more than a century of grazing pressure from livestock. The effects of intensive past grazing activities have resulted in the current degraded state and loss of high-quality sandhill crane habitat. Within the project area, the incised stream channel has resulted in lowering of the groundwater table

with subsequent drying and degradation of important wetland habitat for cranes. Restoration objectives have been developed, in large part to improve habitat conditions for the crane and other focal meadow-dependent species. The increase in meadow wetness, areas of ponded water, and herbaceous vegetation height would benefit this species, reducing predation rates due to dry conditions and lack of cover, increasing foraging habitat, and reducing disturbance from unauthorized vehicles.

Sandhill cranes were surveyed in Robbers Creek by Point Blue Conservation Science using a standardized passive point count survey and area search (Ralph et al. 1993, Ralph et al. 1995). Two surveys were completed in each year between 2018 and 2020. Crane surveys used the same method as other meadow bird species surveys completed in the project area: a 5-minute survey conducted at discrete locations. Each discrete location was spaced 250 meters apart through the middle of the meadow within 50 meters of low flow stream channels. While traversing between survey locations, an area search was conducted for the species to increase the probability of detecting individuals. Point Blue detected sandhill cranes in all three years in Swain Meadow. In previous years, the species has been detected upstream along Robbers Creek as well with no evidence of nesting. A nest was confirmed in the lower half of Swain Meadow in 2019, where the pair successfully fledged one colt.

There is potential for the species to occur in marginal habitat onsite. Project activities will actually improve habitat quality for sandhill crane within Swain Meadow, so project impacts to the species will be beneficial. Pre-work surveys will be completed per **MM BIO-3**. If any individuals are found, an LOP from March to August will be implemented. With these measures, the project will have a less-than-significant impact on sandhill cranes.

California Spotted Owl ***Strix occidentalis***

The project area is outside of the northern spotted owl habitat range. The California spotted owl is listed by CDFW as a species of special concern (SSC). The California spotted owl's range is from the Pit River in Shasta County, extending southward to Kern County. California spotted owls generally inhabit older growth forests where trees have structural characteristics for roosting and foraging. They feed on small mammals usually found at higher elevations. Predators to the spotted owl are great horned owls, northern goshawks, and red-tailed hawks. Numbers are still in decline due to loss of habitat, drought, and fires.

Prime habitat occurs within the surrounding forests where many observations have been reported. According to the CNDDDB, California spotted owl observances have been made within the Robber's Creek Watershed. This meadow restoration project will not affect any nesting or roosting habitat, but could possibly affect some foraging habitat for the 30 days during the construction of the Swain Meadow Restoration Project. Known PAC locations within ¼ mile of the project area will be surveyed prior to operations and an LOP applied per **MM BIO-4**. Short-term disturbance in potential foraging habitat within the meadow may take place during construction.

North American Porcupine

Erethizon dorsatum

The porcupine is not endangered; however, numbers have been on the decline in the western part of the United States and in Northern California. In California, the porcupine has been designated as a species of Greatest Conservation Need (CDFW 2015).

Porcupines are most common in montane conifer and wet meadow habitats and can be found in the Coastal Ranges, Klamath Mountains, southern Cascades, Modoc Plateau, Sierra Nevada and Transverse Ranges. They can be found in varied climates and elevations. Porcupines are herbivores and consume a diet of forbs, shrubs, wetland plants, grasses and some agricultural crops. They can be found traveling between dens and small riparian areas to forage. Porcupines tend to use caves, large rock crevices, hollow logs, and trees for dens. There have been sightings of porcupines within LNF, but due to its rarity and large home range, the species is not expected to occur in Swain Meadow during operations. If individuals are observed, CDFW will be contacted and operations will be halted until the animal leaves on its own accord. Biological mitigation addressing surveys and avoidance will be implemented per **MM BIO-5**.

Northern Goshawk

Accipiter gentilis

The northern goshawk is listed as a species of special concern in California by the CDFW. Northern goshawks inhabit middle to high elevations within old growth stands of conifer and deciduous forests in the North Coast Range through the Sierra Nevada, Klamath, Cascade, and Warner Mountains. This species typically remains within their breeding grounds throughout the year; some migration to lower elevations in search of food has been documented irregularly throughout the year. Nesting site selection by northern goshawks is typically in densely vegetated stands growing on northern slopes within close proximity to a water source. Northern goshawk pairs occupy nesting areas from February to early April. Some pairs may remain in their nesting areas year-round. Outside of a nesting area, the home range of a breeding pair may not be defended and may overlap with the home range of adjacent pairs.

In North America, home range in the breeding season ranges from 1,400 to 8,600 acres (Squires 1997). Foraging habitat is beneath the forest canopy, along edges, and in small openings. Existing goshawk PAC would be surveyed prior to treatments occurring in the PAC or within ¼ mile of the PAC. An LOP from February 15 to September 15 would be applied within 0.25 miles of all goshawk PAC, or within 0.25 miles of a nest if a nest is confirmed, unless it is determined that the PAC is not occupied. If a northern goshawk nest is found within 0.25 miles of meadow treatment, LOPs applied, the nest would be protected through the placement of a new PAC or the realignment of an existing PAC boundary. LOPs would prohibit treatments from occurring in the breeding season.

Pacific Fisher

Pekania pennanti

Fisher select late seral, structurally complex forests for resting and denning. Large trees, large snags, large downed wood, and higher than average canopy cover as habitat attributes important to the fisher, leading to CWHR size and density classes 6, 5D, 5M, 4D, and 4M being identified as most important. They are typically found in late-successional coniferous forests in stands of at least 80 acres. Zhao et al. (2012) found that fishers select den sites in clusters of large, mature trees in stands with variable tree heights and dense canopies on fairly steep slopes.

The fisher's preferred habitat is often in close proximity to dense riparian corridors and saddles between major drainages or other landscape linkage patterns used as adult and juvenile dispersal corridors that include an interspersed of small (<2 acre) openings with good ground cover for foraging.

There have been no fisher detections during surveys within the project area, and the project area does not overlap any known fisher home ranges. The closest known den site is 32 miles from the project boundary. The closest fisher detection was discovered in spring 2020 by the CDFW red fox monitoring team approximately 8 miles from the northern-most section of the Robber's Creek Watershed project area. Fishers have very large home ranges (the average home ranges of the closest fisher population to the project area, the reintroduction effort, are 15,400 acres for males and 4,200 acres for females) (Powell et al. 2014).

Although fishers are not known to breed in the vicinity of the Swain Meadow, it is possible that fishers pass through or forage within the project area. Despite the intensity of survey efforts that have not detected the species, it has the possibility to occur. LOPs, in the case of fisher den site identification, are from March 1st to June 30th.

Sierra Nevada Mountain Beaver

Aplodontia rufa californica

The Sierra Nevada mountain beaver is considered a species of special concern in California by the CDFW. Mountain beavers inhabit moist forest and riparian habitats with ample vegetative ground cover. They are found throughout the Cascade, Klamath, and Sierra Nevada Ranges of Northern California and surrounding states. Mountain beavers are nocturnal, spend most of their life underground and are rarely seen, but they also climb trees and swim. They make extensive shallow burrow systems next to water. Moles, voles, weasels, minks, and salamanders also use their burrows. They are herbivores and forage on the ground for various types of plants, trees, and shrubs. Most of their forage comes from riparian vegetation found near and in water.

Beavers may be present but no direct impacts to the species will occur. Because of their nocturnal life history, they will avoid project activities such that the direct impact would be **less than significant**. In the long term, this project will be more beneficial

to beaver habitat when restoration is complete. The beaver population in the watershed will most likely expand by increasing suitable habitat.

Sierra Nevada Red Fox

Vulpes necator

The Sierra Nevada red fox (SNRF) occurs in the high elevation (above 7000 feet) montane habitats of the Sierra Nevada and southern Cascade mountains (CDFW 2019). It is considered to be the rarest and most endangered red fox subspecies in North America and populations are thought to be extinct from the southern portion of its range in the southern Sierra Nevada Mountains. SNRF is currently federally listed as Proposed Endangered and in California as Threatened.

This species has been observed within the Swain Meadow area. Based on recent monitoring by CDFW, SNRF are present in the Caribou Wilderness and Lassen Volcanic National Park. The state's SNRF monitoring efforts recently detected a female fox about 1.5 miles from the project area. Based on previous detections and the proximity of SNRF detections to the project area, it is reasonable to conclude that SNRF are likely to occur in the project area.

Project activities are unlikely to cause any direct mortality of SNRF, due in part to the mobility of the species but also their illusive nature and scarcity. All of these factors lower the probability of the species coming into contact with equipment or people during operations. To reduce the effects to SNRF during the critical breeding season, protection measures involving both habitat retention and LOPs would be applied to any SNRF dens discovered during project activities to minimize disturbance and protect breeding fox (USDA 2004). If observed, mitigation per **MM BIO-8** will be applied from January 1 to June 30 to avoid adverse impacts during potential breeding activities.

Southern Long-Toed Salamander

Ambystoma macrodactylum sigillatum

The southern long-toed salamander is uncommon but not rare and is considered vulnerable. It is listed as a species of special concern in California by the CDFW. This species inhabits alpine meadows, high mountain ponds, and lakes at elevations up to 10000 feet. Salamanders are widespread in the west and occur in California and surrounding states. They spend most of their lives underground utilizing tunnels of mammals. They are carnivorous and eat small invertebrates, worms, mollusks, insects, and spiders. Reproduction is aquatic and occurs from May (start of egg deposition) to August (metamorphosed individuals emerge from aquatic breeding grounds). At high elevation, metamorphosis can require two years; in this case, larvae overwinter in icy ponds. Aquatic habitat onsite could provide breeding habitat. Potential habitat should be identified by a qualified biologist and surveyed prior to work. If observed prior to construction, mitigation per **MM BIO-9** will be implemented addressing surveys and avoidance areas to minimize impact.

Western Bumble Bee ***Bombus occidentalis***

The western bumble bee is listed as Candidate Endangered in California. Historically, the western bumble bee is one of the most broadly distributed bumble bee species in North America. Currently, the western bumble bee is experiencing severe declines in distribution and abundance due to a variety of factors including diseases and loss of genetic diversity. Exposure to certain insecticides has recently been identified as another major contributor to the decline of many pollinating bees, including honey bees and bumble bees. In the absence of fire, native conifers encroach upon a meadow, which also decreases foraging and nesting habitat available for bumble bees.

The western bumble bee has three basic habitat requirements: suitable nesting sites for the colonies, suitable overwintering sites for the queens, and nectar and pollen from floral resources available throughout spring, summer and fall (Jepson et al. 2014). Nests occur primarily in underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees. Queens overwinter in the ground in abandoned rodent nests in the ground and typically emerge about mid-March. The queen then lays fertilized eggs and nurtures a new generation. The workers that emerge will begin foraging and provisioning to accommodate additional recruits to the colony. Individuals emerging from fertilized eggs will become workers that reach peak abundance during July and August. Foraging individuals are largely absent by the end of September.

Western bumble bee present onsite would likely select foraging habitat outside of the work areas during operations. The restoration of habitat in the project area will increase nesting and foraging habitat for bees and generally benefit the potential for the western bumble bee's success in the area.

Willow Flycatcher ***Empidonax trailii***

There are three subspecies of willow flycatcher in different portions of California, distinguished from each other based on distribution and color: *E.t. extimus* (southern California, the only federally listed endangered subspecies), *E.t. brewsteri*, (north of Fresno County from the Pacific coast to the western slopes of the Sierra Nevada Crest and Cascades), and *E.t. adastus* (on the eastern slopes of the Sierra Nevada and Cascade ranges). All three subspecies are listed as endangered in California.

Within the Sierra Nevada and southern Cascade region, significant declines have been documented over the past few decades and the species' range appears to be contracting northward (Mathewson et al. 2012, Green et al. 2003, Loffland et al. 2014). Multiple factors likely contributed to this decline including poor quality of meadow habitat, loss of nesting and foraging substrates, increased predator access to meadow interiors, shortened breeding season length and stochastic weather events, the initial small population size, and low reproduction that influenced dispersal dynamics (Green et al. 2003, Mathewson et al. 2012).

Lassen National Forest has one of the largest concentrations of breeding willow flycatcher in the Sierra Nevada; most birds are located in Warner Valley State Wildlife Area near the southwestern boundary of Lassen Volcanic National Park and in Chester Meadow along the northwest shoreline of Lake Almanor (LNF 2010). Swain Meadow was identified as among the highest priorities for meadow restoration aimed at benefitting willow flycatchers, as the species is known to have used these sites since at least 2000 (Loffland et al. 2014).

Riparian species (aspen, cottonwood, alder, willow, dogwood etc.) would not be cut or removed except where needed to construct BDA in Swain Meadow. Individual birds would likely avoid the area during project work. Actions would not directly affect nesting willow flycatcher, as they would be completed outside breeding season (late May through mid-July).

Avoidance of the breeding season would minimize direct effects to flycatchers. In the long term, willow flycatcher will benefit indirectly from the meadow improvements and by having a larger suitable breeding habitat. Project activities would return hydrologic function to Swain Meadow and improve growing conditions for riparian hardwoods. Stabilized streambanks would recruit willow, alder, and other meadow hardwoods, providing shade to the stream and high-quality willow flycatcher habitat.

Restoration objectives have been developed in large part to improve habitat conditions for this species – namely, the increase in meadow wetness, willow cover, and herbaceous vegetation height would all benefit willow flycatcher. Project activities would establish an upward trend in developing suitable habitat overtime, thus resulting in a positive cumulative effect.

In 2018, two willow flycatchers were detected in the project area during passive surveys, both in Swain Meadow. One singing male was detected in the historically occupied territory at the upstream end of the meadow and another at the meadow outlet downstream. In 2019 and 2020, the upstream territory was occupied by a singling male but the downstream area was vacant. The downstream area occupied in 2018 was searched extensively in 2019 and 2020 and flycatcher vocalizations were broadcast for 5 minutes, but no willow flycatchers were detected.

No short-term impacts to willow flycatcher are anticipated. Due to the documented absence of this species in recent surveys, none are anticipated to occur onsite. Impacts to willow flycatcher will be **less than significant**. Aspen and riparian hardwoods will be protected to the extent feasible outside BDA areas to provide additional habitat (**MM BIO-10**).

Migratory Birds

Migratory birds may nest in trees and other vegetation located within or in the immediate vicinity surrounding the project area. All raptors and migratory birds, including common species and their nests, are protected from “take” under the California Fish and Game Code, Section 3503, and 3503.5, and federal Migratory

Bird Treaty Act. Large trees surrounding Swain Meadow provide potential nesting habitat for migratory birds.

a) This restoration project is located in Swain Meadow, which is a riparian habitat. Swain Meadow's primary tributary is Robbers Creek. The overall objective of the restoration design is to restore hydrologic function. Objective goals include reconstruction of riffles in the larger and incised channels, and some of the smaller channel reaches. In addition, several BDA will be constructed in the upper reaches downstream of existing beaver dams and where willows are present. Finally, artificial roads and former ditches will be re-contoured to match natural topography, and larger trees will be placed along the meadow margin. Reconstruction of riffles will be referred to riffle augmentation for the remainder of this report. Both techniques (riffle augmentation and BDA construction) seek to use native material sourced onsite or offsite, and both will reconnect the stream to the floodplain so that flood flows more frequently access the floodplain and the existing channels do not "drain" the adjacent meadow. This design approach will restore the physical processes within Swain Meadow responsible for formation of the meadow. This project will minimize erosion and improve the riparian habitat by increasing shallow ground water levels, great channel stability and attenuation to flood flows. This project will have a positive impact on the riparian habitat and sensitive natural communities regulated by the CDFW or USFWS. During the construction of hydrologic improvements the temporary impacts of 30 days will be **less than significant**.

b) Vernal pools are found in the vicinity but outside of the project area. These areas are fenced off and will not be entered for this project. Wetlands will benefit from this project by having water in the wetland area longer each year due to the construction design proposed by this restoration project. During the construction of hydrologic improvements, the temporary impacts of 30 days will be **less than significant with mitigation**. The project will impact Waters of the United States with the placement of fill within channels. A 404 ACOE permit and Water Quality Certification will be required and are included in mitigation as **MM HYDRO-1**.

c) The project will not interfere with the movement of any native resident or migratory fish or wildlife species or with any established native resident or wildlife corridor or impede the use of native wildlife nursery sites. Brook trout and rainbow trout are known to occur in Robbers Creek, and adults were observed during summer surveys in 2019. This area along the Robbers Creek system primarily serves as a migration route for adults moving into higher elevations to spawn, and for adults and young using the system to forage and find cover. Design elements considered the various life history stages of trout and other native fish. Riffle augmentation and building of BDAs, proposed treatments, would augment and improve heterogeneous instream habitats that may benefit trout and other aquatic species such as amphibians, and aquatic macroinvertebrates. This treatment method reconnects the creek to its historic floodplain, increases ground water storage and late season base flows, and creates pools that could serve as aquatic refugia during low flow and drought times. Additionally, riffle augmentation will heal

unstable banks and improve aquatic habitat that are essential to juvenile fish as well as providing other ecosystem services. **Less than significant impact.**

d) The changes proposed will not conflict with any local policies or ordinances protecting biological resources. **No impact.**

e) The changes proposed will 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. **No impact.**

Biological Resource Mitigation Measures

The following Integrated Design Features (IDF) were included in the EA prepared for the Robbers Creek Watershed Restoration Project and are applicable to the Swain Meadow Restoration Project.

MM BIO-1: TES Plant Species

- Vehicular traffic would be restricted to channels within occurrences of *Castilleja lasenensis* and *Botrychium simplex* in Swain Meadow.
- Sod removal associated with riffle augmentation in Swain Meadow would not occur within occurrences of *Castilleja lasenensis* or *Botrychium simplex*.
- Mechanical equipment would be excluded from all occurrences of *Castilleja lasenensis* where practicable. Hand-thinning would be permitted within occurrences, but piles would be placed 25 feet from occurrences or lopped and scattered 25 feet from occurrences.
- New occurrences of threatened, endangered, or sensitive (TES) plant species or fens discovered before or during ground-disturbing activities will be addressed as with species-specific protection measures similar to those described above.
- Prior to ground disturbance seasonal surveys will be completed for sensitive plant species, if located, avoidance or mitigation will be determined.

MM BIO-2: Gray Wolf

- If a den or rendezvous site is found within one mile of project activities between March 15 and August 15th, the Forest Service Wildlife Biologist will work with CDFW and USFWS to implement appropriate mitigation measures.

MM BIO-3: Sandhill Crane

- Surveys will be conducted prior to construction. If any crane individuals are located, an LOP (March-August) will be implemented to reduce nesting impacts.

MM BIO-4: California Spotted Owl

- Existing California spotted owl protected activity centers (PAC) would be surveyed prior to treatment and no treatment would occur within an existing or new owl PAC.
- A California spotted owl LOP (March 1-August 15) would apply to stands within ¼ mile from a spotted owl PAC unless surveys confirm that spotted owls are not nesting. The LOP would be lifted following surveys if no nesting spotted owls are confirmed.
- If a California spotted owl nest is found within any of the proposed treatment units, the nest would be protected through the placement of a new PAC or the realignment of an existing PAC boundary.

MM BIO-5: North American Porcupine

- If any porcupines are observed during project activities, work in the area will cease and the Forest Service Wildlife Biologist will work with CDFW and USFWS to implement appropriate mitigation measures.

MM BIO-6: Northern Goshawk

- Existing goshawk PAC would be surveyed prior to treatments occurring within the PAC or within ¼ mile of the PAC.
- A northern goshawk LOP (February 15-September 15) would be applied within ¼ mile of all goshawk PAC or within ¼ mile of a nest if a nest is confirmed. The LOP may be lifted if it is determined that the PAC is not occupied.
- If a northern goshawk nest is found within any of the proposed treatment units, the nest would be protected through the placement of a new PAC or the realignment of an existing PAC boundary.

MM BIO-7: Fisher

- If a fisher den site is identified, a 700-acre area consisting of the highest-quality habitat in a compact arrangement would be placed around the den site. The den site area would be protected from vegetation treatments with an LOP (March 1-June 30) as long as habitat remains suitable or until another regionally approved management strategy is implemented.
- No mechanical treatment would be permitted within the 700-acre fisher den site area regardless of time of year. Prescribed burning or other

treatments may be permitted if existing desired conditions for suitable habitat are retained and timing of treatments abide by the LOP.

- If a fisher rest site (female or male) is found within a treatment unit, the rest site structure, (e.g., log, snag, tree) would be protected from being damaged during project implementation.

MM BIO-8: Sierra Nevada Red Fox

- LOPs would be applied to any SNRF dens discovered during project activities to minimize disturbance and protect breeding fox (USDA 2004). If necessary, an LOP (January 1-June 30) would be applied to avoid adverse impacts to potential breeding activities.

MM BIO-9: Southern Long-Toed Salamander

- If work is to occur within aquatic habitats onsite within the breeding season for the species, then all potential breeding grounds will be surveyed by a qualified biologist to identify any breeding activity areas, egg masses, or active individuals. If found, an avoidance area will be established in consultation with CDFW.

MM BIO-10: Aspen and Riparian Hardwoods Retention

- All aspen and other riparian hardwood trees greater than 8 inches DBH would be protected during operations within the limits of safety and operability.
- Landings would be placed outside of aspen stands where possible.

V. CULTURAL RESOURCES				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

CEQA Section 15064.5 defines historical resources as:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code § 5024.1, Title 14 CCR, Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code § 5024.1, Title 14 CCR, Section 4852) including the following:
 - (a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
 - (b) Is associated with the lives of persons important in our past;
 - (c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
 - (d) Has yielded, or may be likely to yield, information important in prehistory or history.

The LNF LRMP cultural resource overview provides detailed descriptions of prehistoric sites including villages, camps, tool manufacturing sites, hunting stations, emigrant trails, wagon roads, and common historic sites. Sites within the LNF include Native American gathering areas, Chinese mining camps, Basque aspen carvings, and the homeland of the last Yahi Yana Indian, Ishi. Cultural resource protection is managed through the Programmatic Agreement (PA) among the USFS, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region (2013).

There have been 26 previous archaeological surveys completed within the overall Robbers Creek Watershed Project Area by USFS since 1976. In 2019, an additional 2,266 acres of surveys were completed within the Robbers Creek Watershed to evaluate previously unsurveyed areas and update many old surveys to current professional standards.

There have been 34 archaeological sites identified in the Robbers Creek Watershed Project Area. These include 8 newly recorded sites as a result of 2019 archaeological surveys and 26 previously recorded sites. There are 15 prehistoric sites in the project area, which are primarily characterized by lithic scatters (7), stacked rock features (7) often associated with hunting, and one possible milling site. Nineteen sites are historic and represent emigrant trails, historic logging (Red River Lumber Company railroad grades, camps, possible historic mill site); as well as historic ranching activities (cabin sites, corrals, fence lines). Six segments of Lassen Trail (FS 05-06-51-834) have been identified in the project area. These segments were identified and recorded by the Oregon- California Trail Association.

A Cultural Resource Report was prepared for the Robbers Creek Watershed Restoration Project and includes the Swain Meadow Restoration Project site. Multiple historic and prehistoric sites are located within the Swain Meadow Restoration Project area.

Discussion

a-b) The project site contains multiple archaeological sites that have been listed or determined to be eligible for the National Register of Historic Places. These sites could also be eligible for listing in the California Register of Historical Resources. The project includes ground-disturbing activities during project implementation that could result in substantial adverse changes to the significance of these historic and archaeological resources. Implementation of **MM CUL-1** will ensure that potentially eligible cultural resources are avoided during the project.

Since the project includes ground-disturbing activities, there is the potential that previously undiscovered resources could be encountered during project activities. **MM CUL-2** is included to avoid adverse impacts to previously undiscovered cultural resources. Impacts to historical and archaeological resources will be **less than significant with mitigation incorporation**.

c) The project includes ground disturbing activities. During the course of activities there is a possibility that unanticipated discovery of human remains could occur. This impact would be significant without mitigation implemented. Implementation of **MM CUL-3** would ensure that any human remains found during construction are handled according to State law and with appropriate sensitivity, and would ensure this impact is **less than significant with mitigation incorporation**.

Cultural Resource Mitigation Measures

In addition to the applicable Approved Standard Protection Measures for Cultural Resources included within the EA prepared for the Robbers Creek Watershed Project, and mitigation measures included in the Forest Service Cultural Resource Report prepared for the Robbers Creek Watershed Project and applicable to the project site, the following mitigation measures are required to ensure cultural resources will be **less than significant**:

MM CUL-1: Avoidance of Cultural Resources

Project proponents should avoid altering potentially eligible cultural resources. Under CEQA, cultural resources that will be affected by an undertaking must be evaluated to determine their eligibility for listing in the CRHR (PRC Section 5024.1(c)). If resources cannot be avoided by the project, they should be formally evaluated to determine their eligibility for listing on the CRHR.

MM CUL- 2: Unanticipated Discovery of Cultural Resources

If previously unidentified cultural resources are encountered during project implementation, avoid altering the materials and their stratigraphic context. A qualified professional archaeologist should be contacted to evaluate the situation. Project personnel should not collect cultural resources. Prehistoric resources include, but are not limited to, chert or obsidian flakes, projectile points, mortars, pestles, and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or abode foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.

MM CUL-3: Unanticipated Discovery of Human Remains

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

VI. ENERGY Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) 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 type="checkbox"/>
b) Conflict with or obstruct a state of local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Plumas County does not currently have an Energy Plan but does contain several goals within the General Plan related to energy. Goal 5.7 contained in the Plumas County General Plan includes the development of a countywide Strategic Energy Plan, including an effective energy strategy based on self-sufficiency, conservation and development of renewable energy resources that is actively implemented countywide and through Specific and Community Plans and through cooperation with utilities, State and Federal agencies, and private interests. Goal 5.8 in the Plumas County General Plan includes development of a diverse, low-cost energy-supply portfolio that balances County energy demands with social, economic and environmental needs, adequate to provide for local self-sufficiency. Additional goals related to energy are contained within the General Plan; however none of the goals are applicable to the project.

Discussion

a) The project will result in short-term energy use during restoration activities. The short-term energy requirements of the project include fuel (diesel and gasoline) for equipment operations, transport of equipment to the project site and worker trips. The work period for the project is estimated to be approximately 30 working days. The project will result in a low number of total vehicle trips for the transportation of equipment to the project site. It is anticipated that workers will be staying at a local campgrounds during the week instead of commuting daily, which will result in a reduction of fuel use. Measures required to reduce exhaust emissions (minimizing idling times, proper equipment maintenance) will also reduce fuel use during the project. The project will not result in wasteful, inefficient, or unnecessary consumption of energy resources. This impact will be **less than significant**.

b) The project will result in short-term energy use during project activities. The project will not conflict with or obstruct the goals related to energy resources in the Plumas County General Plan. The project will not conflict or obstruct plans related to renewable energy or energy efficiency. **No impact.**

VII. GEOLOGY AND SOILS				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VII. GEOLOGY AND SOILS				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Geology

The project site is located in the Cascade-Sierra Nevada physiographic province of California. The site sits on the southeastern edge of the Cascade Range near its boundary with the northern Sierra Nevada. The nearest Sierra Nevada rocks occur 5 miles southeast of the center of the project site. The Cascade Range volcanics are the result of ongoing subduction of the Juan de Fuca Plate underneath the western margin of North America. Partial melting of the subducted plate and accumulated sediment results in the production of buoyant, water-rich andesitic and granitic magmas which have been intruded at depth along the length of the Cascade Range. These magmas supply magma chambers that produce distinct arc volcanism, expressed on the surface in the form of a north-south oriented range of volcanic centers extending from Mount Lassen north to British Columbia (Clynne, 1990; Clynne and Muffler, 2010). This is known as the Cascade Range.

Regional bedrock consists of extrusive volcanic rocks of the Cascade Volcanic Field. These are basalts and andesites of Quaternary age derived from the present day Lassen volcanic center and related eruptive centers. South and east of Lake Almanor bedrock consists of a complex sequence of metamorphosed marine sedimentary rocks of Paleozoic to Mesozoic age along with isolated bodies of granodiorite of Cretaceous age. These do not extend to the site vicinity. (Jennings, 1977). North of Lake Almanor, bedrock consists of a sequence of vesicular to aphanitic andesite and basalt flows with minor (<10 percent) pyroclastic deposits. These units range in age from 20Ka to 50Ka (Leudke and Smith, 1981). Flow units are characterized by vesicular upper portions, becoming aphanitic at greater depth. Paleosols are often developed on the flow surfaces and mark the stratigraphic boundary between flow units.

The thickness of the flow sequence at the site is unknown, but is greater than one kilometer in the Chester area (Luedke and Smith, 1981). The flows are overlain by Quaternary to recent alluvium derived from the weathering of the underlying flow units. These are moderately permeable and of varying thickness from a thin (<3 feet) veneer to >30 feet in thickness. A splay of the Walker Spring Fault bisects the project site. Robbers Creek flows along this fault splay. Along the east side of the fault and Robbers Creek, bedrock consists of the Lake Basalt, a tholeiitic basalt flow sequence dating to the late Quaternary. To the west of the creek and fault, bedrock consists of the andesite flows of the Swain Mountain andesite (Luedke and Smith, 1981; Clynne and Muffler, 2010).

The project site sits in an area of known seismic activity, but no historically active faults are mapped within 10 miles of the project area. Several Quaternary-active faults are present within five miles of the site. Robbers Creek itself follows the lineament of a splay of the Walker Spring Fault zone. The relatively weak, mechanically disrupted rocks along the fault are a major control on the course of the creek. The Warner Spring Fault in the area of the project site is a steeply westward dipping normal fault with a minor right-lateral component. It was most recently active in the late Quaternary, approximately 100Ka (USGS, 2010). The next nearest fault is the Almanor Fault Zone 7 miles west of the project boundary. The Almanor Fault Zone consists of a series of stepped steeply westward dipping normal faults down-dropped to the west. Most of the Almanor Fault Zone was most recently active in the Holocene, approximately 10Ka, though the southern portion of the Fault zone, some 20 miles south-southwest of the site has been responsible for historic earthquakes (USGS, 2000).

Most of the Robbers Creek Watershed is underlain by volcanic bedrock (Pliocene and Pleistocene flows). The watershed is generally young geologically, and fluvial modification of the landscape is recent and less developed. Glaciation has played an important role in forming today's landscape. Much of the watershed above 6,000 feet was glaciated (Young 1989), forming moraines and pothole lakes in the Caribou Wilderness. At times during glacial periods, especially during glacial retreat, stream flow and sediment discharge were much higher than today, forming distinctive landforms that have been somewhat modified by the modern stream but still retain characteristics of the larger glacial systems that formed them.

Although the depositional processes responsible for the development of these landforms do not occur under today's climate, the landforms still influence the shape of the stream channel and floodplain. For example, the convex shape of the alluvial fan tends to force the modern channel to the margins of the fan.

Soil Types

The United States Department of Agriculture's (USDA) NRCS Web Soil Survey identified two map units in Swain Meadow - Map unit 105, "Trojan-Inville-Patio families association, 0 to 35 percent slopes" (4.4 percent of Swain), and Map unit 121, "Wintoner family-Aquolls-Patio family association, 0 to 15 percent slopes" (94.8 percent of Swain Meadow). Two other map units were identified but excluded from

analysis due to their small area and proximity outside the meadow boundary. Map unit composition estimates are based on observations, descriptions, and transects of the map unit.

Map unit 105 is composed of 30 percent Trojan and similar soils, 29 percent Patio and similar soils, and 29 percent Inville and similar soils. Typical Trojan soils are composed of residuum weathered from basalt and have 0-11 inches of loam, 11-22 inches of loam, 22-46 inches of gravelly clay loam, and 46-60 inches of weathered bedrock. This soil is well drained, has a medium runoff class, has moderately high to high (Ksat) values (.57-.1.98 in/hr), and has moderate water storage potential. Typical Inville soils are composed of residuum weathered from basalt and have 0-7 inches of bouldery sandy loam, 7-13 inches of loam, 13-60 inches of gravelly clay loam, and 60-79 inches of weathered bedrock. This soil is well drained, has a medium runoff class, has moderately high to high (Ksat) values (.57-.1.98 in/hr), and has moderate water storage potential. Typical Patio soils will be composed of residuum weathered from basalt and have 0-9 inches of cobbly fine sandy loam, 9-38 inches of extremely cobbly loam, 38-48 inches of unweathered bedrock. This soil is well drained, has a medium runoff class, has moderately high (Ksat) values (.20-.57 in/hr), and has low water storage potential.

Map unit 121 is composed of 35 percent Wintoner and similar soils, 25 percent Aquolls and similar soils, and 25 percent Patio and similar soils. Typical Wintoner soils are composed of residuum weathered from andesite and have 0-5 inches of gravelly sandy loam, 5-22 inches of loam, 22-43 inches of loam, and 43-60 inches of weathered bedrock. This soil is well drained, has a medium runoff class, has moderately high to high (Ksat) values (.57-.1.98 in/hr), and has moderate water storage potential. Typical Aquolls soils are composed of outwash derived from volcanic rock and have 0-9 inches of silt loam, 9-33 inches of silty clay loam, and 33-60 inches of stratified fine sandy loam to silty clay loam. This hydric soil is poorly drained, has a high runoff class, has moderately high (Ksat) values (.20-.57 in/hr), and has high water storage potential. Typical Patio soils will be composed of residuum weathered from basalt and have 0-9 inches of cobbly fine sandy loam, 9-38 inches of extremely cobbly loam, 38-48 inches of unweathered bedrock. This soil is well drained, has a medium runoff class, has moderately high (Ksat) values (.20-.57 in/hr.), and has low water storage potential.

Discussion

a) i-iv. It is anticipated that workers will be onsite for a total of 30 working days to complete project activities. As discussed, there are no historically active faults mapped within 10 miles of the project area; therefore, risk of rupture of an earthquake fault, strong seismic ground shaking, and seismic-related ground failure including liquefaction or landslides is low. According to the California Department of Conservation Regional Geologic Maps, this site does not contain the potential for landslides, liquefaction or high soil erosion potential. The project does not include the construction of occupied structures. The project will not result in risk of loss, injury or death to workers at the project site due to geologic hazards. **No impact.**

b) Restoration of the meadow hydrology in Swain Meadow will reduce the ongoing, erosion of meadow soils caused by down cutting and widening of the stream channel. The fill to be used in the restoration work will preferably be from stockpiled material left from a nearby road construction project.

The project could result in erosion from the operation of equipment within the project site as well as impacts to soils within the meadow. Meadow soils have a high risk of rutting and compaction due to fine soil textures, low rock content, slow drainage rates, and high water tables. In meadows, compaction not only can cause reduced water infiltration rates and root penetration, but can also impact subsurface hydrology. IDFs are included in the EA to reduce impacts related to erosion and loss of topsoil within the project site. These mitigation measures are included as **MM GEO-1 and GEO-2**. Project impacts related to erosion and loss of topsoil will be **less than significant with mitigation incorporation**.

c) The project site is not located on a geologic unit or soil that is unstable or that would become unstable as a result of the project. **No impact**.

d) Soils on the project site consist of basalt and weathered bedrock. Two soil series distributed among the soil map units comprise the soil resource. (NRCS, 2020). The upland soils have sandy loam to loam textures with varying percentage of rock fragments, are well-drained, deep to moderately-water storage potential with a medium runoff class. They are all typical for this area and do not present any unusual problems for management. No expansive soils are located on the project site. **No impact**.

e) The NRCS identified two soil types within the Swain Meadow Restoration Project area. No septic tanks or waste water disposal systems are being proposed in this project area. **No impact**.

f) The project site is underlain by volcanic bedrock and has no potential to contain paleontological resources. There are no known unique geologic features at this site. **No impact**.

Geology and Soils Mitigation Measures

The following integrated design features included in the Robbers Creek Watershed EA are applicable to the Swain Meadow Restoration Project and are required to reduce geology and soil impacts to a **less than significant** level.

MM GEO-1: Avoid Wet Soils

Soils in the Riparian Conservation Areas (RCA) and in meadow treatment areas would be dry to a depth of 10 inches prior to equipment entry.

MM GEO-2: Topsoil Removal

If soil is removed from USFS land for use in the Swain Meadow Restoration Project, it must be done in a manner that will not render the site unproductive.

Topsoil will be stockpiled and then replaced following subsoil removal, under direction of a qualified specialist.

VIII. GREENHOUSE GAS EMISSIONS				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases absorb infrared radiation that otherwise would have escaped back into space. This results in a warming of the atmosphere. Carbon dioxide (CO₂), methane (CH₄), ozone (O₃), water vapor, nitrous oxide (N₂O), and chlorofluorocarbons (CFCs) contribute to GHG emissions.

Most emissions of GHGs are attributable to human activities. Carbon dioxide equivalents are the measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted. Generally, GHG emissions are measured in metric tonnes of CO₂e/yr.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO₂, CH₄, and N₂O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in

certain industrial processes.

CO₂ is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential. Global warming potential indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO₂. CH₄ and N₂O are substantially more potent GHG than CO₂, with GWP of 25 and 310 times that of CO₂, respectively.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons (MT) of CO₂ equivalents (CO₂e). CO₂e are calculated as the product of the mass emitted of a given GHG and its specific global warming potential. While CH₄ and N₂O have much higher global warming potential than CO₂, CO₂ is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO₂e.

The California Office of Planning and Research recommends that lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a proposed project to determine whether the impacts have the potential to result in a significant project or cumulative environmental impact; and, where feasible mitigation is available, to mitigate any project or cumulative impact determined to be potentially significant.

Specifically, CEQA Guidelines Section 15064.4 states:

- a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
 - 1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or
 - 2) Rely on a qualitative analysis or performance based standards.
- b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

- (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
- (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Neither the Northern Sierra Air Quality Management District nor Plumas County have established guidelines for evaluating GHG emissions from proposed projects and do not have thresholds for assessing the significance of impacts. A threshold of significance of 10,000 metric tons of CO₂e has been used by various California air districts in numerous CEQA documents. Therefore, for this project, GHG emissions exceeding 10,000 metric tons of CO₂e per year would be deemed to have a cumulatively considerable contribution to global climate change.

Discussion

a) The project will result in short-term greenhouse gas emissions from equipment operation and worker and equipment transport trips. Restoration activities are estimated to occur over 30 working days. Emissions will cease upon completion of restoration activities. The project will not result in a permanent source of GHG emissions.

The Air Quality Analysis conducted by RCH Group (Appendix C) for the Swain Meadow Restoration Project included an estimate of the total GHG emissions generated by the project. Estimated total GHG emissions would be approximately 30 metric tons of CO₂e. Maintenance activities may be required in subsequent years, but would not exceed the 30 metric tons of CO₂e generated by the initial restoration activities. Therefore, the GHG emissions generated by the project would be below the significance threshold of 10,000 metric tons of CO₂e/per year. The greenhouse gas emissions generated by the project will have a **less-than-significant impact** on the environment.

b) The project will not generate significant emissions of GHGs and therefore will not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing emission of GHG. **No impact.**

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

Setting

Hazardous materials and waste are substances that are considered toxic, ignitable, corrosive, or reactive (as defined in California Code of Regulations, Title 22, and Sections 66261.20-66261.24). The release of hazardous materials into the environment could contaminate soils, surface water, and groundwater supplies. Under Government Code Section 65962.5, the California Department of Toxic Substances Control (DTSC) maintains a list of hazardous substance sites. This list, referred to as the "Cortese list," includes CALSITE hazardous materials sites, sites with leaking underground storage tanks, and landfills with evidence of groundwater contamination. DTSC maintains a list of hazardous substances and contaminated sites as part of the Envirostor database. Waste sites are also overseen by the State Water Resource Control Board (SWRCB) and information is listed on Geotracker database.

Hazardous materials onsite will be limited to hydraulic oils and fuels inside the equipment and vehicles. No hazardous materials will be stored onsite.

Discussion

a,b) The project does not include the routine transport or disposal of hazardous materials, but does include the short-term use of small quantities of hazardous materials onsite during project activities. Hazardous materials include oil, fuel and hydraulic oil used in vehicles and construction equipment. No hazardous materials will be stored onsite. Use of hazardous materials will comply with applicable local, state, and federal standards associated with the handling and storage of hazardous materials. Impacts associated with the use of hazardous materials will be **less than significant**.

c) Project operations will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste. The closest schools are located in the community of Westwood which is more than 8 miles from the project site. **No impact.**

d) The project site is not located on sites which are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and will not create a significant hazard to the public or the environment. **No impact.**

e) There is no airport in the vicinity of the project. The closest airport is in Westwood approximately 8 miles away off Highway 36. The project will not result in a safety hazard related to airports for the people working in the project area. **No impact.**

f) The project area is off of County Road A-21. The project will not interfere with any emergency response plan or evacuation plan. **No impact.**

g) The project will not increase the risk of wildland fires at the project site. The project will not expose people or structures to a significant risk of loss, injury or death involving wildland fires. **No impact.**

X. HYDROLOGY				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces in a manner which would	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) result in substantial erosion or siltation on or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) 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; or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk of release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Swain Meadow is a low-gradient riparian system (primary tributary is Robbers Creek). The project site is located within the North Fork Feather River Hydrologic Area.

The RWQCB Basin Plan (1984) designates beneficial uses for waterways in California. These beneficial uses for the watershed within the project area are based on designated waters for the North Fork Feather River. Based on the “Tributary Rule” (RWQCB 1975 Basin Plan), the beneficial uses of the main water body designated in the basin plan, in this case North Fork Feather River, applies to all tributaries. These include:

- Municipal and Domestic Supply- MUN
- Power- POW
- Recreation, with body contact to the water (i.e. swimming)- REC-1
- Recreation, including canoeing and rafting recreation near water, but with no body contact to the water (i.e. camping, picnicking)- REC-1
- Non-Contact- REC-2
- Cold freshwater habitat- COLD
- Cold water spawning- SPWN
- Wildlife habitat- WILD

There are no 303(d)-listed water bodies in the project area.

Discussion

a) The project could result in short-term water quality impacts from erosion caused by equipment operating near the channel of Robber’s Creek, BDA and riffle construction within the channel, or equipment fluid spills during restoration activities. Surface water from the site ultimately drains from Robbers Creek to the Upper Middle Fork Feather River. To minimize negative effects associated with in-channel restoration work, stream channel treatments in Swain Meadow will occur when in-channel flow has ceased. If stream flow within Swain Meadow is present throughout the entire year (e.g., following exceptionally large winter precipitation totals), treatment activities will be performed when stream flow has reached base flow conditions.

The USFS is required to follow all on-ground prescriptions designed to adhere to the USFS BMPs as described in *National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide*, and all additional management practices and/or water quality protective measures identified by the RWQCB within contracts, permits, agreements, and other instruments used to direct the activities of contractors, permittees, USFS personnel, volunteers, and any other third party. An individual Clean Water Act Section 401 Water Quality Certification, or Waste Discharge Requirements will be required for the project (**MM HYDRO-1**). The waste discharge

requirement/permit will require water quality monitoring if water is present in the work area and measures to ensure water quality standards are met. Impacts to water quality will be **less than significant with mitigation incorporation**.

b) The project does not require the use of groundwater. Reducing the existing channel capacity (estimated to carry as high as 188 cfs) to a capacity much smaller (ca. 25-36 cfs) will ensure flood flows will access the floodplain more frequently. Water surface elevations post project were not modeled because landform features and vegetation currently present at the site are suitable for flood flows. Past experience in similar geomorphic settings have resulted in mesic vegetation communities expanding upslope with additional groundwater recharge. The project will not decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management. **No impact.**

c) The project will result in minor alterations to surface drainage of the site as riffle augmentation and BDA construction occurs, but will not result in change to the overall drainage pattern of the area. Aquatic habitat within the channel is currently intermittent. The treatment will prevent future degradation, and once restored, augment flows during the early summer time period. Water temperatures in Robbers Creek are also expected to be slightly cooler for a longer period of the growing season. Reconnecting Robbers Creek to the floodplain will saturate the meadow surface more frequently. Stabilizing the channel will reduce bank erosion currently contributing more sediment to the system than would occur if the channel was not entrenched. Swain Meadow riparian and floodplain vegetation are expected to be improved from restoration actions. Primary and secondary flow paths and wetland vegetation will increase in abundance from the meadow will remain wetter for longer periods of time in the summer and early fall. The project will not create additional impervious surfaces.

i) The project could result in short-term erosion or siltation during project activities from activities conducted adjacent to and within the channel of Robber's Creek in Swain Meadow. Activities will be completed when water is absent from the channel or during base flow conditions, which will minimize the erosion and siltation offsite. BMPs contained in the *National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP technical Guide* will be implemented for the project as well as adherence to permit requirements (**MM HYDRO-1**). The project will minimize erosion in the long term by providing greater channel stability. Short-term erosion and siltation impacts will be **less than significant with mitigation incorporation**.

ii) This project will not substantially increase the rate or amount of surface runoff in a manner which will result in flooding on or offsite. **No impact.**

iii) This project will not result in an increase in runoff. The project will not contribute runoff water or provide substantial additional sources of polluted runoff. **No impact.**

iv) This project will not impede or redirect flood flows. See above. **No impact.**

d) Project activities will occur when the channels are dry or when water levels are low. The project site is not located in a tsunami or seiche zone. The project site will not become inundated during project activities; therefore, the project does not risk release of pollutants due to inundation. **No impact.**

e) A Clean Water Act Section 401 Water Quality Certification or Waste Discharge Requirements (WDRs) will be obtained for the project from the RWQCB (**MM HYDRO-1**). The permit will require water quality monitoring if water is present in the work area and measures to ensure water quality standards are met. Adherence to permit requirements will ensure the project does not obstruct implementation of a water quality control plan. This impact will be **less than significant with mitigation incorporation.**

Hydrology and Water Quality Mitigation Measures

In addition to implementation of BMPs contained in the *National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide*, the following mitigation measure is required to reduce potential water quality impacts of the project to be **less than significant.**

MM HYDRO-1: Water Quality Certification or Waste Discharge Requirements

Water Quality Certification or Waste Discharge Requirements will be obtained from the RWQCB for the project. The water quality certification will include BMPs as well as monitoring and reporting requirements to minimize impacts to water quality. An ACOE Section 404 permit will also be required.

XI. LAND USE AND PLANNING				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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 type="checkbox"/>

Setting

The project site is located within the LNF. The LNF is managed through a Land and Resource Management Plan (LRMP). The LRMP's purpose is to protect forest resources and meet requirements of legislation as well as addresses local, regional and national issues. The LRMP also ensures projects are consistent with forest goals and objectives.

The lands surrounding the project site are zoned General Agriculture, Agricultural Preserve, and General Forest. The Plumas County General Plan lists Land Use as "suitable forest land regulated full timber yields, suitable forest land regulated limited timber yields" and "suitable forest land regulated modified timber yields."

One LNF goal is to preserve unique resources. One such unique resource includes "water and riparian areas." The LRMP states that "maintaining or improving riparian-dependent resources in and around wetlands, stream corridors (including ephemeral and intermittent streams) lakes, seeps, springs and wet meadows" and "continuing to coordinate with concerned agencies to preserve unique resources in the Eagle Lake, Lake Britton, and Lassen National Park and Forest Areas." This project's goals are consistent with the goals and policies of the LNF LRMP which includes managing forest resources and riparian dependent resources.

Discussion

a) There is not an established community in the project area. The project will not physically divide an established community. **No impact.**

b) The project is consistent with the land use designations of the project site and with the LRMP. The project will not 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. There is no conflict with any land use plan, policy or regulation. **No impact.**

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

Setting

California's Surface Mining and Reclamation Act of 1975 (SMARA) requires the State Geologist to classify land into mineral resource zones based on the known or inferred mineral resource potential of that land. The primary goal is to ensure that important mineral resources do not become inaccessible due to uniformed land-use decisions. To this end, the California Geological Survey performs objective mineral land classifications to assist in the protection and wise development of California's mineral resources (California Department of Conservation, 2019). A search of the SMARA Mineral Lands Classification (MLC) data portal did not show any MLC related studies or maps for the project site. There are no designated mineral deposits of regional or statewide importance at the project site.

Discussion

a) The State of California has not designated an area of statewide or regional mineral resource significance within the project site. The project will not result in the loss of availability of a mineral resource of value to the region or residents of the state or delineated locally important mineral resource. The project does not include extraction of mineral resources and will not result in a loss of availability of mineral resources. **No impact.**

b) The project does not include extraction of mineral resources. The project will not result in the loss of a locally important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan. **No impact.**

XIII. NOISE				
Would the project result in:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) 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 applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

XIII. NOISE				
Would the project result in:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) For a project 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 type="checkbox"/>

Setting

The project site is located approximately 8 miles north of the city of Westwood, California, near Lassen County Road A-21. Surrounding land uses include forest land and agricultural preserve land. Human-generated noise sources within the project vicinity include traffic on County Road A-21 and vehicles using Forest Service roads in the project area. The closest residences and commercial properties are approximately 8 miles from the project site. The only sensitive receptors in the project area are campers and visitors to the area.

The LNF LRMP does not address noise. The Plumas County General Plan Noise element establishes programs to control and abate environmental noise and to protect citizens from excessive exposures. The Noise Element includes acceptable noise levels and standards for construction activities which are included as Table 3-4. The standards apply to those activities associated with construction of a project as long as such construction occurs between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends or on federally recognized holidays. Exceptions are allowed if it can be shown that construction beyond these times is necessary to alleviate traffic congestion and safety hazards.

Table 3-4 PLUMAS COUNTY MAXIMUM ALLOWABLE NOISE EXPOSURE- CONSTRUCTION NOISE			
Land Use Designation	Time Period (7 a.m.-7 p.m.)	Noise Level (dB)	
		Leq	Lmax
Residential	7 am to 7 pm	55	75
	7pm to 10 pm	50	65
	10 pm to 7 am	45	60
Commercial and Public Facilities	7 am to 7 pm	--	90
	7pm to 7am	--	75
Industrial	Any Time	--	90
Source: Plumas County, 2013			

The Plumas County General Plan Noise Element identifies residences, hospitals, convalescent homes, schools, and churches as noise sensitive land uses. There are no sensitive land uses in the project vicinity. The closest sensitive land uses are located in the community of Westwood, more than 8 miles south of the project site.

Discussion

a) The project will result in temporary, short-term increases in ambient noise levels during restoration activities. Activities are anticipated to occur over 30 days and maintenance activities will occur in subsequent years as needed. Noise impacts will be temporary and will cease with completion of the project.

The project will require equipment transport and worker trips, which will not result in a substantial increase in traffic noise levels in the project area. The project will require the use of vehicles and heavy equipment at the project site. Equipment that will be used to complete the meadow hydrologic restoration includes excavators, loaders, and dump trucks. The site will be accessed and navigated using ATVs or UTVs and pickup trucks. Typical construction equipment noise levels for the equipment required for the project are included in the Table 3-5.

Table 3-5 TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS		
Type of Equipment	Range of Maximum Sound Levels (dBA at 50 feet)	Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)
Front-End Loader	86 to 90	88
Haul Trucks	83 to 94	88
Hydraulic Excavator	81 to 90	86
Trucks	81 to 87	85
Source: Bolt, Beranek, and Newman 1987 as cited by Plumas County 2013		

As shown in Table 3-5, excavators, loaders, and trucks, generate maximum noise levels up to 94 dB at a distance of 50 feet from the equipment. Noise levels from the project site will lessen with distance from the noise source. The closest sensitive land uses are located more than 8 miles from the project site in the community of Chester. Noise from the equipment will not be audible at that distance and will not exceed Plumas County maximum allowable construction noise levels (Table 3-4).

Noise from the project could be audible to users recreating and camping in the project vicinity. Although equipment could be audible, noise levels from the project will not exceed Plumas County daytime construction noise standards for public facilities. Activities are proposed to occur during the daytime hours of 7:00 a.m. to 5:00 p.m. and will not result in nighttime disturbance. **MM NOI-1** is included to ensure the project complies with the allowable construction hours included in the Plumas County General Plan Noise Element. The short-term, temporary increase in ambient noise levels from the project will be **less than significant with mitigation incorporation**.

b) The project does not include equipment that would generate substantial sources of vibration. Trucks and heavy equipment will generate levels of vibration that are perceptible in the immediate vicinity of each work area; however, each activity will occur more than 9 miles from any sensitive receptor or building. Groundborne vibration and groundborne noise from project activities will not be detectable at the location of any sensitive receptor or building. Impacts related to groundborne vibration and noise will be **less than significant**.

c) The project is not within an airport land use plan, or within two miles of a public airport, or within the vicinity of a private airstrip. The project will not expose people residing or working in the project area to excessive noise levels from aircraft. **No impact**.

Noise Mitigation Measures

The following mitigation measure is included to ensure the project occurs within the allowable construction hours included in the Plumas County General Plan Noise Element:

MM NOI-1: Limit Construction Hours

Construction shall occur between the hours of 7 a.m. and 7 p.m., Monday through Friday, and 8 a.m. and 5 p.m. on weekends or on federally recognized holidays. Exceptions are allowed if it can be shown that construction beyond these times is necessary to alleviate traffic congestion and safety hazards.

XIV. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) 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 type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

This project is located within LNF in Swain Meadow located within the Robber Creek Watershed and along Lassen County Road A-21. The closest town is Westwood, approximately 8 miles away.

Discussion

a) The project will not induce unplanned population growth in the area or include the expansion of major roads or infrastructure. The project will not generate commercial activities that would induce substantial growth in the project area. **No impact.**

b) The project site includes only undeveloped forest land. The project will not displace substantial numbers of people requiring the construction of replacement housing elsewhere. **No impact.**

XV. PUBLIC SERVICES

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

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

A CDF fire station is located approximately 9.25 miles away from the project site in Westwood. In addition, a Sheriff's office is located in Westwood.

Discussion

The project includes management activities in Swain Meadow located within the Robbers Creek Watershed. The management activities include forest, meadow and watershed restoration. The project will not result in population changes that would require new or physically altered schools, parks, or other public facilities. The project will not result in an impact to service ratios, response time or other performance objectives for fire or police protection which would require the construction of new or physically altered governmental facilities. The project will have **no impact** to public services.

XVI. RECREATION

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

XVI. RECREATION Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Lassen National Forest offers a wide variety of year-round recreation opportunities. Recreation opportunities include camping, hunting, fishing, boating, hiking, wildlife viewing, horseback riding, scenic trails and drives, winter sports, water activities, OHV use, bicycling, climbing, historic lodges and gold mining [Lassen National Forest - Recreation \(usda.gov\)](https://www.fs.usda.gov/activity/lassen/recreation/) (https://www.fs.usda.gov/activity/lassen/recreation/). Winter activities are usually open from December through March. The Almanor Ranger District lists a variety of activities and a website to identify recreation trails for snowmobiling, cross country skiing and snow shoeing. Many sports activists use the Fredonyer Parking Area Snowpark that has 75 square miles of recreation trails.

Discussion

a) Seasonal restrictions are in place for winter recreation (cross-country ski, snowmobile) from December 26 through March 31 annually for FS 30N07, FS 30N31 both roads border Swain Meadow. Project work in Swain Meadow will not take place during the winter time and will not impede winter sports activities. The project will have **no impact** related to recreation in this area.

b) The project does not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. See a). **No impact.**

XVII. TRANSPORTATION				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) 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 type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA guidelines 15064.3, subdivision?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) 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 type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

The project site will be accessed via Lassen County Road A-21 (Mooney Road). County Road A-21 connects to Highway 36 in the community of Westwood. A Caltrans traffic study was conducted [Caltrans Home \(arcgis.com\)](https://gisdata-caltrans.opendata.arcgis.com/) (https://gisdata-caltrans.opendata.arcgis.com/) within the last eight months, near mile post 3.706 on Highway 36 where it intersects Lassen County road A-21. The study recorded the Average Daily Traffic (ADT) was 2,200 vehicles a day while truck traffic was recorded at 203 trucks per day.

Discussion

a) The project will result in short-term traffic increases during meadow restoration. Traffic generated by the project will be minimal. Project traffic includes worker trips as well as equipment transport to the site. The duration of the project will be approximately 30 days and workers will be staying at local camp grounds during the week and traveling home on weekends. The average commute distance to and from site is 240 miles. It is estimated three workers will travel to and from the site four times during the project. Project equipment would like be transported from Redding to the site (Approximately 108 miles one way). The project site will be accessed and navigated using ATVs or UTVs and pickup trucks. Traffic generated by the project will be temporary, resulting in minimal traffic increases for the duration of activities.

The project will not conflict with a program, plan, ordinance, or policy addressing the circulation system. This impact will be **less than significant**.

b) Section 15064.3 was recently added to the CEQA Guidelines and states that “vehicle miles traveled” (VMT) is the preferred method for evaluating transportation impacts. An estimate of the vehicle miles traveled (VMT) for employee trips and equipment transport to the project site during restoration activities is included in Table 3-6. In addition to the worker trips and equipment transport trips in Table 3-6, another 1,000 to 2,000 VMT would occur for planning and meetings prior to construction.

Table 3-6 VEHICLE MILES TRAVELED EQUIPMENT AND EMPLOYEE TRIPS				
Description	Total No. of Trips (one way)	Trip Mileage (one way)	Total Vehicle Miles Traveled	Average Daily VMT³
Employee Vehicles	24 ¹	120	2,880	96
Equipment Transport	14 ²	108	1,512	50
Total	38	228	4,392	146
¹ This estimate assumes an average of three employees from the Redding area will camp at the project site during the week and will commute to and from the site a total of four times during the project. ² Estimate includes 6 pieces of equipment transported separately from Redding. ³ Assumes 30 work days.				

The project is not a land use project or transportation project and will not result in permanent impacts related to VMT. Project-related trips will cease upon completion of restoration. The project will result in a **less-than-significant impact** related to VMT

c) The project will not include a change in road design or construction that would increase hazards. The existing access road has an encroachment onto the Lassen County Road A-21 that provides safe ingress and egress of commercial and non-commercial truck/vehicle traffic. **No impact.**

d) The project will not change the existing emergency access to the project site or surrounding areas. **No impact.**

XVIII. TRIBAL CULTURAL RESOURCES				
Would the project:				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) 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 section 5020.1 (k) or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) 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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

Some sites in the LNF include Native American gathering areas, Chinese mining camps, Basque aspen carvings, and the homeland of the last Yahi Yana Indian, Ishi. The project site has been surveyed for archaeological resources.

AB 52 was enacted on July 1, 2015, and establishes that “a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment” (Public

Resources Code Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource when feasible (PRC Section 21084.3).

Public Resources Code Section 21074 (a)(1)(A) and (B) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe” and meets either of the following criteria:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or
- 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 PRC Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California cities, counties, and tribes regarding tribal cultural resources. Under AB 52, lead agencies are required to “begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.” Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

A scoping letter for the complete Robbers Creek restoration project including Swain Meadow was sent to interested tribal parties near the LNF on September 30, 2019:

- Susanville Indian Rancheria: Honorable Deana Bovee (Chairwoman), cc: Dr. Roselynn Lwenya (Natural Resources Director), cc. Melany Johnson (THPO), cc. Sarah Hubert (Environmental Coordinator), 745 Joaquin Street, Susanville, CA 96130 530 257-6264
- Greenville Rancheria: Honorable Kyle Self (Chairman), cc: Crystal Rios (Tribal Vice Chairwoman), cc: Lacy Miles (NAGPRA Coordinator) P.O. Box 279, Greenville, CA 95947
- Maidu Summit Consortium & Conservancy: Honorable Ben Cunningham (Chairman) P.O. Box 682 Chester, CA 96020
- Pit River Tribe: Natalie Forest-Perez, cc: Agnes Gonzalez, cc: Anthony Quinn, cc: Marissa Fierro, cc: Charles White; cc: Orvie Danzuka; cc: Brandy McDaniels 36970 Park Avenue, Burney, CA 96013
- Redding Rancheria: Jack Potter Jr., cc: Melodie Honey 2000 Redding Rancheria Road, Redding, CA 96001

- Michon R. Eben; cc. Thaddeus Cason, Maidu Cultural Preservation Association

As CEQA lead agency for the project, the RWQCB is responsible for conducting the formal consultation process in accordance with Assembly Bill 52. On March 9, 2021, an AB 52 Formal Notification of Consultation Opportunity, pursuant to Public Resources Code section 21080.3.1, was sent to Pit River Tribe: Honorable Agnes Gonzalez (Chairperson), 36970 Park Avenue, Burney, CA 96013.

On March 9, 2021, the RWQCB additionally sent notification of the project and an opportunity to request consultation to the following tribal parties:

- Greenville Rancheria: Kyle Self, Chairman, P.O. Box 279, Greenville, CA 95947
- Susanville Indian Rancheria: Brandon Guitierrez, Chairperson, 745 Joaquin Street, Susanville, CA 96130
- Honey Lake Maidu: Ron Morales, Chairperson, 1101 Arnold Street, Susanville, CA 96130
- Honey Lake Maidu: Paul Garcia, Chairperson, 7029 Polvadero Drive, San Jose, CA 95119
- Tsi-Akim Maidu: Don Ryberg, Chairperson, P.O. Box 510, Browns Valley, CA 95918
- Washoe Tribe of Nevada and California: Serrell Smokey, Chairperson, 919 Highway 395 North, Gardnerville, NV 89410
- Enterprise Rancheria of Maidu: Glenda Nelson, Chairperson, 2133 Monte Vista Avenue, Oroville, CA 95966

Discussion

a) i-ii. Cultural resources within the Robbers Creek Restoration Project site are potentially eligible for the CRHR. The project could result in a substantial adverse change in significance of these resources and could also result in a substantial adverse change in the significance of currently undiscovered tribal cultural resources if encountered over the course of the project. Implementation of **MM CUL-1, CUL-2, and CUL-3** included in the Cultural Resources section of this document will ensure impacts to tribal cultural resources are **less than significant with mitigation incorporation**.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Require or result in the construction of new water or wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

The agencies in the following list provide public or private services or utilities to the communities around the project area. Electricity, natural gas, wastewater, solid waste and well water will not be implemented at the site:

Fire Protection:	Hamilton Branch or Peninsula Fire Department
Law Enforcement:	Plumas County Sheriff's Department
Electricity:	NA
Natural Gas:	NA
Wastewater:	Portable toilet onsite/USFS vault facility and campground
Solid Waste:	Removed by contractor
Water:	Water truck and potable bottle water

Discussion

a) Project activities included short-term restoration activities and will not 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 that would result in significant environmental effects.

No impact.

b) The water usage onsite includes possible watering of haul roads to maintain dust control. If needed, water will be trucked in and not taken from onsite. **No impact.**

c) The project will not result in the generation of new wastewater requiring treatment. Employees and workers will be staying at a nearby campground in their own camping trailers with their own self-contained sanitary facilities. Portable restrooms may be provided at the project site for the duration of activities. **No impact.**

d) Large quantities of solid waste will not be generated by the project. Small quantities of solid waste generated by the project will be bagged, removed from the site, and transported to the county transfer site for disposal. **No impact.**

e) The project will comply with all federal state and local statutes and regulations relating to solid waste and disposal. **No impact.**

XX. WILDFIRE

If located on or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) 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 wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting

A lack of disturbance from fire has resulted in degradation of aspen, riparian, and meadow communities in the watershed. Most aspen stands in the project area are at risk of being lost without intervention. The project area has not experienced wildland fire in over 100 years. If a wildfire were to occur in the project area the effects would likely be higher severity with greater overstory tree mortality, than would have been expected historically. High severity wildfire has the potential to wipe out sensitive plant and animal species. These practices coincide with LNF LRMP for fire and fuels. The Forest goals rely on fuel reduction and effective fire protection to minimize wildfire losses; it also promotes fire prevention and reducing fuels.

As shown on Figure 10, the project is located within a federal responsibility area.

The project site is located in a Fire Hazard Severity zone classified as Moderate and Very High (Fire Hazard Severity Zones Local Responsibility Areas for Fire Protection updated January 2020 [California Fire Hazard Severity Zone Viewer | California State Geoportal](https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414) (<https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414>)).

Discussion

a) Project activities will occur within Swain Meadow and will not result in permanent increases in traffic or block roadways. The project will not result in any changes that will impair an emergency response plan or emergency evacuation plan. **No impact.**

b) The project will not result in changes to the project site that will increase wildfire risk. The project does include the short-term operation of equipment within the meadow that could increase the risk of wildfires during restoration activities. Preventative measures will be used to ensure the safe use of equipment. This impact will be **less than significant**.

c) The project will not include installation or maintenance infrastructure that would exacerbate fire risk or result in impacts to the environment. **No impact.**

d) The project will not add a new risk for downslope or downstream flooding or landslide. Workers will not be exposed to downslope or downstream flood or landslides as a result of runoff, post-fire slope instability, or drainage changes. **No impact.**

XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) Impacts associated with the project have been fully identified in this document. As discussed in sections above, the project has the potential to result in impacts to air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, noise, and tribal cultural resources. With the implementation of mitigation measures identified in this Initial Study, potential impacts to the quality of the environment, fish and wildlife species, and cultural/tribal cultural resources will be **less than significant with mitigation incorporation**.

b) The Swain Meadow Restoration Project is part of the larger Robbers Creek Watershed Restoration Project which included additional management activities within the Robbers Creek watershed (the additional management activities are described in the attached EA). The impacts of the project are cumulatively considerable in combination with the impacts of the other planned management activities. The potential impacts of the Swain Meadow Restoration Project will be **less than significant with mitigation incorporation**. In addition, IDF's are incorporated as part of the Robbers Creek Watershed Restoration Project to reduce and eliminate impacts from the other proposed activities. Therefore, cumulative impacts will be **less than significant with mitigation incorporation**.

c) All environmental impacts including those that could affect human beings (Noise, Air Quality, Transportation, etc.) will be **less than significant, less than significant with mitigation, or no impact**. No additional mitigations measures beyond those included in this Initial Study will be required for impacts to human beings. The impact is **less than significant**.

4.0 REFERENCES

Baldwin, B. et al. eds. 2012. The Jepson Manual, Second Edition. University of California Press: Berkeley, CA.

British Standards Institute (BSI). 2014. Code of practice for noise and vibration control on construction and open sites BS 5228-1:2009+A1:2014. February 2014.

California Air Resources Board. 2018. EMFAC2017 User's Guide, March 1, 2018, [Emfac2017-volume-i-users-guide-final \(ca.gov\)](https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-i-users-guide.pdf) (<https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-i-users-guide.pdf>) and [Mobile Source Emission Inventory - EMFAC2017 Web Database \(ca.gov\)](https://www.arb.ca.gov/emfac/2017/) (<https://www.arb.ca.gov/emfac/2017/>).

California Air Resources Board, OFFROAD Instructions, [Homepage | California Air Resources Board](http://www.arb.ca.gov) (<http://www.arb.ca.gov>).

California Department of Fish and Game. 1994. Five-year status review: greater sandhill crane (*Grus canadensis tabida*). Reported to: California Fish and Game Commission. 12 pp.

California Department of Fish and Wildlife. 2015. California State Wildlife Action Plan, 2015 Update. A conservation legacy for Californians. Gonzales, A.G., and Hoshi, J. (Ed.). Prepared with assistance from Ascent Environmental, Inc., Sacramento, California.

California Department of Fish and Wildlife. California Natural Diversity Database. RareFind, commercial version 5. Accessed September 2020.

California Department of Fish and Wildlife. February 2020. [Porcupine \(ca.gov\)](https://wildlife.ca.gov/Conservation/Mammals/Porcupine) (<https://wildlife.ca.gov/Conservation/Mammals/Porcupine>).

California Department of Transportation (Caltrans). 1998. Traffic noise analysis protocol for new highway construction and reconstruction projects. October 1998.

California Environmental Protection Agency. 2006. Final climate action team report to the Governor and Legislature, March 2006, [Climate Change Partnerships \(ca.gov\)](http://www.climatechange.ca.gov) (<http://www.climatechange.ca.gov>).

CAL FIRE. 7/2020. State Responsibility Area Maps. Plumas County. [Welcome to Fire Hazard Severity Zones Maps \(ca.gov\)](https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/) (<https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/>).

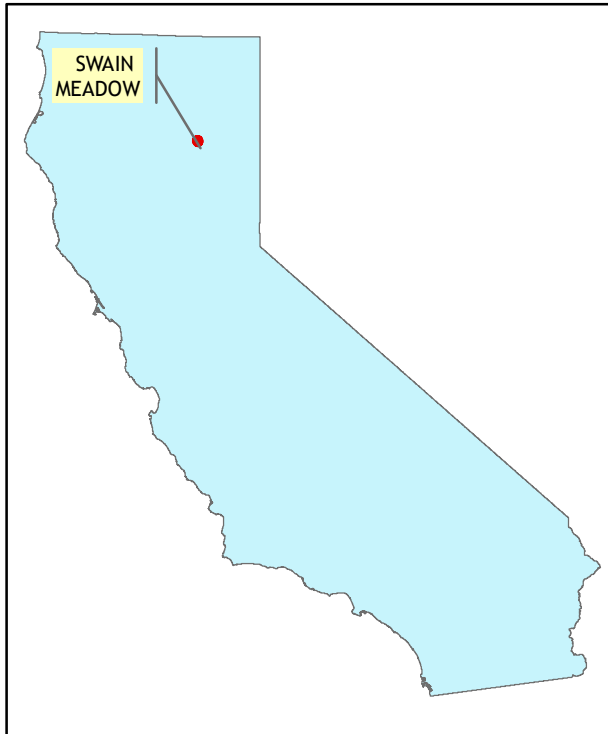
- California Herps. February 2020. [Southern Long-toed Salamander - Ambystoma macrodactylum sigillatum \(californiaherps.com\)](http://www.californiaherps.com/salamanders/pages/a.m.sigillatum.html)
(<http://www.californiaherps.com/salamanders/pages/a.m.sigillatum.html>)
- California Native Plant Society. February 2021. [CNPS Inventory Plant Detail](http://www.rareplants.cnps.org/detail/388.html)
(<http://www.rareplants.cnps.org/detail/388.html>)
- CalTrans. State of California Department of Transportation. 2002. Guide for the preparation of traffic impact studies. December 2002.
- Clynne, M.A., and Muffler, L.J.P. (2010), Geologic Map of Lassen Volcanic National Park and Vicinity, U.S.G.S. Scientific Investigations Map SIM-2899, Scale 1:50,000.
- Clynne, M.A. (1990). "Stratigraphic, lithologic, and major element geochemical constraints on magmatic evolution at Lassen volcanic center, California". Journal of Geophysical Research. 95
- Collins, D., Cooper, T., Dubovsky J., Fronczak D. Priority Information Needs for Sandhill Cranes II, A Funding Strategy. 22 April 2016.
- Forest Creek Restoration. Swain Meadow Concept Restoration Design Plan. December 2020.
- Furniss, R. L., and V. M. Carolin. 1977. Western Forest Insects. USDA Forest Service, Washington, DC.
- Green Dot Transportation Solutions. 2020 Plumas County Regional Transportation Plan. October 2019.
- Green, G. A., H. L. Bombay, M. L. Morrison. 2003. Conservation assessment of the willow flycatcher in the Sierra Nevada. USDA Forest Service, Pacific Southwest Region, Vallejo, CA. 62 pp.
- Hrivnak, Doreen December 2020. Robbers Creek Watershed Restoration Project Cultural Resource Report. Lassen National Forest & Almanor Ranger District.
- Jennings, C. W. Geologic Map of California 1: 750 000. 1977.
- Hatfield, R., S. Jepsen, E. Mader, S. H. Black, and M. Shepherd. 2012. Conserving Bumble Bees. Guide- lines for Creating and Managing Habitat for America's Declining Pollinators. 32 pp. Portland, OR: The Xerces Society for Invertebrate Conservation.


- Kovacs, K.E., K.K. Converse, M.C. Stopher, J.H. Hobbs, M.L. Somer, P.J. Figure, D.A. Applebee, D.L. Clifford, and D.J. Michaels. 2016. Conservation Plan for Gray Wolves in California. California Department of Fish and Wildlife. Sacramento, CA. 329 pp.
- Lassen National Forest. 2010. Biological Assessment and Evaluation for Wildlife Species, Motorized Travel Management Final Environmental Impact Statement.
- Loffland, H. L., R. B. Siegel, R. D. Burnett, B. R. Campos, T. Mark, C. Stermer 2014. Assessing Willow Flycatcher population size and distribution to inform meadow restoration in the Sierra Nevada and Southern Cascades. The Institute for Bird Populations, Point Reyes Station, California.
- Luedke, Robert G., and Robert L. Smith. *Map showing distribution, composition, and age of late Cenozoic volcanic centers in California and Nevada*. No. 1091-C. 1981.
- Mathewson, H. A., Morrison, M. L., Loffland, H. L., & Brussard, P. F. (2012). Ecology of Willow Flycatchers (*Empidonax traillii*) in the Sierra Nevada, California: Effects of Meadow Characteristics and Weather on Demographics. Ornithological Monographs, 75(1), 1–32. [Ecology of Willow Flycatchers \(Empidonax traillii\) in the Sierra Nevada, California: Effects of Meadow Characteristics and Weather on Demographics \(bioone.org\)](https://doi.org/10.1525/om.2013.75.1.1) (https://doi.org/10.1525/om.2013.75.1.1)
- Mladenoff, D.J. and T.A. Sickley. 1998. Assessing Potential Gray Wolf Restoration in the Northeastern United States: A Spatial Prediction of Favorable Habitat and Potential Population Levels. The Journal of Wildlife Management, Vol 62(1): 1-10.
- National Audubon Society. n.d. Sandhill Crane. Accessed on 6/29/20. [Sandhill Crane | Audubon California](https://ca.audubon.org/birds-0/sandhill-crane) (https://ca.audubon.org/birds-0/sandhill-crane)
- National Park Service. 2021. Article: A plant to call our own. Lassen Volcanic Park [A Plant to Call Our Own \(U.S. National Park Service\) \(nps.gov\)](https://www.nps.gov/articles/a-plant-to-call-our-own.htm) (https://www.nps.gov/articles/a-plant-to-call-our-own.htm) accessed March 1, 2021
- Northern Sierra Air Quality Management District. 2016. Guidelines for assessing and mitigating air quality impacts of land use projects. May 31, 2016, [Grove-NSAQMD-CalEEMod1324075240030317PM.pdf \(nevadacityca.gov\)](https://www.nevadacityca.gov/files/documents/Grove-NSAQMD-CalEEMod1324075240030317PM.pdf) (https://www.nevadacityca.gov/files/documents/Grove-NSAQMD-CalEEMod1324075240030317PM.pdf).

- Paws. February 2020. [Mountain Beavers | PAWS](https://www.paws.org/resources/mountain-beavers/)
(<https://www.paws.org/resources/mountain-beavers/>)
- Plumas County. 2020. Department of Water Resources. [Official visitor information for Plumas County, Northern California](https://www.plumascounty.org) (<https://www.plumascounty.org>)
- Plumas County. 2013. Planning Department. Draft Plumas County General Plan Safety Element. October 2013.
- Plumas County. 2013. Plumas County General Plan 2035. Adopted December 17, 2013.
- Plumas County. 2020. [FEMA Flood Insurance Rate Maps Information | Plumas County, CA - Official Website](https://www.plumascounty.us/2295/FEMA-Flood-Insurance-Rate-Maps-Information) (<https://www.plumascounty.us/2295/FEMA-Flood-Insurance-Rate-Maps-Information>)
- Powell, R. A., Clifford, D., Facka, A. N., Green, D., Matthews, S., and Smith, K. P. 2019. Understanding a fisher reintroduction in Northern California from 2 perspectives. 2014. Unpublished report. 249 pgs.
- Ralph, C. J., S. Droege, and J. R. Sauer. 1995. Managing and monitoring birds using point counts: Standards and applications. In *Monitoring Bird Populations by Point Counts* (C. J. Ralph, J. R. Sauer, and S. Droege, Editors). USDA Forest Service General Technical Report PSW-GTR-149. pp. 161–175
- Ratte, Michael. RCH Group. 2021 Swain Meadow Air Quality Analysis Technical Memorandum.
- Squires and Reynolds. 1997. Squires, John R.; Reynolds, Richard T. Northern goshawk (*Accipiter gentilis*). In: Poole, A.; Gill, F./ eds. *The Birds of North America*, No. 298. Washington, D.C.: The Academy of Natural Sciences, Philadelphia, PA; The American Ornithologists' Union. P. 1-31.
- Thiel, R.P., S. Merrill, and L.D. Mech. 1998. Tolerance by denning wolves, *Canis lupus*, to human disturbance. *Canadian Field-naturalist* 122(2):340-342.
- United States Department of Agriculture Forest Service. December 2020. Robbers Creek Watershed Restoration Project, Environmental Assessment.
- United States Department of Agriculture, Natural Resources Conservation Service. May 2020. Robbers Creek Project. Custom Soil Resource Report.

- USDA 2001. Sierra Nevada Forest Plan Amendment (SNFPA) Final Environmental Impact Statement (FEIS) and Record of Decision (ROD). USDA Forest Service, Pacific Southwest Region. Vallejo, CA. January 2001.
- U.S. Energy Information Administration Voluntary Reporting of Greenhouse Gases Program. [Voluntary Reporting of Greenhouse Gases Program \(eia.gov\)](https://www.eia.gov/environment/pdfpages/0608s(2009)index.php) ([https://www.eia.gov/environment/pdfpages/0608s\(2009\)index.php](https://www.eia.gov/environment/pdfpages/0608s(2009)index.php))
- U.S. Environmental Protection Agency. AP 42, Compilation of Air Pollutant Emission Factors, Fifth Edition, Volume I, [AP-42: Compilation of Air Emissions Factors | Air Emissions Factors and Quantification | US EPA](https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors) (<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>)
- U.S. Federal Transit Administration. Office of Planning and Environment. Transit noise and vibration impact assessment. By Carl E. Hanson, David A. Towers, and Lance D. Meister. FTA-VA-90-1003-06.
- USGS. 2000. Almanor Fault Zone, Class A (No. 21). Quaternary Fault and Fold Database of the United States. United States Geological Survey, December 2000.
- USFWS. 2015. Species Report: Sierra Nevada Red Fox (*Vulpes necator*). United States Fish and Wildlife Service, Sacramento, CA.
- United State Geological Survey Earthquake Hazards Program. [Earthquakes \(usgs.gov\)](https://earthquake.usgs.gov/earthquakes/) (<https://earthquake.usgs.gov/earthquakes/>). Accessed January, 2020.
- Whittington, J. C. Cassady St. Clair, G. Mercer. 2004. Path Tortuosity and the Permeability of Roads and Trails to Wolf Movement. *Ecology and Society*, Vol 9(1):4.
- Young, S. 1989. "Pine Creek Watershed Report." Eagle Lake Ranger District, Lassen National Forest.
- Zhao, F., R.A. Sweitzer, Q. Guo, and M. Kelly. 2012. Characterizing habitats associated with fisher den structures in the southern Sierra Nevada, California using discrete return lidar. *Forest Ecology and Management* 280:112-119.

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 Swain Meadow Project Boundary



SOURCE: USFS Road Data

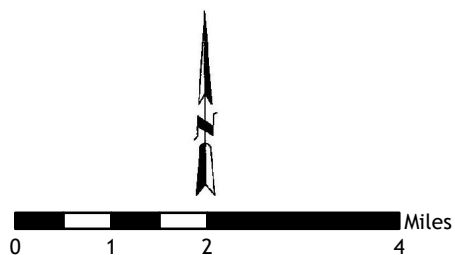
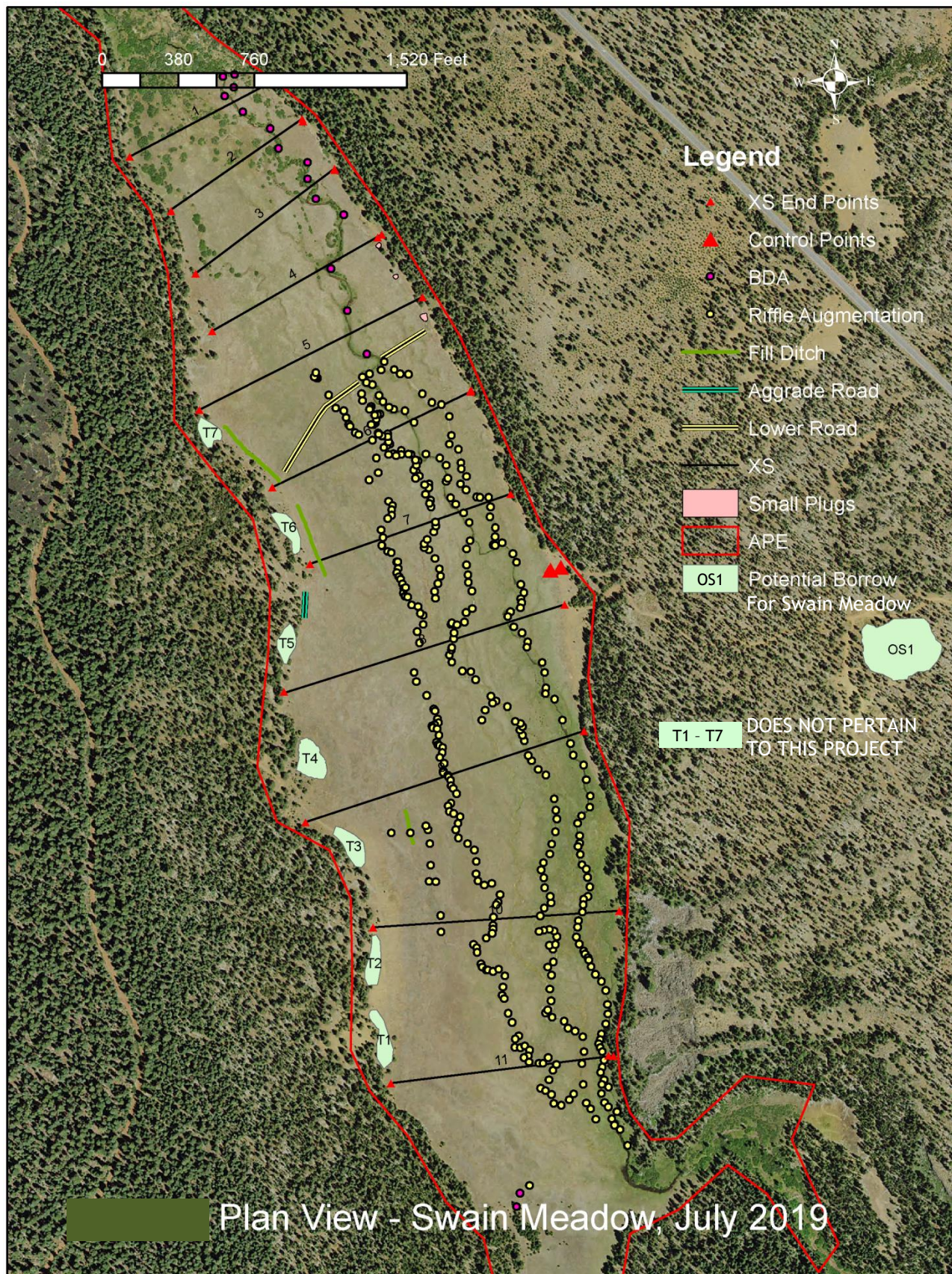


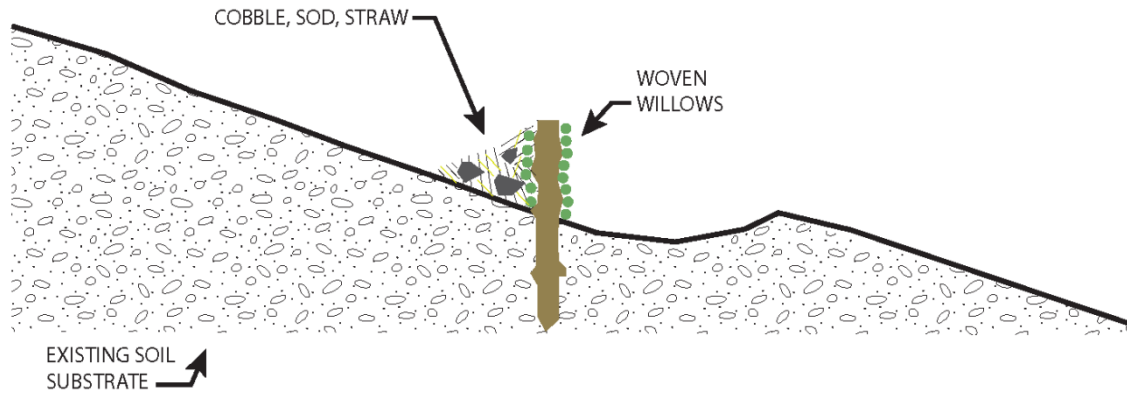
FIGURE 1
PROJECT LOCATION
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



SOURCE: FOREST CREEK RESTORATION

FIGURE 2
PROJECT AREA
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST

DETAIL



CROSS SECTION

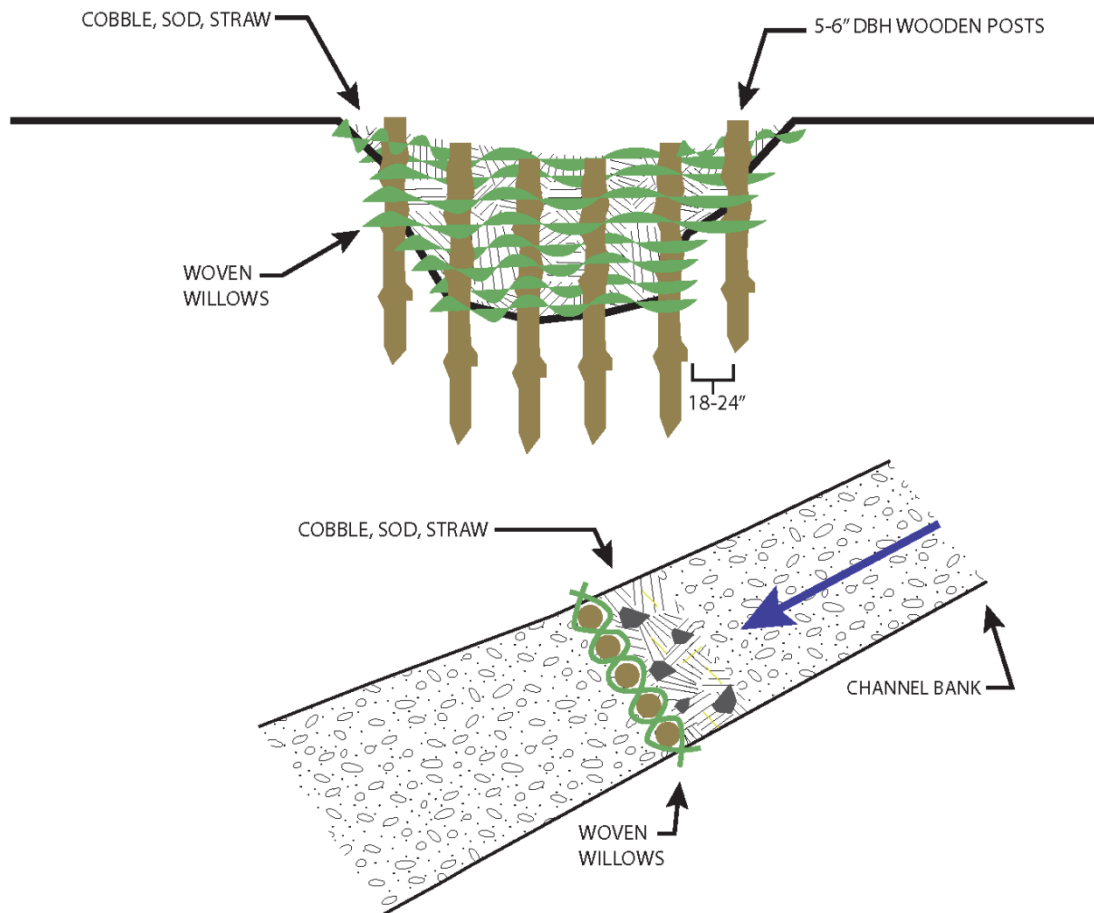


FIGURE 3
BEAVER DAM ANALOGS
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



SOURCE: FOREST CREEK RESTORATION

Detail

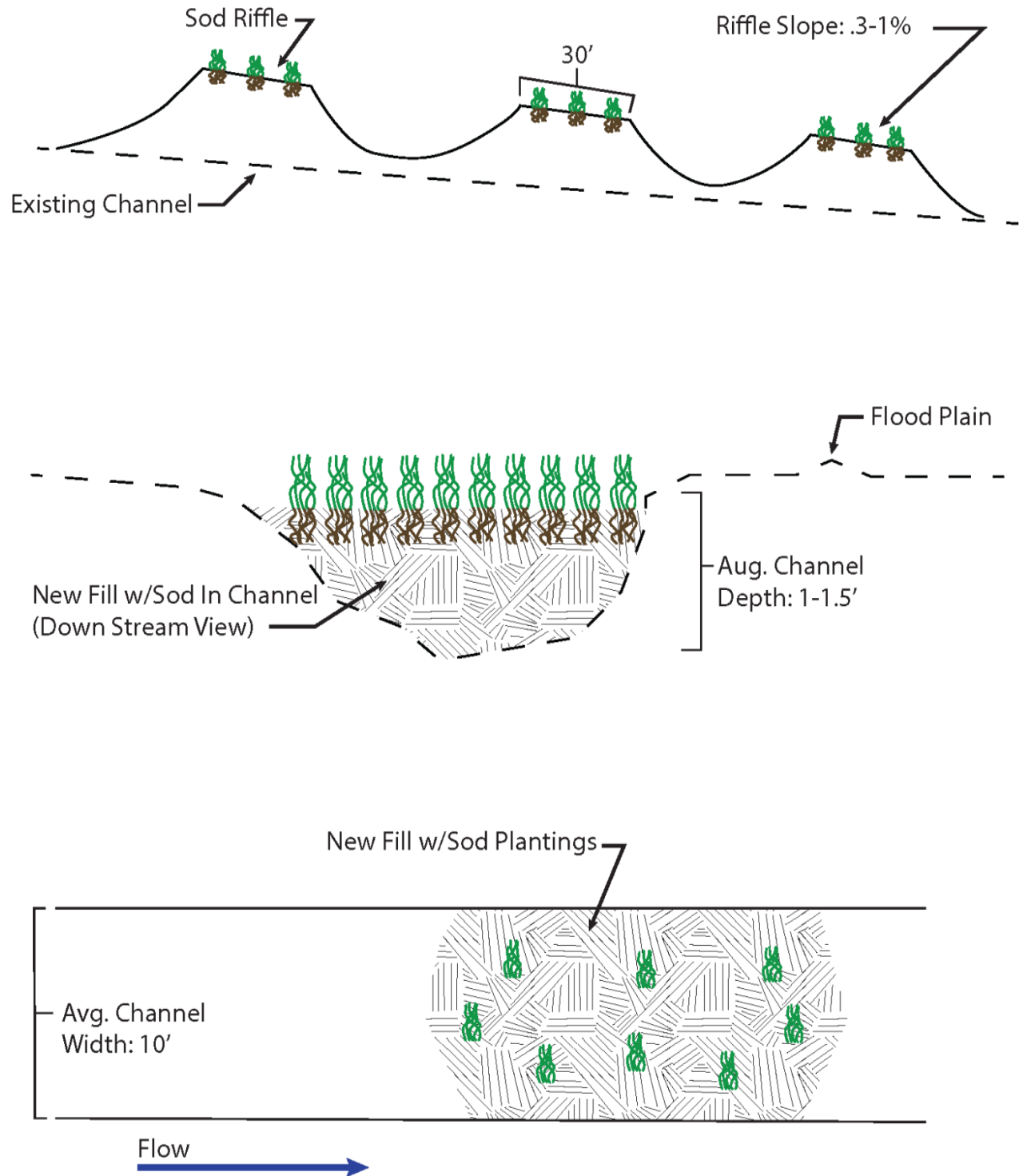
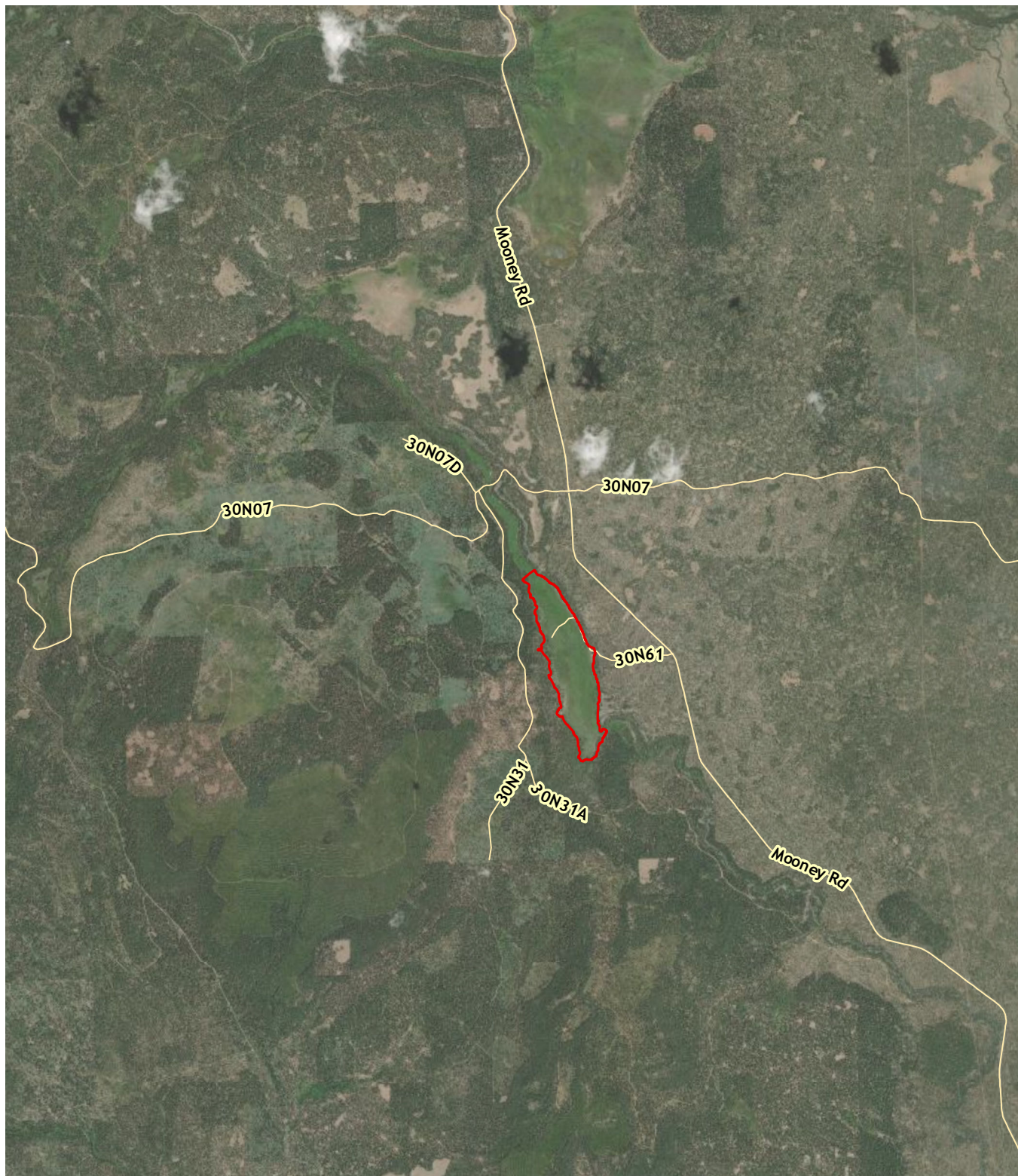



FIGURE 4
RIFFLE CONSTRUCTION
 SWAIN MEADOW
 RESTORATION PROJECT
 LASSEN NATIONAL FOREST



SOURCE: FOREST CREEK RESTORATION



 Swain Meadow Project Boundary



SOURCE: USFS Road Data

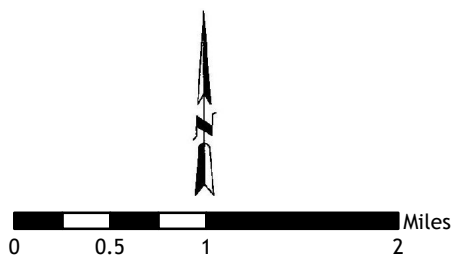
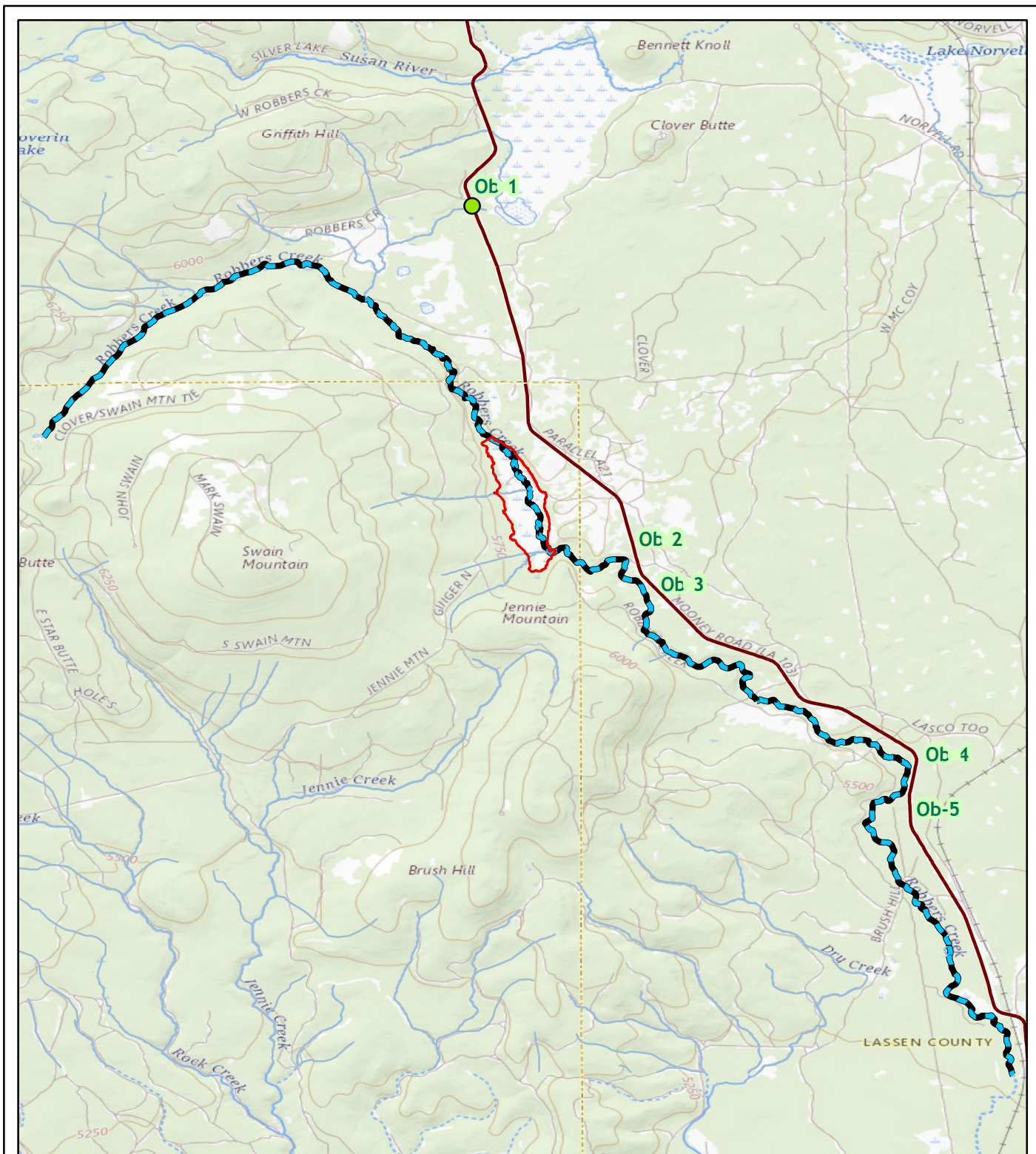


FIGURE 5
ROADS
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



- Swain Meadow Project Boundary
- Robbers Creek Segment Potentially Visible from County Rd A21
- County Road A21
- Streams
- Potential Observation Locations

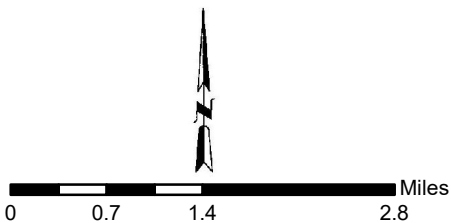
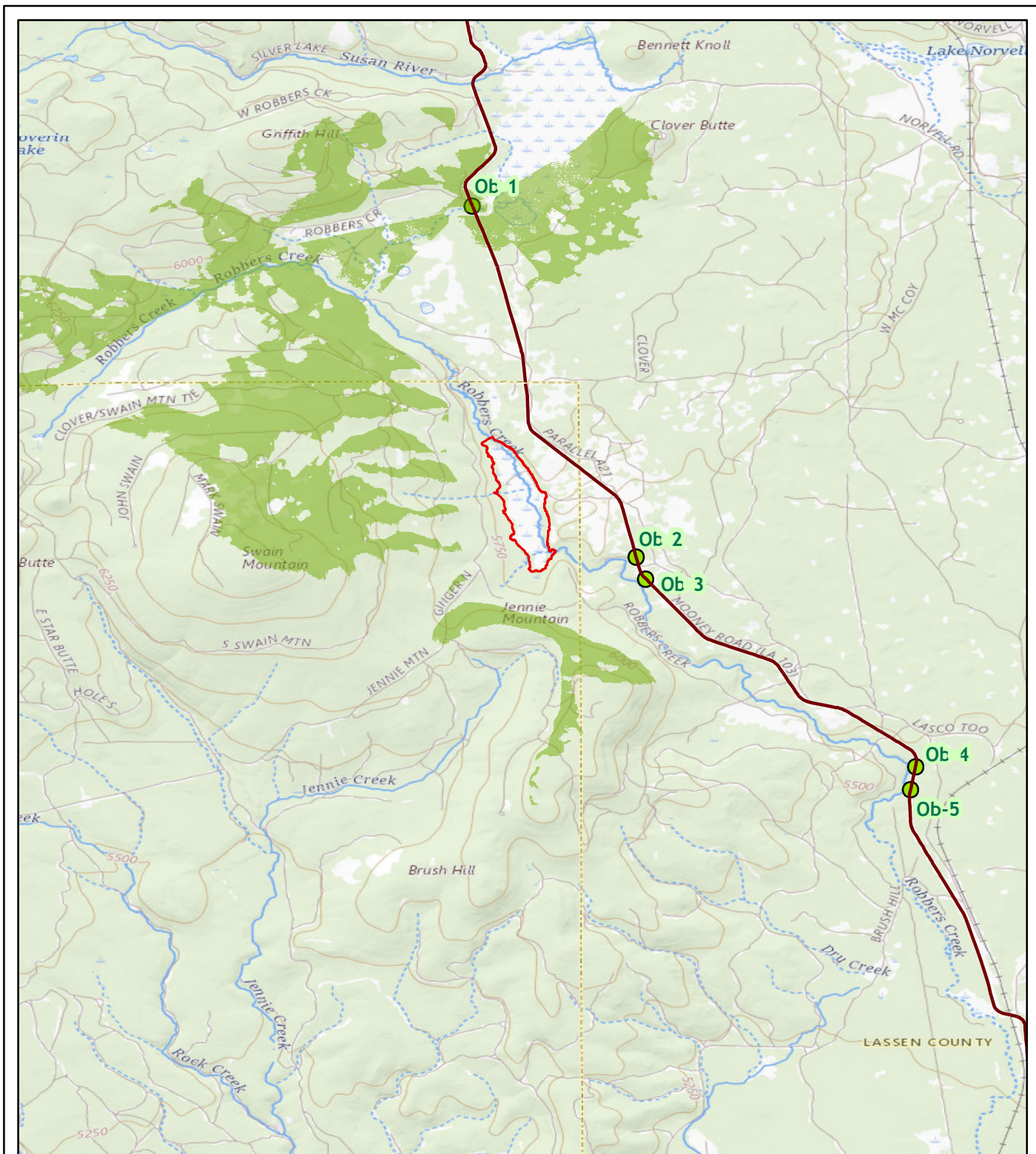





FIGURE 6
POTENTIAL VISUAL
OBSERVATION LOCATIONS
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



 Swain Meadow Project Boundary

 Potential Observation Locations

 County Road A21

 Viewshed Area Visible from Observation Point 1

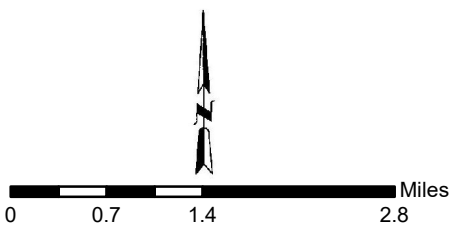
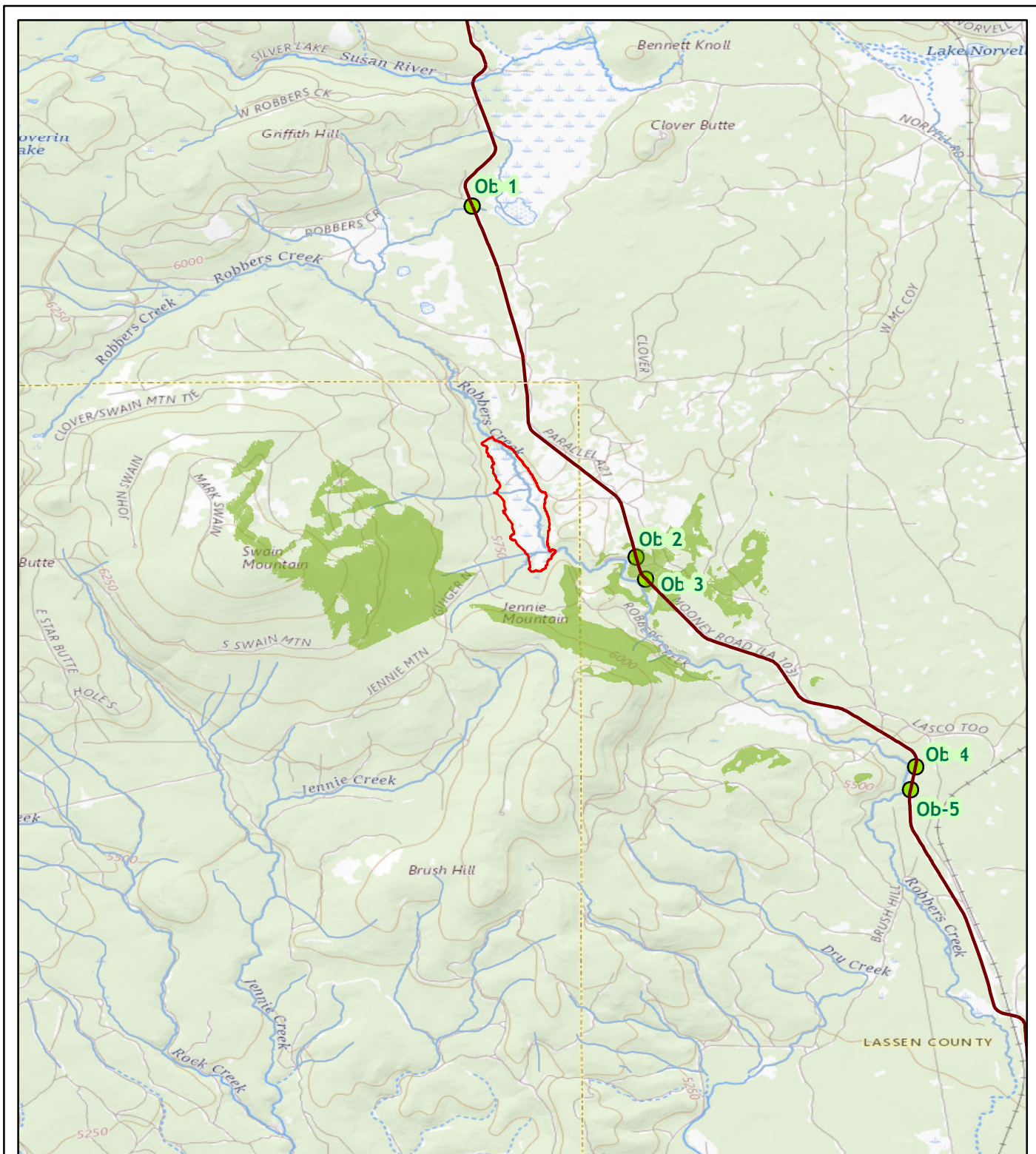


FIGURE 6A
VIEWSHED ANALYSIS FROM
OBSERVATION POINT 1
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



Swain Meadow Project Boundary

Viewshed Area Visible from Observation Point 2

County Road A21

Potential Observation Locations

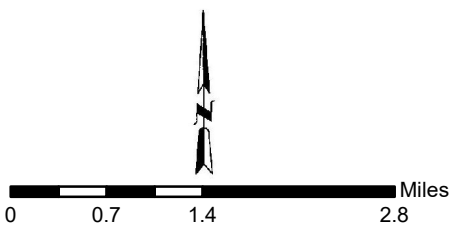
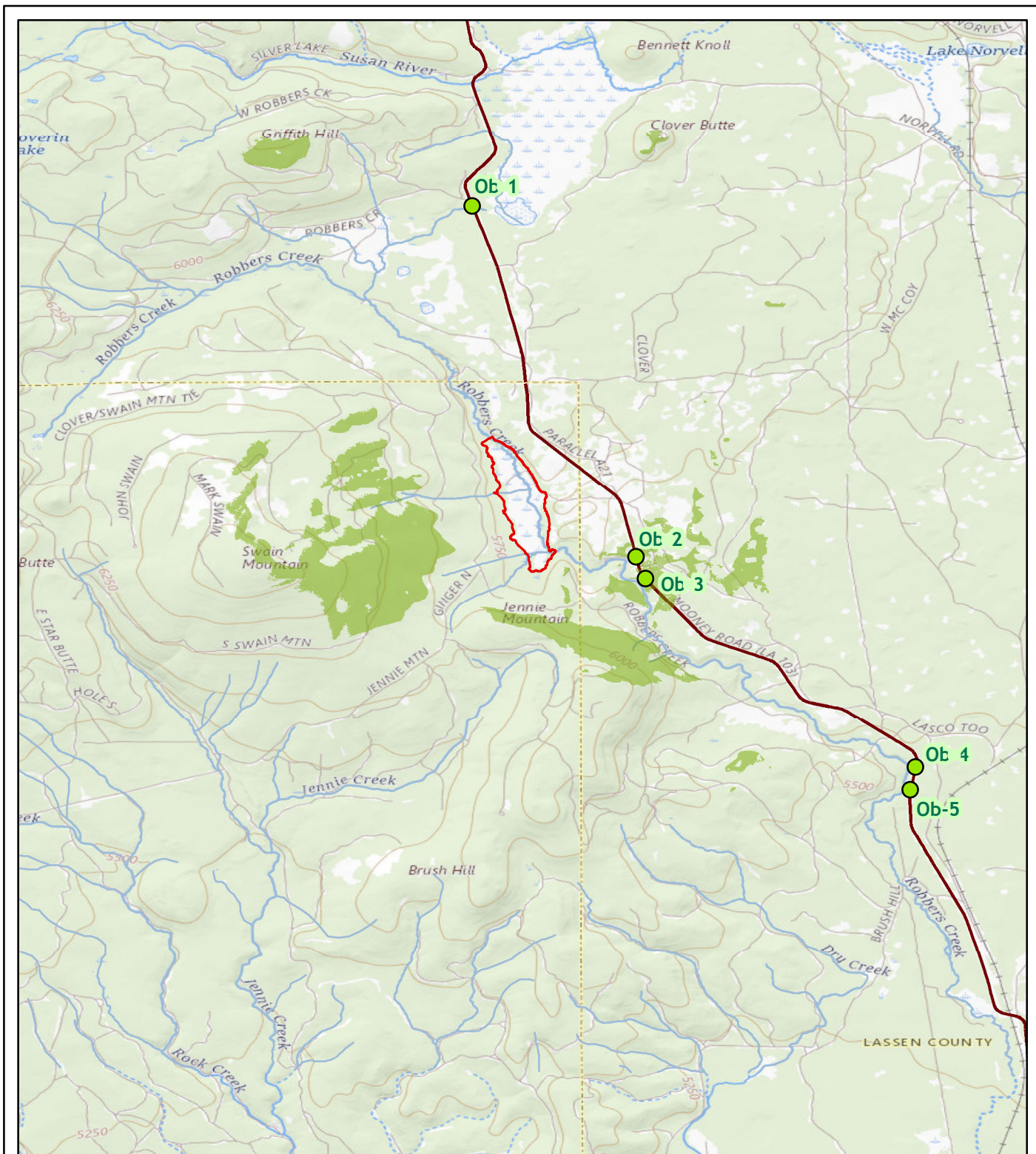


FIGURE 6B
VIEWSHED ANALYSIS FROM
OBSERVATION POINT 2
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



- Swain Meadow Project Boundary
- Potential Observation Locations
- County Road A21
- Viewshed Area Visible from Observation Point 3

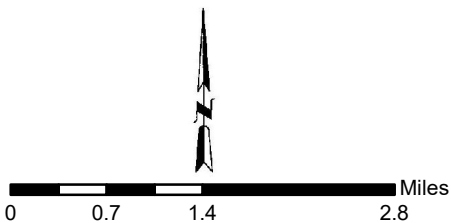
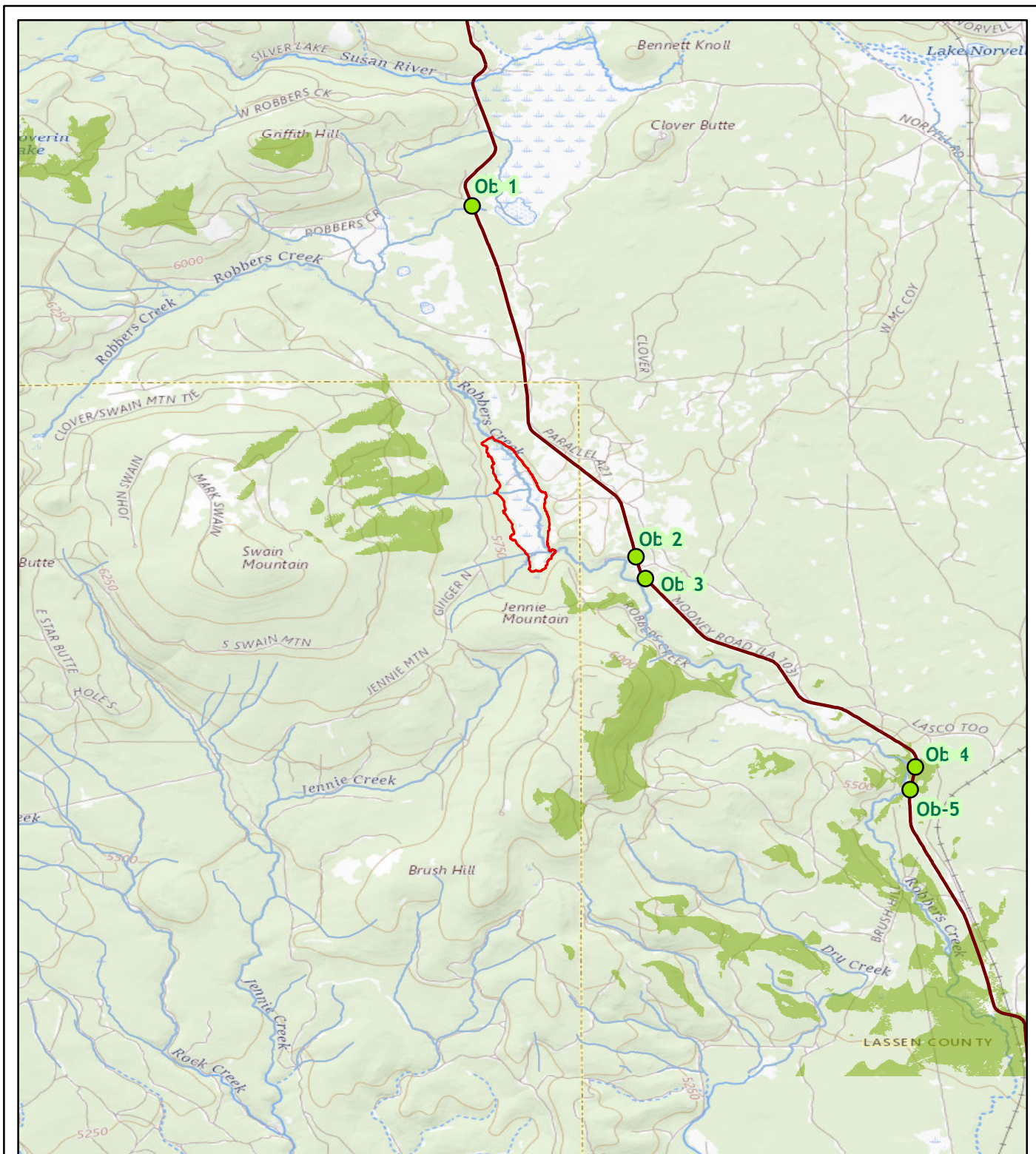


FIGURE 6C
VIEWSHED ANALYSIS FROM
OBSERVATION POINT 3
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



- Swain Meadow Project Boundary
- Potential Observation Locations
- County Road A21
- Viewshed Area Visible from Observation Point 4

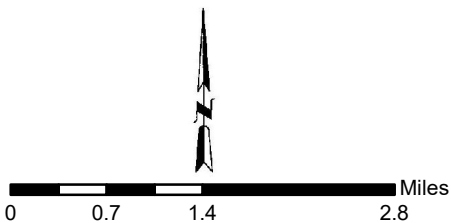
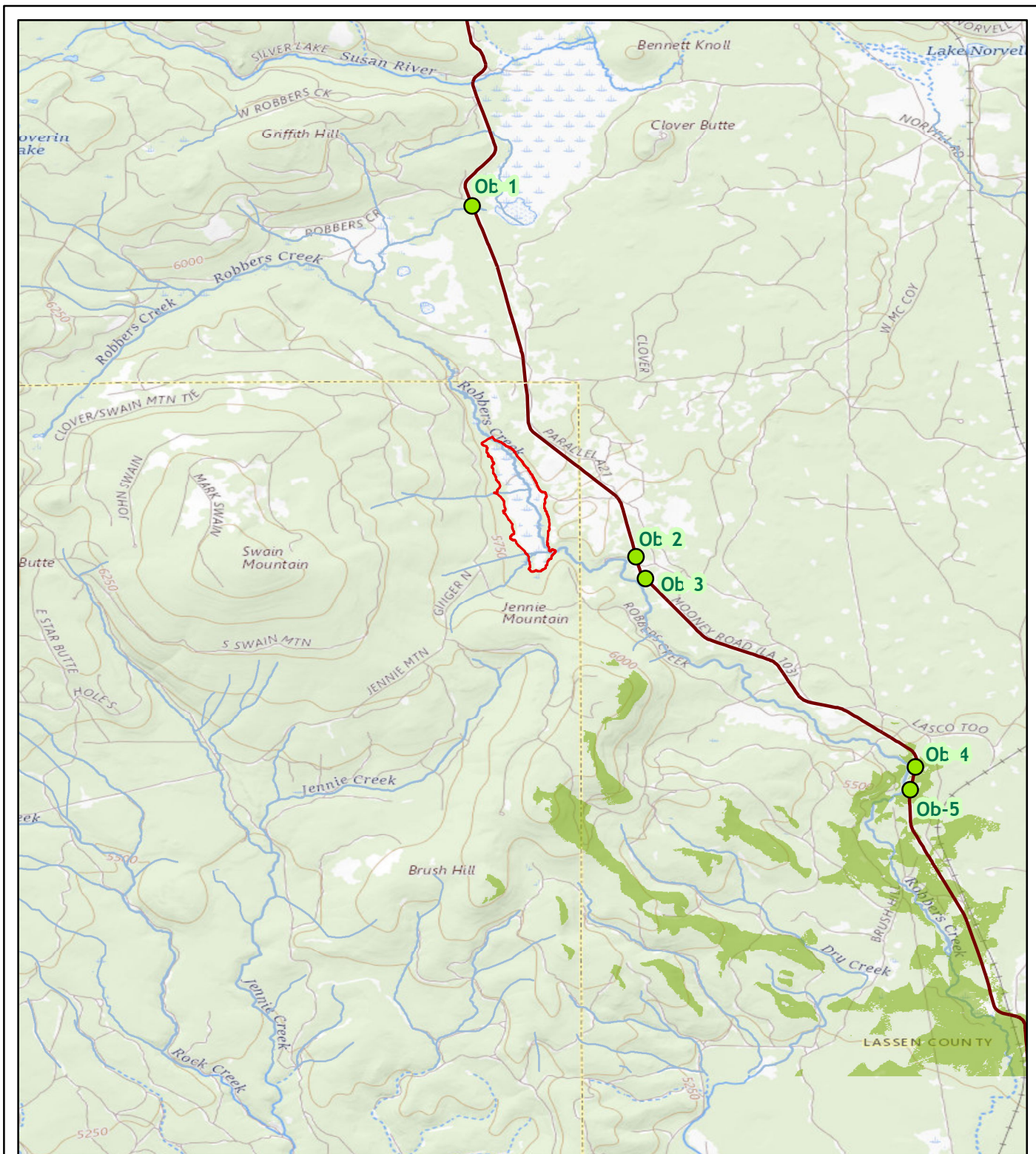


FIGURE 6D
VIEWSHED ANALYSIS FROM
OBSERVATION POINT 4
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



- Swain Meadow Project Boundary
- Potential Observation Locations
- County Road A21
- Viewshed Area Visible from Observation Point 5

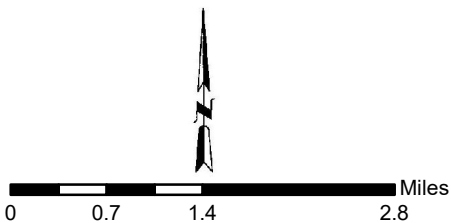


FIGURE 6E
VIEWSHED ANALYSIS FROM
OBSERVATION POINT 5
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



Swain Meadow Project Boundary
 Agricultural Preserve (AP)

General Agriculture (GA)
 General Forest (GF)



0 800 1,600 3,200 Feet



SOURCE: USFS

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FIGURE 7A
 ZONING
 SWAIN MEADOW
 RESTORATION PROJECT
 LASSEN NATIONAL FOREST



- Swain Meadow Project Boundary
- Suitable forest land, regulated full timber yields
- Suitable forest land, regulated limited timber yields
- Suitable forest land, regulated modified timber yields



SOURCE: USFS

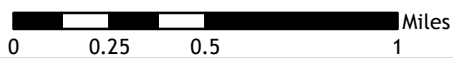
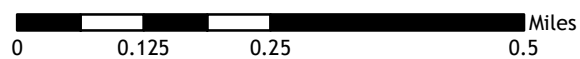
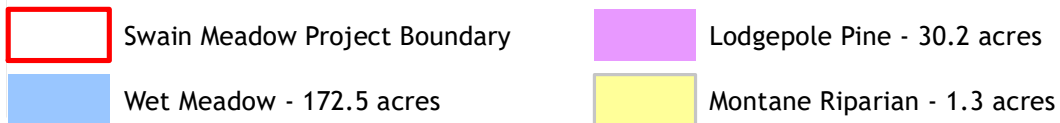
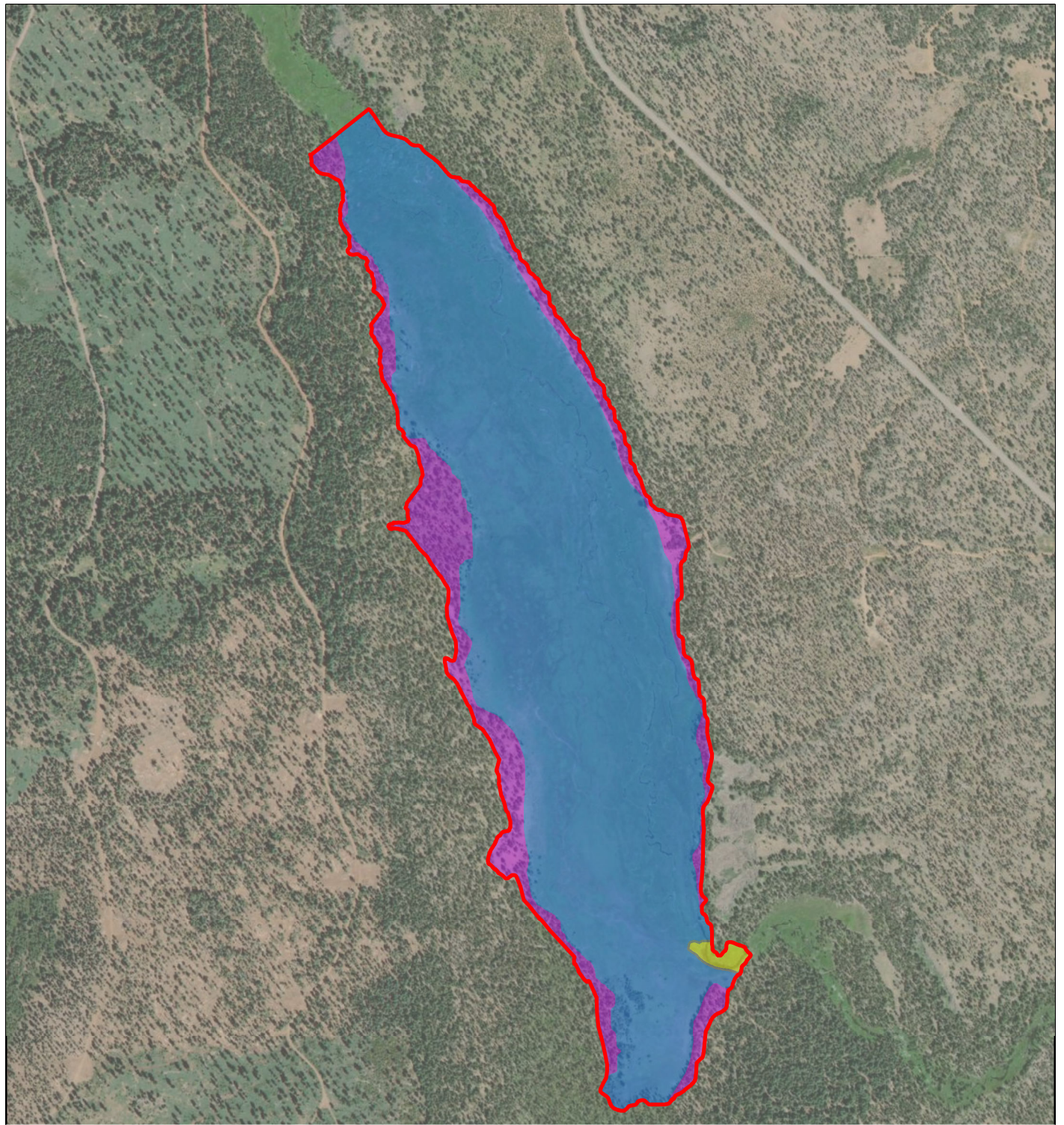


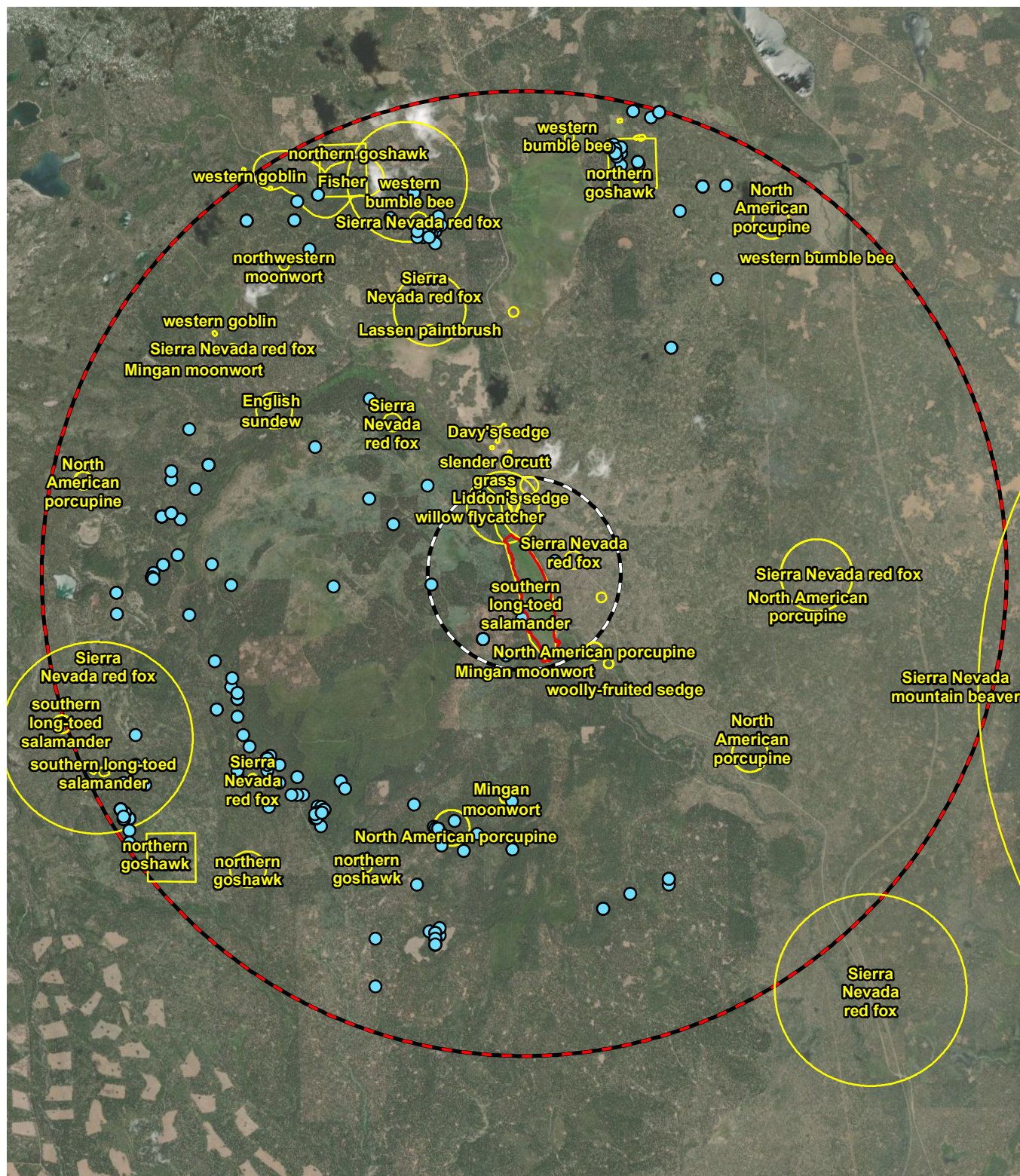
FIGURE 7B
LAND USE
 SWAIN MEADOW
 RESTORATION PROJECT
 LASSEN NATIONAL FOREST



SOURCE: ARCGIS WORLD IMAGERY BASEMAP; USFS "LASSENEXISTINGVEG09_1"

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FIGURE 8
CWHR TYPES
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST



- Swain Meadow Project Boundary
- 1-Mile Buffer Around Swain Meadow
- Spotted Owl Observation Location
- 5-Mile Buffer Around Swain Meadow
- CNDDDB Occurrence

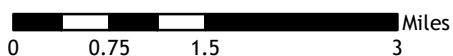


FIGURE 9
CNDDDB OCCURRENCES
SWAIN MEADOW
RESTORATION PROJECT
LASSEN NATIONAL FOREST

SOURCE: ARCGIS WORLD IMAGERY BASEMAP; CDFW CNDDDB JANUARY 2021

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- | | |
|-----------------------------------|-----------------------|
| Swain Meadow Project Boundary | Moderate Fire Hazard |
| (SRA) State Responsibility Area | High Fire Hazard |
| (FRA) Federal Responsibility Area | Very High Fire Hazard |



SOURCE: CALFIRE 2019

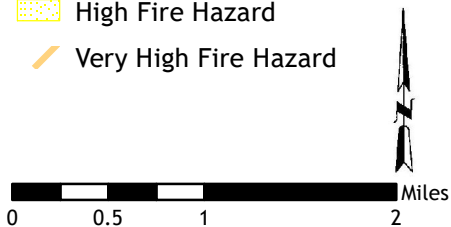


FIGURE 10
FIRE HAZARDS
 SWAIN MEADOW
 RESTORATION PROJECT
 LASSEN NATIONAL FOREST

A copy of Appendix A: Robbers Creek Watershed Restoration Project Environmental Assessment can be found at [EAFONSI Template \(usda.gov\)](https://www.fs.usda.gov/nfs/11558/www/nepa/111790_FSPLT3_5611049.pdf) (https://www.fs.usda.gov/nfs/11558/www/nepa/111790_FSPLT3_5611049.pdf) or by contacting the Central Valley Regional Water Quality Control Board via email at Lynn.Coster@waterboards.ca.gov or by phone at (530) 224-2437.

A copy of Appendix B: Swain Meadow Concept Restoration Design Plan will be provided upon request by contacting the Central Valley Regional Water Quality Control Board via email at Lynn.Coster@waterboards.ca.gov or by phone at (530) 224-2437.

A copy of Appendix C: Air Quality Analysis will be provided upon request by contacting the Central Valley Regional Water Quality Control Board via email at Lynn.Coster@waterboards.ca.gov or by phone at (530) 224-2437.