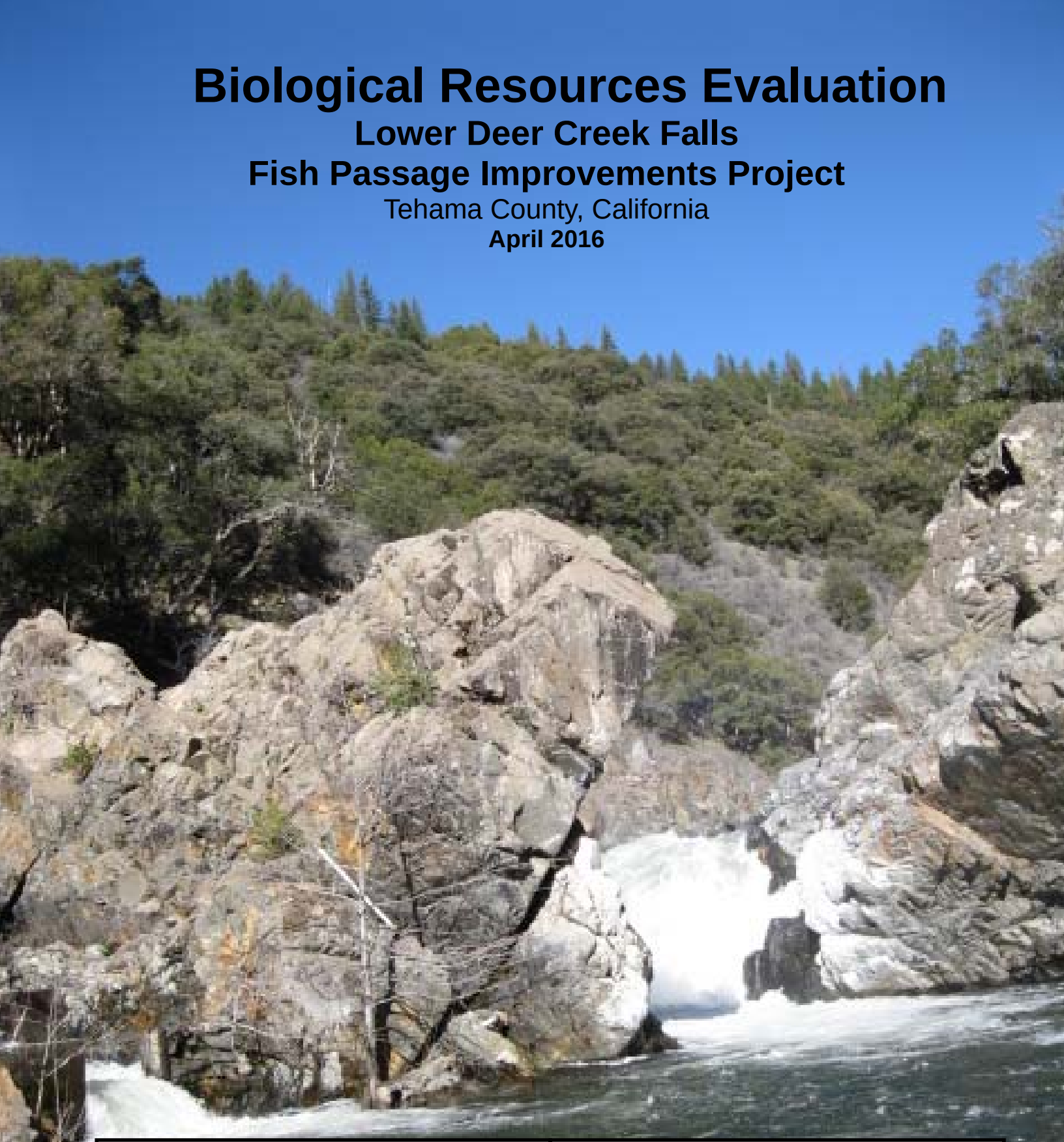
Biological Resources Evaluation

Lower Deer Creek Falls
Fish Passage Improvements Project

Tehama County, California

April 2016



Prepared for:

nhc
northwest hydraulic consultants

2600 Capitol Avenue, Suite 140
Sacramento, CA 95816

Prepared by:

TEHAMA
ENVIRONMENTAL SOLUTIONS, INC.

910 Main Street, Suite D, Red Bluff, CA 96080
(530) 528-8272

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INTRODUCTION

Tehama Environmental Solutions, Inc. (TES) conducted this Biological Resources Evaluation (BRE) for Northwest Hydraulic Consultants Inc. (NHC) for the proposed Lower Deer Creek Falls (LDCF) Fish Passage Improvements Project (project). The purpose of this document is to identify and address potential impacts to special-status faunal species and rare natural communities that may be located within the proposed project site, or be affected by the proposed project. This BRE does not address potential impacts to botanical resources which were addressed in a separate report prepared by another firm (Dittes and Guardino Consulting 2016).

Proposed Project

The purpose of the proposed project is to improve passage for anadromous fish in Lower Deer Creek at LDCF. The modifications at this feature will improve upstream fish passage conditions for native fish, including several federal and state listed species.

The project is being implemented by the U.S. Fish and Wildlife Service (USFWS) in cooperation with the private landowner and the LDCF Fish Passage Improvements Project Technical Advisory Committee (TAC), which includes representatives from USFWS, National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game (CDFG), U.S. Forest Service (USFS) the private landowner and several private consulting firms.

The project includes removal of the existing fishway and replacement with a new pool-and-weir fishway with an orifice (Half Ice Harbor style). The fishway replacement will be accomplished by construction outside of the wetted width of the channel and also by isolating the instream portion of the work from creek flows through dewatering along the north bank of the creek. Once the fishway construction is complete, areas that had vegetation disturbance will be replanted according to a revegetation plan.

Study Area Location

The proposed project is located on Deer Creek, at approximately River Mile (RM) 42.5, upstream of the confluence with the Sacramento River, Tehama County, California (Figures 1 and 2). Specifically, the study area for the LDCF project is located in Sections 25, 26, 27, 34, 35, and 36 in Township 27 North, Range 3 East and in Sections 29 and 30 in Township 27 North, Range 4 East, Mount Diablo Base and Meridian, within the 7.5-minute U.S. Geological Survey (USGS) Onion Butte quadrangle map (Figure 3). The study area includes the fishway construction site which is located at an approximate latitude of 40° 10’ 04.49’’ north and longitude of 121° 34’ 53.27’’ west. Additionally, the study area included the hillslope access area, the staging / access area, the helipad and the trail and access road used to access the site (Figure 2).

ENVIRONMENTAL SETTING

General Site Characteristics

The project is located in the Upper Canyon Reach of the Deer Creek watershed on privately-owned land. The project site is comprised of terrain varying from moderate to steep slopes, and varying aspects associated with a perennial creek which is the main drainage (Figures 4 and 5). The project site drains to the southwest and is located at the southern end of the Cascade Range.

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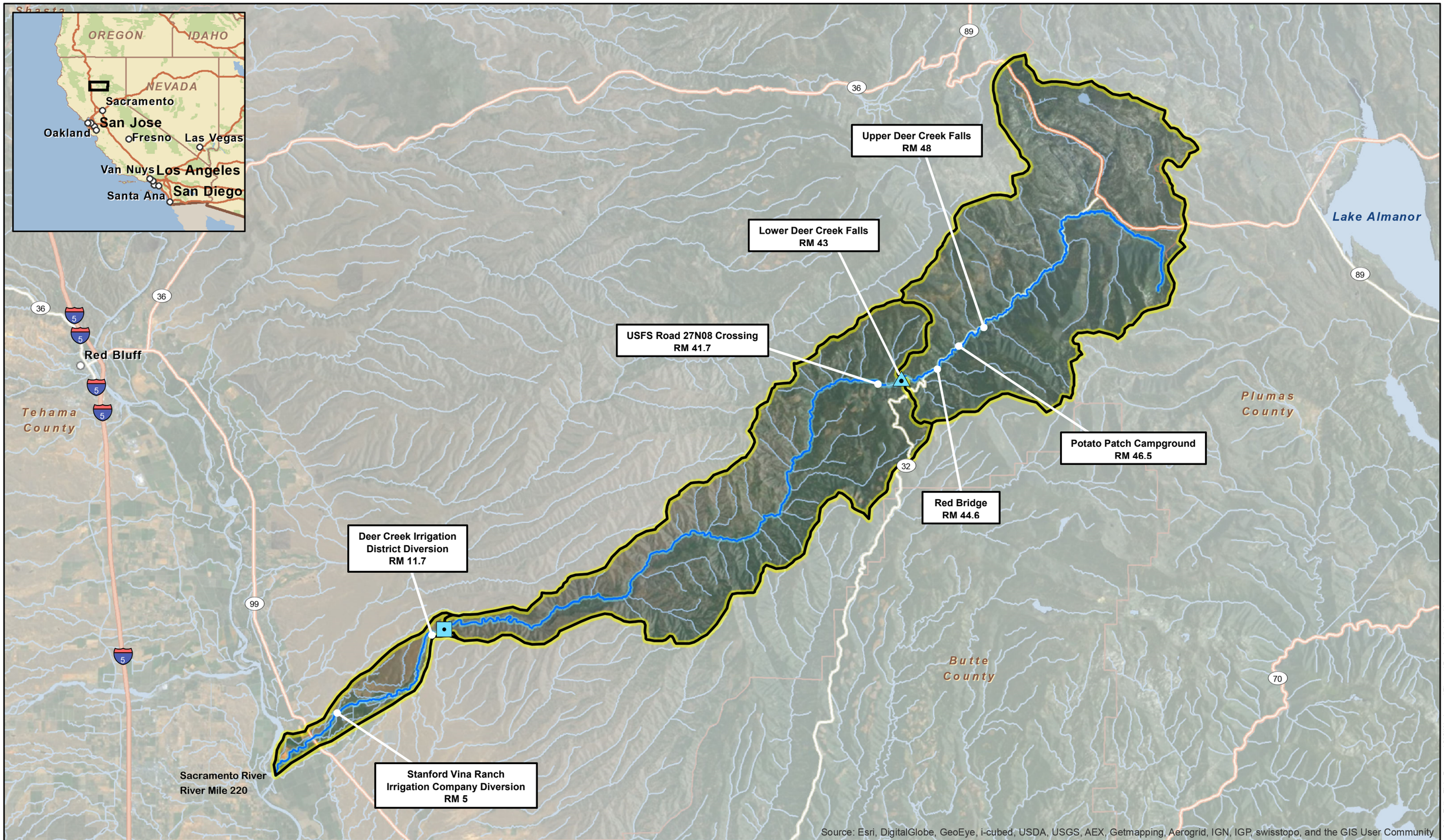
ENVIRONMENTAL SOLUTIONS, INC.
910 Main Street, Suite D, Red Bluff, CA 96080
(530) 528-8272 • www.tehamaenviromental.com

Lower Deer Creek Falls
Fish Passage Improvements Project

Tehama County, California
March, 2016

FIGURE 1
Site Vicinity Map



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

nhc
northwest hydraulic consultants

Legend

- Project Location
- USGS Gage
- Deer Creek Watershed
- Deer Creek

DATA SOURCES:
ESRI StreetMap USA, 2012.
ESRI Online World Imagery Basemap, 2013.

SCALE - 1:240,000
0 20,000 40,000 Feet

N

CA State Plane, Zone 1
NAD 83, feet

Job: 500060

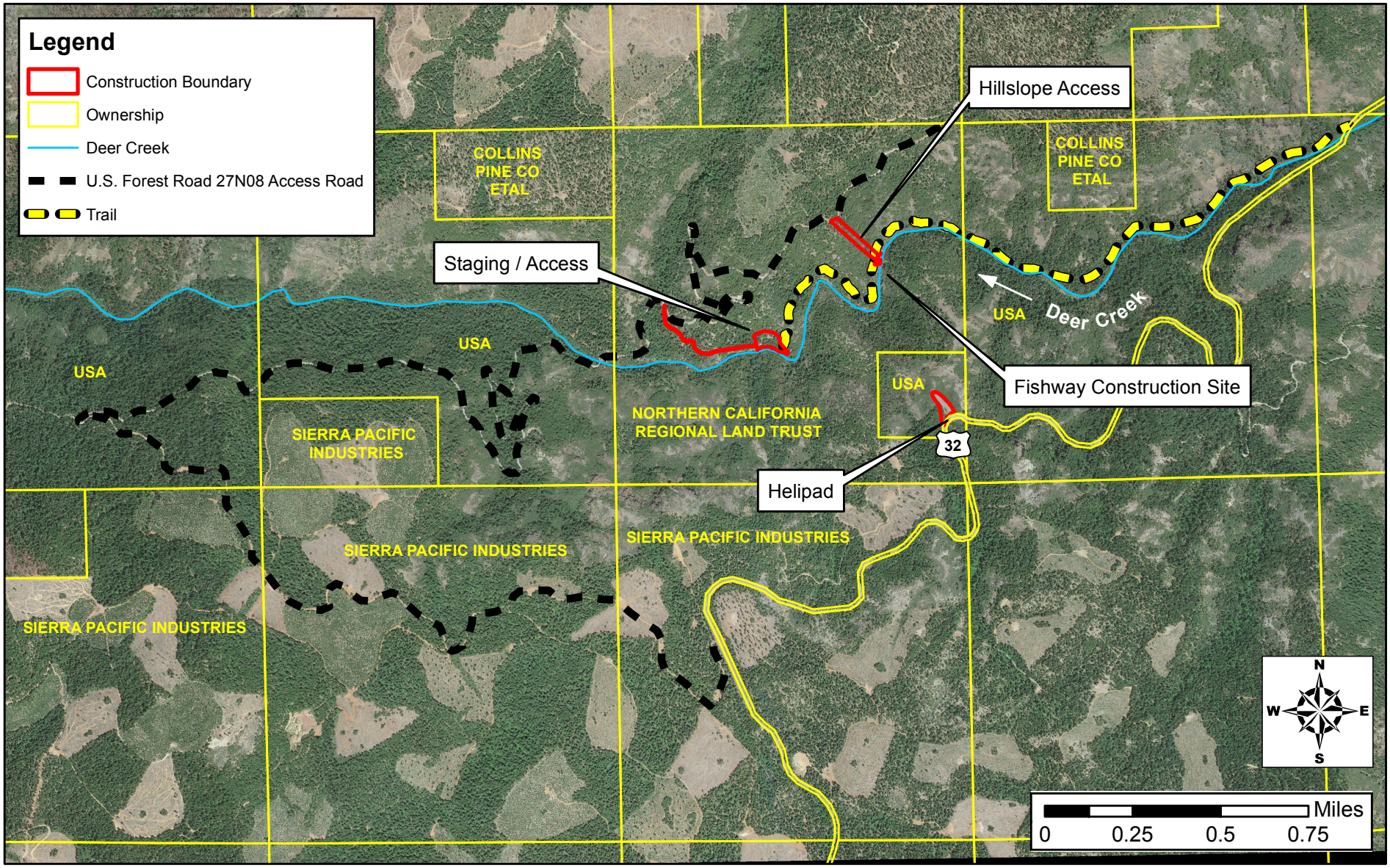
Date: SEPTEMBER 2013

FIGURE 2

Lower Deer Creek Falls

Project Vicinity Map

ABC, P:\500060_Lower_Deer_Crk_Falls_Fish_Passage\GIS\Workmaps\Figures\Project_Vicinity_Map.mxd



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(530) 528-8272
www.tehamaenvironmental.com

Lower Deer Creek Falls Fish Passage Improvements Project

Tehama County, California

May, 2016

FIGURE 3

Project Overview Map

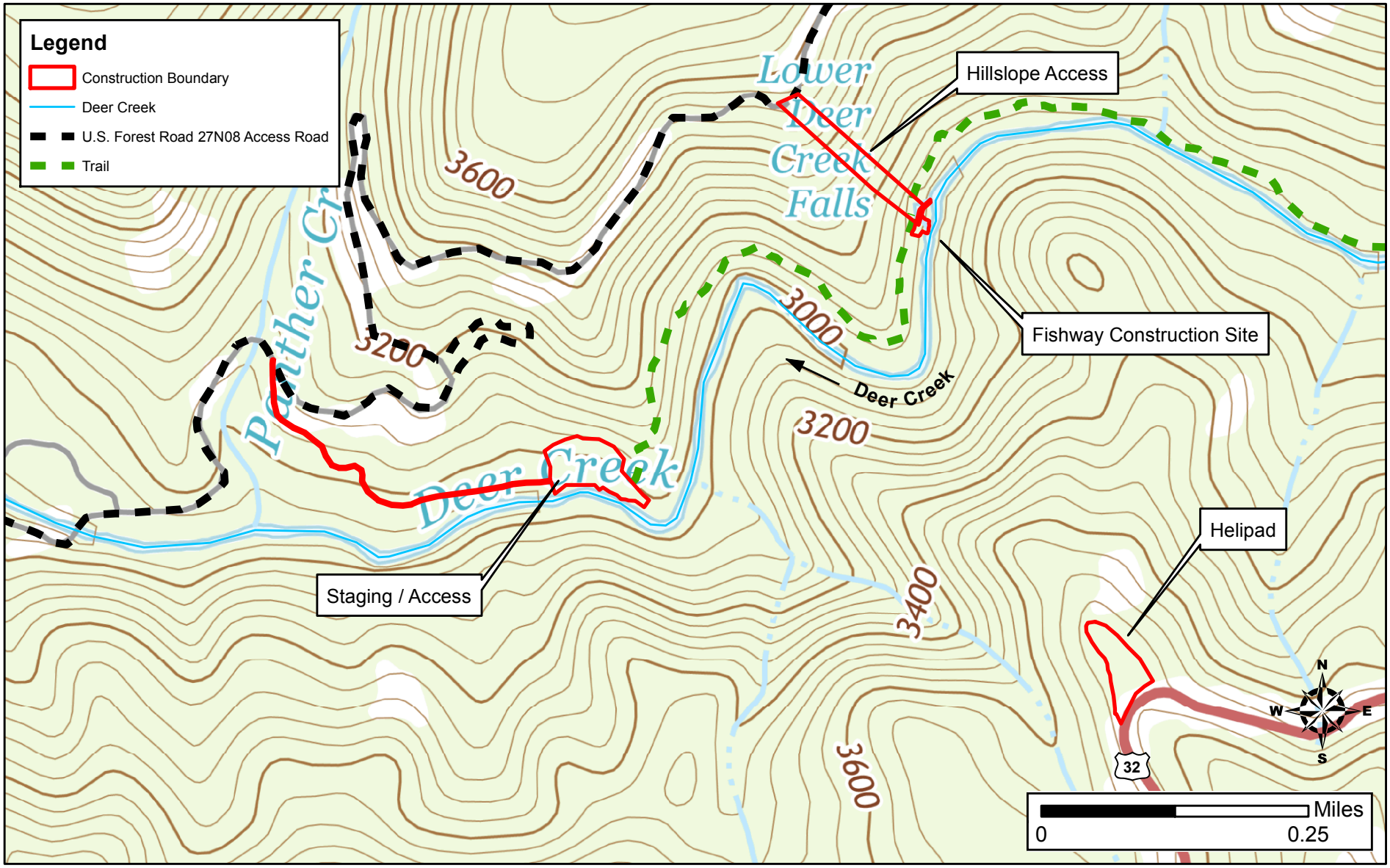

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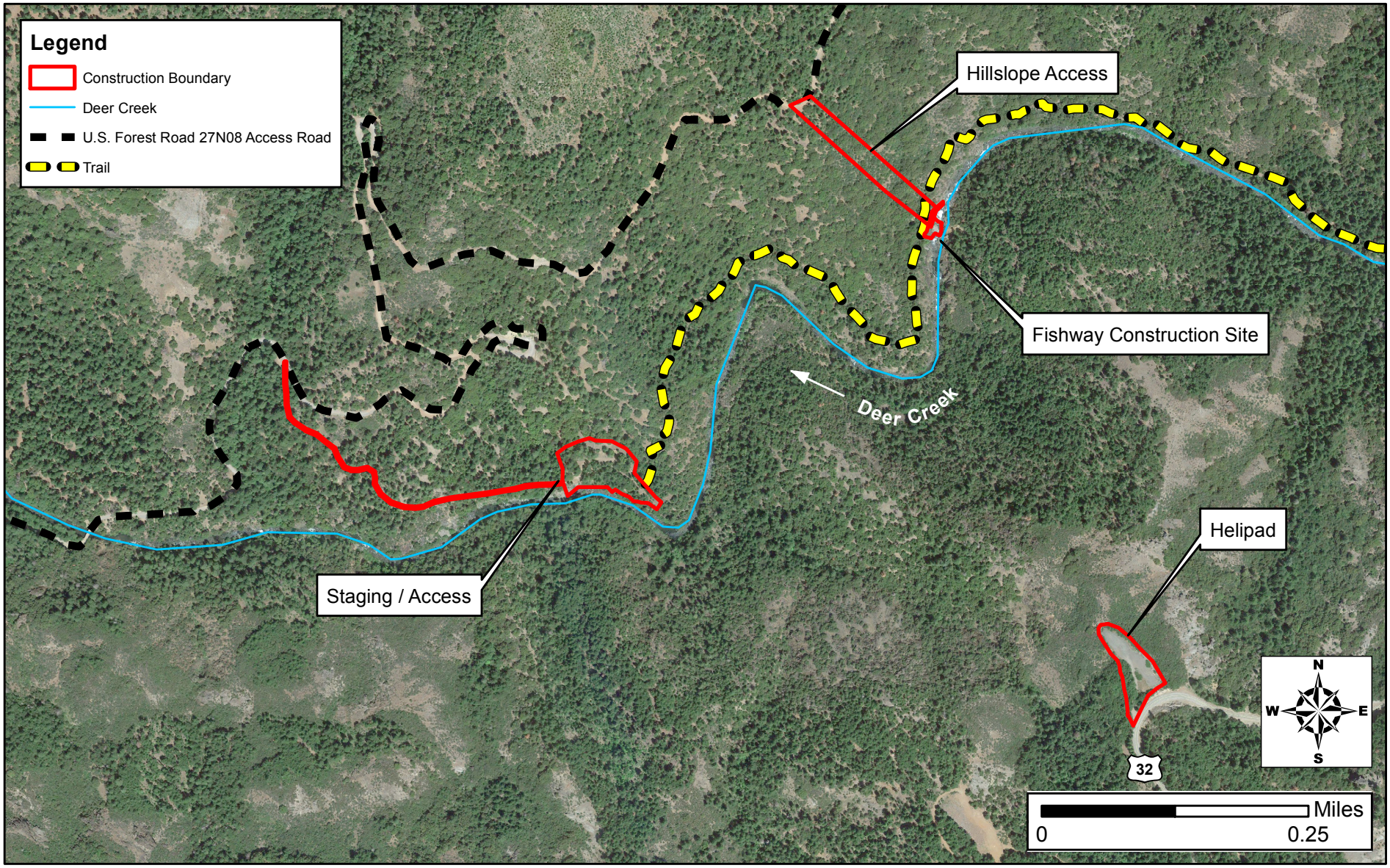
FIGURE 4

Site Location Map



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Tehama County, California

May, 2016

FIGURE 5

Site Aerial Photo Map

LDCF is located approximately one mile upstream of the U.S. Forest Road 27N08 road crossing and approximately 1.6 miles downstream of the Highway 32 crossing over Deer Creek known as "Red Bridge". The elevation of the project at the creek channel is approximately 3,035 feet and project elevations range up to approximately 4,060 feet along the access roads. The existing fish ladder at LDCF was originally constructed in 1943.

Land Use

The project site in located within a privately-owned 600-acre parcel, surrounded by public and privately-owned timberlands managed by the USFS, Collins Pine Company and Sierra Pacific Industries (SPI). The project site property is owned by the Northern California Regional Land Trust (NCRLT), a non-profit, land conservation organization. Lands adjacent to the project site are mainly managed for natural resources including timber, fisheries and wildlife, forage, water and minerals and recreation use.

Hydrology

Deer Creek, a major tributary of the Sacramento River, is a 60-mile-long, southwest flowing, perennial creek. Originating from Lost Creek Meadows at an elevation of approximately 6,200 feet, Deer Creek eventually flows into the Sacramento River approximately one mile west of the town of Vina, California. The Deer Creek watershed includes a total area of 208 square miles. Several perennial, intermittent and ephemeral tributary streams are also present within the study area.

Two irrigation entities operate two significant irrigation diversion dams and one irrigation side channel in the lower reaches of Deer Creek from approximately 30 to 37 miles downstream of the study area. Agricultural diversion ditches are located on lower Deer Creek in the Sacramento Valley between the canyon mouth and the Sacramento River. Flood control levees are located in the valley reach; however, no large dams or reservoirs were ever established on Deer Creek.

Soils

Eight different soil map units occur within the study area according to the local soil survey (U.S. Department of Agriculture [USDA] – Soil Conservation Service et al. 1967). The eight identified map units are listed below:

Cohasset loam, very deep, 10 to 30 percent slopes
These soils are located on the tops of partly rounded ridges and are formed in material weathered from volcanic rock such as andesite and breccia. They are well drained, permeability is moderate and runoff is slow. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-Natural Resources Conservation Service (NRCS) Official Soil Series Descriptions website, the taxonomy of the series is fine loamy, mixed, superactive, mesic, Ultic Haploxeralfs (Natural Resource Conservation Service 2016).

Cohasset loam, 10 to 30 percent slopes
These soils are located on the tops of partly rounded ridges and are formed in material weathered from volcanic rock such as andesite and breccia. They are well drained, permeability is moderate and runoff is slow. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website, the taxonomy of the series is fine loamy, mixed, superactive, mesic, Ultic Haploxeralfs (Natural Resources Conservation Service 2016).

Iron Mountain rocky sandy loam, 30 to 50 percent slopes
These soils are located on steep slopes of canyons in mountainous areas and are formed in material weathered from cemented volcanic breccia. They are excessively drained, permeability is moderate to rapid and runoff is slow to medium. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website, the taxonomy of the series is loamy, mixed, superactive, mesic, Lithic Haploxerolls (Natural Resources Conservation Service 2016).

Iron Mountain rocky sandy loam, 50 to 65 percent slopes
These soils are located on steep slopes of canyons in mountainous areas and are formed in material weathered from cemented volcanic breccia. They are excessively drained, permeability is moderately rapid and runoff is slow to medium. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website, the taxonomy of the series is loamy, mixed, superactive, mesic, Lithic Haploxerolls (Natural Resources Conservation Service 2016).

Los Gatos gravelly loam, 50 to 65 percent slopes
These soils are located on the slopes of canyons and ridges and are formed in material from such sedimentary and metamorphic rocks as shale, conglomerate and schist. They are well drained, permeability is moderate and runoff is very rapid. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website the taxonomy of the series is fine-loamy, mixed, active, mesic, Typic Argixerolls (Naturals Resource Conservation Service 2016).

McCarthy sandy loam, 30 to 50 percent slopes
These soils are located on slopes of canyons in mountainous areas and are formed in material weathered from andesitic mudflows. They are well drained, permeability is moderately rapid and runoff is medium to rapid. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website, the taxonomy of the series is medial-skeletal, amorphic, mesic, Humic Haploxerands (Natural Resources Conservation Service 2016).

McCarthy stony sandy loam, 50 to 65 percent slopes
These soils are located on slopes of canyons in mountainous areas and are formed in material weathered from andesitic mudflows. They are well drained, permeability is moderately rapid and runoff is medium to rapid. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website, the taxonomy of the series is medial-skeletal, amorphic, mesic, Humic Haploxerands (Natural Resources Conservation Service 2016).

Neuns stony loam, deep, 50 to 65 percent slopes
These soils are located along the ridgetops and are formed in material from metamorphic volcanic rock. They are well drained, permeability is moderately rapid and runoff is slow. The series is not classified taxonomically by higher categories in the soil survey. According to the USDA-NRCS Official Soil Series Descriptions website, the taxonomy of the series is loamy-skeletal, mixed, active, mesic, Typic Dystroxerepts (Natural Resources Conservation Service 2016).

Vegetation / Plant Communities

Six habitat types generally occur within the study area as defined by the California Wildlife-Habitat Relationships classification system (Mayer and Laudenslayer 1988). The habitat types include: Montane Hardwood-Conifer, Montane Hardwood, Montane Riparian, Mixed Chaparral, Barren and Riverine habitats.

Montane hardwood-conifer and montane hardwood habitat dominates the upland canyon slopes on both sides of Deer Creek near the fishway construction site, along the trails and access roads, on some of the slopes adjacent to the helipad and the hillslope access area. They intergrade with mixed chaparral and barren habitats. The dominant woody species in these habitats are canyon live oak (*Quercus chrysolepis)* and Douglas fir *(Pseudotsuga menziesii),* depending on site. Other tree species include ponderosa pine *(Pinus ponderosa*), foothill pine *(Pinus sabiniana)*, incense cedar *(Calocedrus decurrens)*, white fir *(Abies concolor)*, black oak *(Quercus kelloggii)*, interior live oak *(Quercus wislizenii)*, California bay laurel *(Umbellularia californica)* and occasional California nutmeg *(Torreya californica)*. Big leaf maple *(Acer macrophyllum)* is associated with sites on northern aspects that are moister and closer to the creek.

Montane riparian habitat is well-developed along some reaches of Deer Creek; however, it is generally lacking along the mostly unvegetated bed and banks along the reach upstream and downstream of LDCF. This habitat is confined to a small area on the upper bank / terrace on the northwest bank of Deer Creek, downstream of the existing fish ladder at the fishway construction site. In this location, groundwater seeping from bedrock and the rock / soil interface support a few scattered patches of this habitat which includes a few white alder (*Alnus rhombifolia*), big leaf maple and black cottonwood (*Populus trichocarpa*). Other woody species on banks in the vicinity include western redbud *(Cercis occidentalis)*, snowdrop bush *(Styrax redivivu*s*)*, western spicebush (*Calycanthus occidentalis*), arroyo willow (*Salix lasiolepis*), California grape (*Vitis californica*) and California blackberry (*Rubus ursinus*).

Mixed chaparral habitat occurs at scattered sites in the canyon in the vicinity of the project site. It is particularly prevalent on some of the slopes surrounding the helipad. Mixed chaparral intergrades with barren, montane hardwood-conifer and montane hardwood habitat types. There are also patches of mixed chaparral on the slope of the hillslope access area as well as a few scattered small patches on the slope in the vicinity of the Deer Creek trail. The dominant woody species in these habitats are birch-leaf mountain mahogany (*Cercocarpus betuloides* var. *betuloides)*. Other species present in areas where chapparal is mixed with montane hardwood-conifer include canyon live oak, Lemmon's keckiella *(Keckiella lemmonii)*, deerbrush *(Ceanothus integerrimus* var. *macrothyrus)*, skunkbrush *(Rhus aromatica)*, Sierra gooseberry (*Ribes roezlii* var. *roezlii*) and poison oak *(Toxicodendron diversilobum)*. Other shrub species include yerba santa *(Eriodictyon californicum)*, Fremont's silktassel *(Garrya fremontii)*, rubber rabbitbrush *(Ericameria nauseosus)*, snowdrop bush, mock orange *(Philadelphus lewisii)*, Utah service-berry *(Amelanchier utahensis)* and a few western redbud.

Barren habitat is associated with the edges of the mixed chaparral and the montane hardwood habitat in the vicinity of the helipad. Barren habitat is also associated with the banks and upper terrace at the fishway construction site.

A continuous corridor of riverine habitat occurs, and is associated with Deer Creek. Fresh emergent habitat, where present, occurs as small discontinuous bands along the creek channel margin and along the exposed barren rock and gravel along banks of the stream. The primary species include torrent sedge *(Carex nudata)* and Indian rhubarb *(Darmera peltata)*.

METHODS

California Natural Diversity Database Records Search

Prior to the initiation of field studies, a records search of the California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife 2016a) was conducted to determine if any special-status animals, or rare natural communities had previously been documented within the study area, or in the vicinity of the study area. The query was conducted using the USGS Onion Butte 7.5' quadrangle, in

which the project is located, along with the eight adjoining quadrangles (Barkley Mountain, Humboldt Peak, Jonesville, Butte Meadows, Devils Parade Ground, Mineral, Lyonsville and Childs Meadows).

Based on the results of the CNDDB search (Appendix A), and TES's additional knowledge of the site and local area, a list of potentially occurring special-status species and natural communities was developed for the project and is included as Appendix B. For the purposes of this evaluation, special-status species are defined as:

1. Those species listed by USFWS or NMFS as Endangered, Threatened, Proposed as Endangered or Threatened, Candidate to become Proposed or Species of Concern.

2. Those species listed by CDFW as Endangered, Threatened, Candidate for listing as Endangered or Threatened, Species of Special Concern or Fully Protected.

Special-status designations for faunal species are depicted in Appendix B. Designations were based on the most recent version of the special animals list (California Department of Fish and Wildlife 2016b).

Wildlife / Fisheries Survey

A biological survey was conducted on June 8 and June 9, 2015 and January 27, 2016 by Mr. Jeff Souza, TES Senior Biologist and Ms. Kelly Peterson, TES Associate Environmental Specialist. The study area included the entire project footprint, as well as a varying surrounding buffer area. The surveys were conducted by walking and / or driving the entire study area and recording direct wildlife observations. Observations were made using the unaided eye, binoculars and identification of vocalizations. Other methods included observations of animal tracks, scat and bird feathers. Two professional game cameras (Reconyx PC900 Hyperfire Professional IR) were deployed between June 8 and June 9 of 2015. Cameras were placed at the beginning of the trailhead west of LDCF and along the trail, upslope from the existing fish ladder. No protocol-level wildlife or fisheries surveys were conducted.

In addition, to survey for bat species, two Pettersson DX-500 full spectrum, ultrasound, acoustical recording devices were deployed during the evening hours of June 8, 2015. The survey was performed at a time of year that was favorable for detection of all bat species that could potentially occur at the site. The recording devices were deployed at two different locations in order to sample riparian and riverine habitats. The sampling occurred from approximately sundown to sunrise. Once recorded, the potential bat calls were then analyzed using SonoBat™ 3.1 software to identify calls to the species level. Only those calls, for which the software was able to reach a consensus decision, were used to generate a bat species list for the survey results (Appendix C).

Natural Communities

CDFW has recognized a number of rare, threatened, or unique natural communities that need protection. As part of the biological survey protocols, potential rare natural communities were identified and considered during the field work.

RESULTS

California Natural Diversity Database Records Search

The results of the CNDDB search indicate three past recorded occurrences of special-status animal species and one rare natural community within the study area boundary. Special-status animal species

recorded within the study area include Central Valley steelhead *(Oncorhynchus mykiss*), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and foothill yellow-legged frog (*Rana boylii*). The natural community documented within the study area was the Central Valley drainage spring-run Chinook stream.

A total of fifteen additional special-status animal species occurrences have been documented in the larger surrounding nine USGS quadrangle search area. Of the fifteen special-status animal species, three are state and / or federally listed as threatened or endangered including the willow flycatcher (*Empidonax traillii*), Sierra Nevada yellow-legged frog (*Rana sierrae*) and the Sierra Nevada red fox (*Vulpes vulpes necator*). One species, the Pacific fisher *(Pekania pennanti)* is a state candidate for listing as Threatened.

Two additional rare natural communities have been documented in the CNDDB within the nine USGS quadrangle search area including the Central Valley drainage hardhead / squawfish stream and the Central Valley drainage resident rainbow trout stream.

Wildlife / Fisheries Survey

Several special-status animal species were observed during the 2015 and 2016 field surveys. A list of all faunal species observed during site surveys is included in Appendix C.

Two federally listed species, steelhead / rainbow trout and spring-run Chinook salmon were observed during field surveys. Two CDFW Species of Special Concern were also observed or detected during field surveys including the pallid bat *(Antrozous pallidus)* and the western red bat *(Lasiurus blossevillii)*. Several raptor species were observed at or in the vicinity of the project site.

Natural Communities

One of the three natural communities documented by the CNDDB within the search area was recorded to occur within the study area, the Central Valley drainage spring-run Chinook stream. The Central Valley drainage spring-run Chinook stream habitat occurrence in CNDDB is described in Deer Creek as being located from the Ponderosa Way Bridge, which is approximately 13 miles downstream of LDCF, upstream to Upper Deer Creek Falls, which is approximately five miles upstream of LDCF. The Central Valley drainage spring-run Chinook stream habitat occurs throughout the entire study area. Additionally the project reach of Deer Creek could probably be classified under the rare Central Valley Drainage Resident Rainbow Trout Stream natural community.

Riparian habitat is present in a continuous corridor along the banks of the Deer Creek within the project site. Due to the elevation of the site, these habitats do not likely fit well with any of the CNDDB natural communities. However, all riparian habitats are generally considered rare and extremely valuable wildlife habitats.

EVALUATION

Several species identified through the nine quadrangle CNDDB data query and TES's professional knowledge of the local area, were eliminated from further evaluation in this report due to the lack of habitat within, or near the project site and / or that the project lies outside of the species known range (see Appendix B). Those species not eliminated are described below, along with an evaluation of potential impacts to the species from the proposed project.

Amphibians and Reptiles

Western Pond Turtle (*Emys marmorata marmorata*)
The western pond turtle is designated as a CDFW Species of Special Concern. Population declines are attributed to impacts to nesting habitat, nest and juvenile predation by non-native aquatic species, human-induced predator population increases and historic human overexploitation (Jennings and Hayes 1994). This species inhabits quiet waters of ponds, lakes, streams, etc., where there are rocks or logs for basking and safe underwater retreat areas (Stebbins 1972). They are closely tied to water except when females move overland to lay eggs or when either sex may move overland to upland sites to overwinter. They may overwinter on land or in water but are thought to be more likely to overwinter in water when inhabiting pond habitats. Egg-laying typically occurs in May and June but can occur from late April to early August, while overwintering generally begins in October or November (Jennings and Hayes 1994). Hatchlings are thought to overwinter in the nest and emerge to migrate to aquatic habitats the following spring (Jennings and Hayes 1994).

Western pond turtles are known to occur approximately five miles downstream of LDCF (C. Mayes pers. comm. 2016). This species was not observed during site surveys. There is a moderate to high likelihood that this species could use the slow-moving water and aquatic habitat within the project site and the study area for nesting. **Potentially significant impacts could occur if western pond turtles were present within the study area and were harmed or killed by project construction activities.**

Foothill Yellow-legged Frog (*Rana boylii*)
The foothill yellow-legged frog is designated as a CDFW Species of Special Concern. The main reported threat to the species is predation by introduced aquatic predators including fish and bullfrogs (Jennings and Hayes 1994). This species inhabits shallow flowing water in small to moderate-sized streams with some cobble-sized substrate (Jennings and Hayes 1994) in a variety of habitats including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral and wet meadow from sea level to 6,000 feet in elevation (Ziener et al. 1988). Breeding occurs following the end of spring flooding from mid-March to May (Ziener et al. 1988). Adults forage on aquatic and terrestrial invertebrates and are rarely found far from permanent water (Ziener et al. 1988).

Foothill yellow-legged frogs are known to occur at the Deer Creek road crossings, within approximately 1.5 miles upstream and downstream of LDCF (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). This species was not observed during site surveys. Foothill yellow-legged frogs could potentially use all aquatic habitats within the project site and the study area for nesting. **Potentially significant impacts could occur if foothill yellow-legged frogs were present within the study area and were harmed or killed by project construction activities.**

Birds

Northern Goshawk (*Accipiter gentilis*)
The northern goshawk is designated as a CDFW Species of Special Concern. Threats to this species include habitat loss and degradation due to timber harvest, stand-replacing fires and human development (Shuford and Gardali 2008). Goshawks are associated with mid- to high elevations with mature dense conifer and deciduous forest interspersed with meadows and other openings. Goshawks generally nest in large trees, with a dense canopy on north-facing slopes near water or riparian areas (Reynolds et al. 1992). Goshawks prey on small to mid-sized birds and mammals.

A USFS northern goshawk habitat set-aside area is located within the project boundary along the access road to the project site; however, here have been no detections or nests associated with this set-aside

habitat (A. Bustillos pers. comm. 2016). The closest northern goshawk nest occurrence documented is approximately four miles to the southeast of the study area (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). This species was not observed or detected during site surveys; however, protocol surveys were not conducted. There is a moderate likelihood that northern goshawks will nest within or near the project site, however protocol surveys will be conducted prior to construction. This species may forage within the project site; however, impacts to foraging activities would not generally be considered significant, due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **Potentially significant impacts could occur if an active northern goshawk nest were in the vicinity of the project site and project construction activities destroyed an active nest or caused goshawks to abandon an active nest.**

Golden Eagle (*Aquila chrysaetos*)

The golden eagle is designated as a Fully Protected Species under the California Fish and Game Code and is protected by the Bald and Golden Eagle Protection Act. This species has declined near human population centers (Remsen 1978). The loss and alteration of grasslands, shooting, and human disturbance at nest sites are reported to have contributed to the decline of the species (Remsen 1978). The golden eagle is a permanent resident throughout California, except in the center of the Central Valley, although it winters in this area (Zeiner et al. 1990a). Golden eagles typically inhabit rolling foothills, mountainous areas, sage-juniper flats, and deserts (Zeiner et al. 1990a). It breeds from late January through August, peaking from March through July, and nests on cliffs and in large trees near open areas. Golden eagles often maintain alternative nest sites and old nests are often reused (Zeiner et al. 1990a). The golden eagle needs open areas for hunting and their diet consists mostly of lagomorphs and rodents, but also includes other mammals, reptiles, birds and some carrion (Zeiner et al. 1990a).

This species is known to occur within the Deer Creek watershed (The Habitat Restoration Group 1998) and nests were recorded in 1988 two miles west of the project site (England et al. 1988). Golden eagles were not observed during site surveys. There is a low likelihood that golden eagles will nest within the project site, due to the fact that no large nests were observed during surveys; however, the potential for nesting cannot be discounted as new territories can be established before construction begins. This species may forage within the project site; however, impacts to foraging activities would not generally be considered significant, due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **Potentially significant impacts could occur if golden eagles were nesting within or near the study area and project construction activities destroyed an active nest or caused golden eagles to abandon an active nest.**

Long-eared Owl (*Asio otus*)

The long-eared owl is designated as a Species of Special Concern by CDFW. Declines in long-eared owl populations have been attributed to destruction of lowland riparian woodland habitats; however, other unknown factors such as automobile collisions and human harassment may also be contributing factors (Remsen 1978). This species nests and roosts in riparian, live oak or other thickets with small, densely-canopied trees, and primarily hunts in open areas for rodents, along with birds, smaller owls and other vertebrates (Zeiner et al. 1990a). Breeding occurs from early March to late July (Zeiner et al. 1990a).

This species was not observed during site surveys. Long-eared owls may nest in the riparian areas of the staging areas within the project site. The species may forage within the site if nesting or roosting in the general area; however impacts to foraging activities would not generally be considered significant, due to the temporary nature of the project construction activities, the extensive foraging habitat available regionally and the fact that this species typically forages at night. **Potentially significant impacts could occur if long-eared owls were nesting within, or near the study area and project construction activities destroyed a nest or caused them to abandon active nests.**

Vaux's Swift (*Chaetura vauxi*)
The Vaux's swift is designated as a CDFW Species of Special Concern. Threats to this species are not well-documented but losses of suitable nesting trees due to timber harvest may be a concern. This species nests inside large hollow trees in redwood, Douglas fir and other conifer habitats (Zeiner et al. 1990a). Breeding occurs from early May to mid-August and often occurs in large colonies (Zeiner et al. 1990a). They feed exclusively on flying insects and forage widely during long-distance high-elevation flights over varying terrain, but prefer to forage over rivers and lakes.

Vaux's swifts are known to occur within the Deer Creek watershed at the USFS-owned Elam Creek campground, approximately ten miles upstream of the project site (Sterling and Paton 1996). No Vaux's swifts were observed during the site surveys. There is a moderate likelihood that Vaux's swifts could nest in the large hollow trees and snags within the project site and surrounding area. This species may forage within the site if nesting or roosting in the general area, however impacts to foraging habitat would not generally be considered significant due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **Potentially significant could occur if Vaux's swifts were nesting within or near the study area and project construction activities destroyed an active nest or caused them to abandon active nests.**

Olive-sided Flycatcher (*Contopus cooperi)*
The olive-sided flycatcher is designated as a CDFW Species of Special Concern. Threats to the species include habitat degradation in both summer range and winter range. Olive-sided flycatchers are a neotropical migrant species that build cup nests primarily in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain. In the Sierra Nevada, they utilize open mixed conifer forests and are generally considered an edge species (Shuford and Gardali 2008). Nesting and roosting occurs from early May to late August in large, tall trees, in mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir and lodgepole pine habitats (Grinnell and Miller 1944). Lofty perches, typically the dead tips or uppermost branches of the tallest trees in vicinity, are also required for singing posts and hunting perches (Zeiner et al. 1990a). They forage for flying insects over forest canopy or adjacent meadows, clearings, or shrub-covered slopes.

No olive-sided flycatchers were observed during the site surveys. There is a moderate likelihood that olive-sided flycatchers would nest within the open mixed conifer forest habitats within or near the project site. This species may forage within the site if nesting or roosting in the general area. Potential impacts to olive-sided flycatcher foraging habitat could occur from project construction; however, impacts to foraging habitat would not generally be considered significant due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **Potentially significant impacts could occur if olive-sided flycatchers were nesting within or near the study area and project construction activities destroyed an active nest or caused them to abandon an active nest.**

Black Swift (*Cypseloides niger*)
The black swift is designated as a CDFW Species of Special Concern. Threats to this species are unclear but may include human disturbance of nesting activities due to rock climbing (Remsen 1978). Black swifts construct mud and plant material nests in moist crevices on sea cliffs or adjacent to, or behind waterfalls (Zeiner et al. 1990a). Nesting occurs in small colonies from early June to late August (Zeiner et al. 1990a). They feed exclusively on flying insects and forage widely during long-distance flights.

No black swifts were observed during the site surveys. Black swifts would not be expected to nest within, or immediately near the project site due to the fact that the study area is well outside of the known breeding range of the species and due to a lack of potential nesting habitat in the form of cliffs near or behind waterfalls in in the project site, and / or within the vicinity of the project site for this species. The project site provides potential foraging habitat for black swifts, if present in the area; however, impacts to

foraging habitat would not generally be considered significant due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **No significant impacts to black swift are anticipated as a result of the proposed project.**

Little Willow Flycatcher (*Empidonax traillii brewsteri*)

The little willow flycatcher, a subspecies of the willow flycatcher, was listed by the State of California as Endangered in 1991. The little willow flycatcher was once a common breeder in Central Valley riparian habitats but nesting appears now to be restricted to upper elevations. Reported potential threats to the species include riparian habitat loss, livestock grazing and nest parasitism by brown-headed cowbirds (*Molothrus ater*) (California Department of Fish and Game 2005). They nest in dense willow thickets in upper elevations near rivers, streams and lakes (Zeiner et al. 1990a).

Little willow flycatchers are known to occur in the Deer Creek watershed (The Habitat Restoration Group 1998) near Childs Meadow, approximately 10.5 miles northeast of LDCF (England et al. 1988). No little willow flycatchers were observed during the site surveys; however, protocol-level surveys were not conducted. Little willow flycatchers would not be expected to nest within, or immediately near the project site due to a lack of potential nesting habitat in the form of dense willow thickets in the project site, and / or within the vicinity of the project site for this species. Marginal foraging habitat is present within the study area near the staging area during times when little willow flycatchers migrate through the area; however, impacts to foraging activities would generally not be considered significant, due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **No significant impacts to little willow flycatchers are anticipated as a result of the proposed project.**

American Peregrine Falcon *(Falco peregrinus anatum)*

The American peregrine falcon is designated as a Fully Protected species under the California Fish and Game Code. The species was previously listed as Endangered by the State of California and was delisted in 2009. The species was originally listed as Endangered by USFWS and was delisted in 1999. Declines in population associated with this species are attributed primarily to dichlorodiphenyltrichloroethane (DDT) contamination (Zeiner et al. 1990a). Riparian areas and coastal and inland wetlands are important habitats year-long, especially in non-breeding seasons. They require protected cliffs and ledges for cover. They breed near wetlands, lakes, rivers or other waters, and nest on cliff ledges, human structures and occasionally, in cavities in large snags and old nests from other raptors. The American peregrine falcon feeds primarily on birds including ducks, and also takes mammals and fish.

One successful peregrine falcon eyrie was recorded on Iron Mountain, approximately ten miles southwest of LDCF (The Habitat Restoration Group 1998). Based on a previous mapping effort, three potential nesting cliffs to the east, west and southwest of LDCF were rated as "good to excellent" as defined by Baldridge et al. 1982 or Geoff Monk (U.S. Forest Service unpublished data). These cliffs are located between approximately 0.75 miles and one mile from the helicopter flight path (England et al. 1988). American peregrine falcons were not observed during site surveys. There is a low likelihood that peregrine falcons would nest within the project site due to a lack of existing eyries or potential nesting habitat in the form of protected cliffs within the project site; however, there is potential for peregrine falcon to nest in the cliffs within the vicinity of the project site. Foraging habitat is present within the study area; however, impacts to foraging activities would generally not be considered significant, due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **Potentially significant impacts could occur if peregrine falcons were nesting within or near the study area and project construction activities destroyed an active nest or caused them to abandon an active nest.**

American Bald Eagle (*Haliaeetus leucocephalus*)

The American bald eagle was listed as Endangered by the State of California in 1971 and is designated as a Fully Protected species under the California Fish and Game Code and is protected by the Bald and Golden Eagle Protection Act. The species was originally listed as Endangered by USFWS in 1967, was downlisted to Threatened in 1995, and delisted in 2007. Past declines in American bald eagle populations are attributed to the effects of DDT, lead shot and habitat disturbance; however, in California, the number of territories has increased and the species range has expanded (California Department of Fish and Game 2005). Recovery efforts have focused on the protection of nesting areas and restrictions on the use of DDT. The American bald eagle is a large bird of prey that winters throughout California. They nest in the upper canopy of large trees normally in mountain and foothill habitats near rivers, streams and reservoirs. They forage opportunistically on fish and waterfowl but also prey on other small animals and eat carrion (California Department of Fish and Game 2005).

American bald eagles are known to use the Deer Creek watershed with nest sites recorded near Lake Almanor and a bald eagle winter roost site recorded in the lower Deer Creek watershed (The Habitat Restoration Group 1998, England et al. 1988). American bald eagles were not observed in the area during site surveys. There is a low likelihood that American bald eagles would nest within the study area due to the lack of established existing nests; however, the potential for nesting cannot be discounted as new territories can be established before construction begins. It is likely that bald eagles are present at various times of the year, foraging and / or roosting within, or near, the study area. Foraging habitat is present within the study area; however, impacts to foraging activities would generally not be considered significant, due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **No significant impacts to American bald eagles are anticipated as a result of the proposed project.**

Yellow-breasted Chat (*Icteria virens*)

The yellow-breasted chat is designated as a CDFW Species of Special Concern. Threats to the species include destruction of riparian habitat and nest parasitism by brown-headed cowbirds (Remsen 1978). Yellow-breasted chats are neotropical migrant songbirds that nest in dense shrubs along streams and rivers and require dense, brushy thickets and tangles near water for cover. They nest from early May to early August with peak nesting activity in June, and forage on insects, spiders, berries and other fruit (Zeiner et al. 1990a).

Yellow-breasted chat breeding sites were recorded approximately six miles northwest of the project site, approximately one mile upstream from Black Rock in the Mill Creek watershed in 1989 (England et al. 1988). This species was not observed during site surveys. There is potential for yellow-breasted chats to nest in the riparian areas within the staging area of the project site. Potential foraging habitat is present within the study area; however, impacts to foraging activities would generally not be considered significant due to the temporary nature of the project construction activities and the extensive foraging habitat available regionally. **Potential significant impacts could occur if yellow-breasted chats were nesting within or near the project site and project construction activities destroyed an active nest or caused them to abandon an active nest.**

Purple Martin *(Progne subis)*

The purple martin is designated as a CDFW Species of Special Concern. Declines in purple martin populations have been attributed to the loss of nesting habitat due to competition for nest cavities with the introduced European starling *(Sturnus vulgaris)* and house sparrow *(Passer domesticus),* and the removal of snags and riparian habitat (Remsen 1978, Zeiner et al. 1990a). Purple martins are a neotropical migrant species that nests in cavities in tall, large trees, bridges, utility poles, lava tubes and buildings, with low canopy cover near the nest height (less than 20 percent within 100 meters) (Shuford and Gardali 2008). Nesting occurs from April into August in valley foothill and montane hardwood, hardwood-

conifer, and riparian habitats as well as closed-cone pine-cypress, ponderosa pine, Douglas fir and redwood habitats (Zeiner et al. 1990a). They feed primarily on large insects, such as dragonflies, primarily hawking them in flight, but occasionally they forage on the ground in riparian areas, forests and woodlands.

Purple martin adults and historical nesting sites are known to occur in the Deer Creek watershed near Lassen Peak (Grinnel and Miller 1944). This species was not observed during site surveys. There is potential for purple martins to nest within or near the project site. The project site provides potential foraging habitat for purple martins; however, impacts to foraging activities would typically not be considered a significant impact because of the temporary nature of the project construction activities, and due to the extensive foraging habitat available regionally. **Potential significant impacts could occur if purple martins were nesting within or near the project site and project construction destroyed an active nest or construction activities caused them to abandon an active nest.**

Yellow Warbler (*Setophaga petechia*)
The yellow warbler is designated as a CDFW Species of Special Concern. Threats to the species include destruction of riparian habitat and nest parasitism by brown-headed cowbirds (Remsen 1978). Numbers of breeding pairs have declined dramatically in recent decades in lowland areas. Yellow warblers are neotropical migrant songbirds that nest in riparian woodlands as well as in montane chaparral and in the shrubby understory of ponderosa pine and mixed conifer forests (Zeiner et al. 1990a, Shuford and Gardali 2008). They nest from mid-April into early August, with peak nesting activity in June, and eat insects, spiders and occasionally berries (Zeiner et al. 1990a).

Yellow warbler breeding sites are known to occur near Childs Meadow, approximately 10.5 miles northeast of LDCF (England et al. 1988). No yellow warblers were observed during site surveys. Yellow warblers may nest within the study area in the shrubby understory of ponderosa pine and mixed conifer forests and riparian habitats within and near the project site. This species is likely to forage within the site during spring and fall migration if nesting does not occur locally; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, and due to the extensive foraging habitat available regionally. **Potentially significant impacts could occur if yellow warblers were nesting within or near the study area and project construction activities destroyed an active nest or caused them to abandon an active nest.**

California Spotted Owl (*Strix occidentalis occidentalis*)
The California spotted owl is a CDFW Species of Special Concern. The California spotted owl was petitioned for federal listing in 2000 and 2004, but both petitions were declined for listing by the USFWS. Threats to this species include forest fragmentation due to logging, catastrophic wildfires, invasive species such as the barred owl (*Strix varia*), disease (West Nile virus), and human disturbance (Remsen 1978). California spotted owl are associated with mature second growth and late-successional forests. They use dense to semi-dense multi-layered canopy cover (≥70 percent) for roost selection. California spotted owl require open understory with mostly closed canopy stands of late-succession conifer or deciduous trees for nesting and roosting. Nesting occurs from March 1 through mid-June and owlets are fledged by mid-August. Primary forage of the California spotted owl consists of small to medium-sized mammals such as northern flying squirrels (*Glaucomys sabrinus*) and dusky-footed woodrats (*Neotoma fuscipes*).

A California spotted owl detection has been recorded within 1.5 miles east of the project site (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). This species was not observed during site surveys, however protocol-level surveys were not conducted. California spotted owls may nest in the mixed conifer stands within and near, the project site. Protocol surveys using the 1993 USFS protocol, as directed by the USFS, will be completed prior to construction. Limited operating periods for

construction related activities will be applied if owls are found within near proximity of the project site. This species is likely to forage within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally and due to the fact that this species typically forages at night. **Potential significant impacts could occur if California spotted owls were nesting in the project area during construction activities and project construction activities destroyed an active nest or caused them to abandon an active nest.**

Other Nesting Raptors

Nesting habitat exists within, and near the project site for several other raptor species (eagles, hawks and owls) that are not identified as special-status species, but are protected under several sections of the California Fish and Game Code. Several raptor species were observed during site surveys (Appendix C). Several large and medium-sized nests were observed within, or in the vicinity of the study area that could potentially serve as raptor nests. A number of additional raptor species, while not observed, may potentially nest within, or near the project site. **Potentially significant impacts could occur if active raptor nests were present within the vicinity of the study area, and project construction activities destroyed active nests or caused nests to be abandoned.**

Other Nesting Migratory Birds

Nesting habitat exists within the project site for a number of migratory bird species that are not identified as special-status species, but are protected under the federal Migratory Bird Treaty Act. **Potentially significant impacts could occur if active migratory bird nests were destroyed during project construction activities or project construction activities destroyed active nests or caused nesting migratory birds to abandon active nests.**

Fish

Riffle Sculpin *(Cottus gulosus)*

The riffle sculpin is designated as a CDFW Species of Special Concern. It is reported that the riffle sculpin faces numerous threats from dams, agricultural runoff, urbanization mining and logging (Moyle et al. 2015). Both adult and young riffle sculpin have poor dispersal abilities (Moyle et al. 2015). Larvae do not move far after hatching and this greatly reduces their ability to quickly recolonize areas (Moyle et al. 2015). They are found in isolated watersheds in the Central Valley and the central coast. In the Sacramento River drainage, they are found in Putah Creek, a west-side tributary and in most of the east-side tributaries, from the American River north to the upper Sacramento and McCloud rivers. Riffle sculpin are found exclusively in permanent coldwater streams. This species spawns at the end of their second year, in February, March, and April (Moyle 2002). Adults spawn under rocks in swift riffles or inside cavities in submerged logs. Riffle sculpin feed mainly on benthic invertebrates, primarily active insect larvae.

Riffle sculpins are known to occur within the project site (The Habitat Restoration Group 1998). No riffle sculpins were observed during site surveys; however intensive fish surveys were not conducted. Riffle sculpins may potentially spawn, hold and / or rear within, or near the project site. The purpose of the proposed project is to improve passage conditions for native fish, which may benefit riffle sculpins. **Potentially significant impacts could occur if riffle sculpins were present within the study area and were harmed or killed by construction activities.**

Pacific Lamprey (*Entosphenus tridentatus*)

The Pacific lamprey is designated as a CDFW Species of Special Concern. It is reported that Pacific lamprey face numerous threats including, but not limited to reduction in prey abundance, due to stressors such as dams, diversions, habitat degradation and over-exploitation (Moyle et al. 2015). Pacific lamprey

spend three to four years in the ocean before migrating, sometimes considerable distances, to freshwater streams mainly from March to late June (Moyle et al. 2015). They are believed to migrate in July in northern streams and in August and September in the Trinity River and can travel approximately 1.2 miles per day (Moyle et al. 2015). Pacific lamprey usually spawn in shallow depressions in low-gradient riffles; however, nests have been observed in approximately five feet of water in Deer Creek (Moyle et al. 2015). Both adults usually die after spawning and embryos hatch after 19 days in temperatures of 15°C / 59°F (Moyle et al. 2015). After hatching, ammocoetes (juveniles) stay in the nest briefly and are then washed downstream where they burrow into soft stream sediments and filter feed for the next five to seven years until metamorphosis (Moyle et al. 2015). Once ammocoetes transform to adults and begin to tolerate salt water, they begin their downstream migrations in high flow events during the winter and spring (Moyle et al. 2015). Adults feed on body fluids of salmon, flatfishes and marine mammals larger than themselves during their oceanic existence (Moyle et al. 2015).

Adult Pacific lamprey have been observed spawning at the U.S. Forest Road 27N08 crossing approximately one mile downstream of LDCF (P. Moyle pers. comm. 2016). Pacific lampreys were not observed during site surveys; however, intensive fish surveys were not conducted. Pacific lamprey may be present within the study area in the ammocoete stage, within the backwater silty areas within, or near the project site and may also spawn within the gravely riffles within or near the project site. The purpose of the proposed project is to improve passage conditions for native fish, which may benefit Pacific lampreys. **Potentially significant impacts could occur if Pacific lampreys were present within the study area and were harmed or killed by project construction activities.**

River Lamprey *(Lampetra ayresii)*

The river lamprey is designated as a CDFW Species of Special Concern. It is reported that the populations are likely decreasing due to the decline of suitable spawning and rearing habitat in the lower reaches of larger rivers (Moyle 2002). This species has become uncommon in California, recorded only in the lower Sacramento, San Joaquin and Russian Rivers. The biology of river lampreys has not been studied in California so information is based on studies from British Columbia where the timing of events in the life history may not be the same as in California. In the three- to five-year-old ammocoete (juvenile) stage, river lamprey require sandy backwaters or stream edges in which to bury themselves, where water quality is continuously high and temperatures do not exceed 25°C / 77°F. In the final stages of metamorphosis, river lamprey out-migrate through freshwater, congregate immediately upstream from saltwater and enter the ocean in late spring (Moyle 2002). Adults spend three to four months in saltwater, where they grow rapidly and then migrate back into freshwater in the fall to spawn in tributaries from February to May. Adults dig saucer-shaped depressions in gravelly riffles and die after spawning. In the ammocoete stage, river lampreys feed on algae and microorganisms and in the adult stage prey on a variety of fishes.

River lampreys are presumed to occur within the valley floor reach of Deer Creek over 30 miles downstream of the project site (Moyle et al. 2015). They were not observed during site surveys; however, intensive fish surveys were not conducted. River lampreys are not well studied in Deer Creek; however, this species may species may be present within backwater silty areas within, or near the project site in the ammocoete stage, and may spawn in gravely riffles within, or near the project site. The purpose of the proposed project is to improve passage conditions for native fish which may benefit river lampreys. **Potentially significant impacts could occur if river lampreys were present within the study area and were harmed or killed by project construction activities.**

Central Valley Steelhead (*Oncorhynchus mykiss*)

The Central Valley steelhead Distinct Population Segment (DPS) was listed as Threatened by NMFS on May 18, 1998 and February 6, 2006. Critical Habitat (CH) was designated by NMFS on September 2, 2005. Essential Fish Habitat (EFH) has not been designated by NMFS. Population declines are attributed

to blockage from upstream habitats, entrainment from unscreened diversions, hatchery practices and degraded habitat conditions due to water development and land use practices. Steelhead are generally distributed from southern California to the Aleutian Islands. In the Central Valley, naturally producing populations only occur in the Sacramento River and its tributaries. Steelhead stocks in the Central Valley are considered winter-run steelhead (McEwan and Jackson 1996). Central Valley steelhead adult migration occurs from October through February. Spawning occurs from December through April in streams with cool, year-round, well-oxygenated water. Incubation generally occurs from December through April. Emigration occurs in the spring and early summer as one-year-old fish.

The project site is located in the currently designated CH for Central Valley steelhead. They are known to spawn at the U.S. Forest Road 27N08 crossing, approximately one mile downstream of the project site (C. Mayes pers. comm. 2015) and adults and juveniles are known to occur throughout the reach at the project site (M. Johnson pers. comm. 2016). Rainbow trout / steelhead were observed during site surveys. There is a high likelihood that steelhead may spawn, hold and / or rear within, or near the project site. The purpose of the proposed project is to improve passage conditions for native fish, including Central Valley steelhead. **Potentially significant impacts could occur if Central Valley steelhead were present within the study area and were harmed or killed by project construction activities.**

Central Valley Spring-run Chinook Salmon (*Oncorhynchus tshawytscha*)
The Central Valley spring-run Chinook salmon was listed as Threatened by the State of California on February 5, 1999. NMFS listed the Central Valley spring-run Chinook salmon ESU as Threatened on September 16, 1999. CH was designated by NMFS on January 2, 2005. EFH was designated for Pacific salmon, which includes this ESU, by NMFS on June 28, 2005. Population declines are attributed primarily to altered stream flows and blocked access to upper elevation headwaters due to dams. Spring-run Chinook salmon are thought, by some, to once have been the most abundant run of salmon in the Central Valley. This race once migrated into the headwaters of tributaries to the Sacramento and San Joaquin Rivers. They now only exist in the mainstem and a few tributaries to the Sacramento River. Central Valley spring-run Chinook salmon adult migration occurs in the Sacramento River from late March to September. The fish oversummer in coldwater habitats and then spawn from August to October with peak spawning occurring in September. Incubation occurs from mid-August to mid-March with rearing and emigration occurring from mid-August through April.

The project site is located in the currently designated CH and EFH for Central Valley spring-run Chinook salmon. Adults are known to spawn within the project site (C. Mayes pers. comm. 2016, M. Johnson pers. comm. 2016) and juveniles are known to occur within the project reach (M. Johnson pers. comm. 2016). Spring-run were observed during site surveys. There is a high likelihood that spring-run Chinook salmon may spawn, hold and / or rear within, or near the project site. The purpose of the proposed project is to improve passage conditions for native fish, including Central Valley spring-run Chinook salmon. **Potentially significant impacts could occur if Central Valley spring-run Chinook salmon were present within the study area and were harmed or killed by construction activities.**

Mammals

Pallid Bat (*Antrozous pallidus*)
The pallid bat is designated as a CDFW Species of Special Concern. Threats to the species include destruction and disturbance of roosting sites which include caves, crevices, mines, and occasionally, hollow trees and buildings (Zeiner et al. 1990b). This species is most common in open, dry areas near rocky sites for roosting in a wide variety of habitats including grasslands, shrublands, woodlands and forests from sea level up through mixed conifer forests (Zeiner et al. 1990b). Females give birth in the early summer in nursery colony roosts and the young are not weaned until the fall. Pallid bats feed on

large arthropods including scorpions, cicadas, katydids, beetles, crickets, grasshoppers, praying mantids and moths (Bolster et al. 1998).

Pallid bats are known to occur within the project site. This species was detected during acoustical site surveys. Pallid bats may be roosting in hollow trees in fixed locations within or near the project site. This species is likely to forage within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally and due to the fact that this species typically forages at night. **Potential significant impacts could occur if pallid bat roosting habitat was disturbed as a result of project construction activities.**

Ringtail (*Bassariscus astutus*)
The ringtail is designated as a Fully Protected species under the California Fish and Game Code. Threats to the species include urbanization and loss and degradation of riparian communities (Williams 1986). This medium-sized carnivore inhabits forests and shrublands in close association with riparian habitats or rocky areas. They are usually found within 0.6 miles of permanent water (Zeiner et al. 1990b) in low to middle elevations. Ringtails den and nest in hollow trees, snags, cavities in rocks, abandoned burrows and human structures.

A ringtail was observed near Black Rock campground in the Mill Creek watershed in 2010 approximately six miles from the project site (U.S. Forest Service 2015). No ringtails were observed during site surveys; however, they are seldom observed without the use of specialized survey methods due to their strongly nocturnal nature. There is a potential for ringtails to be denning, within the riparian and upland habitats in the study area. This species is likely to forage within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally, the fact that this species typically forages at night and the fact that this is a highly mobile species. **Potential significant impacts could occur if ringtail were denning or nesting within the project area and were harmed or killed during project construction activities.**

Gray Wolf (*Canis lupus*)
The gray wolf was listed by USFWS as Endangered in 1978. This species was listed by the State of California as Endangered in 2014. Threat to this species include food availability, strife within packs, disease and accidental or intentional killing by people (U.S. Fish and Wildlife Service 2016, California Department of Fish and Wildlife 2011). This carnivore is regarded as a habitat generalist due to the fact that gray wolves move long distances and require large home ranges (Paquet and Carbyn 2003). Habitat use is strongly influenced by availability and abundance of prey, topography, snow conditions and occurrence of livestock, roads and humans (Paquet and Carbyn 2003). Wolves den in mostly south-facing burrow systems, hollow logs, spaces between roots of trees, caves or crevices in rocks, excavations in snow and in very shallow surface dens, usually near permanent water (Paquet and Carbyn 2003).

One gray wolf detection was recorded within one mile of the project site in 2013 (California Department of Fish and Wildlife 2016c). The nearest denning site is located over approximately 90 miles away, in Siskiyou County, California (D. Blake pers. comm. 2016). Gray wolves were not observed during site surveys. There is an extremely low likelihood of occurrence within the project site due to the very low density of wolves in California and the extremely large territories that wolves are known to occupy. **No significant impacts to gray wolf are anticipated as a result of the proposed project.**

Townsend's Big-eared Bat (*Corynorhinus townsendii*)
The Townsend's big-eared bat was listed as a Candidate for listing as Endangered or Threatened by the State of California on December 11, 2013. The main threat to this species is loss of roosting sites due to

human disturbance, mine closure and renewed mining in abandoned mines. Townsend's big-eared bats occur in a variety of habitats but are more common in mesic sites (Williams 1986). Roosting sites include caves, lava tubes and mine tunnels, as well as other human-made structures such as buildings, bridges and water diversion tunnels. Roosting sites are extremely sensitive to human disturbance and can be abandoned due to a single human visit (Zeiner et al. 1990b); however, in some instances this species can become habituated to reoccurring and predictable human activity (California Department of Fish and Wildlife 2013). Females give birth from May to July in nursery colony roosts and the young are generally weaned by August. Townsend's big-eared bats feed primarily on large moths but also take small numbers of other insects (Bolster et al. 1998).

Townsend's big-eared bats are not known to occur in the Deer Creek watershed (U.S. Forest Service 1999, U.S. Forest Service 2015). This species was not detected during acoustical site surveys. Townsend's big-eared bats are not likely to be roosting in the study area due to a lack of potential roosting habitat in the form of caves, mines or buildings, present within the project site. This species may forage within the site, if present; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally, the fact that this species typically forages at night and the fact that this is a highly mobile species. **No significant impacts to Townsend's big-eared bats are anticipated from the proposed project.**

Spotted Bat *(Euderma maculatum)*
The spotted bat is a CDFW Species of Special Concern. This species is considered one of the rarest mammals in North America but the reasons for population declines are not well documented (Zeiner et al. 1990b). The spotted bat is a solitary species and forages late at night, principally for moths. They roost in rock crevices, cliffs, caves and buildings with cliffs providing optimal habitat. The spotted bat forages over water and along washes (Zeiner et al. 1990b). Occupied habitats range from arid deserts and grasslands to mixed conifer forests (Zeiner et al. 1990b).

Spotted bats were detected in the Deer Creek watershed in 1996 (U.S. Forest Service 1999) and one detection was recorded in 2000, approximately nine miles north of the project site near Diamond Lake (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). In 2010, an acoustical detection of a spotted bat occurred near Swain Meadow, approximately 33 miles northwest of the project site (U.S. Forest Service 2015). Spotted bats were not detected during acoustical site surveys. There is a low likelihood that spotted bats would be roosting in the project site due to a lack of preferred habitat in the form of rock crevices, caves and / or buildings present. This species is likely to forage occur within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally, the fact that this species typically forages at night and the fact that this is a highly mobile species. **No significant impacts to spotted bats are anticipated from the proposed project.**

Western Mastiff Bat *(Eumops perotis)*
The western mastiff bat is a CDFW Species of Special Concern. Reasons for decline of this species are attributed to extensive loss of habitat, cultivation of foraging habitat and use of insecticides (Williams 1986). The species is non-migratory and day-roosts alone or in small colonies in crevices in rock outcrops, cliffs, trees and tall buildings. Nursery roosts as described as tight rock crevices approximately three feet deep and two inches wide or crevices in buildings. They occupy semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands and chaparral (Zeiner et al. 1990b). Night roosts are seldom used due to their prolonged foraging period. They feed primarily on hymenopteran insects (Zeiner et al. 1990b). When roosting in rock crevices, western mastiff bats need vertical faces to drop off from to take flight.

This species was detected near Black Rock campground in the Mill Creek watershed approximately six miles from the project site (U.S. Forest Service 2015). This species was not detected during acoustical site surveys. Western mastiff bats are not likely to be roosting in the study area due to a lack of roosting habitat in the form of rock crevices or buildings. This species is likely to forage occur within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally, the fact that this species typically forages at night and the fact that this is a highly mobile species. **No significant impacts to western mastiff bats are anticipated from the proposed project.**

Western Red Bat (*Lasiurus blossevillii*)
The western red bat is designated as a CDFW Species of Special Concern. Potential threats to this species include a variety of animals that prey on red bats, including owls, hawks, opossums, cats and jays. Their roosting habitat includes forests and woodlands, ranging from sea level to mixed conifer forests. They roost near edge habitats adjacent to streams, fields or urban areas in trees (Zeiner et. al. 1990b). The western red bat hibernates in the winter and is generally considered a solitary species. They feed over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. They are nocturnal and feed primarily on insects such as moths, crickets, beetles and cicadas. Breeding occurs in August and September and, after delayed fertilization, females give birth between late May and early July.

Western red bats are known to occur within the project site. This species was detected during acoustical site surveys at both sampling locations. Impacts to roosting bats could occur if bats were roosting in close proximity to construction operations; however, these impacts would not generally be considered a significant impact because of the temporary nature and short duration of the construction and also due to the fact that western red bats could easily fly away from areas of disturbance. Western red bats roosting within trees at the project site verses fixed locations such as crevices and hollow trees, would be able to move away from the areas of disturbance without significant impacts due to their tendency to exhibit some diurnal behavior and their mobility. Roosting habitat is not a limiting factor for western red bats. This species is likely to forage within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally, the fact that this species typically forages at night and the fact that this is a highly mobile species. **No significant impacts to the western red bats are anticipated from the proposed project.**

Pacific Fisher *(Pekania pennanti)*
The Pacific fisher is designated by CDFW as a Candidate for listing as Threatened and as a Species of Special Concern. The West Coast Distinct Population Segment of fisher was also proposed for listing as Threatened by the USFWS, however the listing was found not warranted. Threats to this species include fragmentation of forested habitat and loss of structural complexity, riparian habitat and late-seral trees. In the western U.S. this medium-sized carnivore inhabits areas with high canopy closure, typically late-successional coniferous forest, without frequent, deep fluffy snow (Bolster et al. 1998) but also may select younger age forest characteristics for foraging (Zielinski et al. 1999 as cited in California Department of Fish and Game 2010). They rest and den in protected cavities and brush piles. They are found from near sea level to over 11,000 feet in elevation (Williams 1986). Fisher are generally more common in areas of low human density and low human disturbance (Ruggiero et al. 1994). Natal denning occurs in the spring, in cavities near the tops of live trees and snags (Bolster et al. 1998). They prey on a variety of small and medium-sized mammals and birds as well as carrion (Bolster et al. 1998).

A fisher has been known to den within two miles from a portion of the access road to the project site (J. Kelley pers. comm. 2015). This species is also known to occur within the project site (K. Smith pers. comm. 2016). No fishers were observed during site surveys. Pacific fishers are likely to be denning in

protected cavities within the study area. This species is likely to forage occur within the site; however, impacts to foraging habitat would typically not be considered significant because of the temporary nature of the project construction activities, the extensive foraging habitat available regionally, the fact that this species typically forages at night and the fact that this is a highly mobile species. **Potential significant impacts could occur if fishers were denning within the project area and were harmed or killed during project construction activities.**

Sierra Nevada Red Fox *(Vulpes vulpes necator)*
The Sierra Nevada red fox was listed as Threatened by the State of California in 1980. Threats to this species include logging activities, grazing and human disturbance (California Department of Fish and Game 1987). The Sierra Nevada red fox uses dense vegetation and rock areas for cover and dens in hollow logs, rock piles and underground burrows. They require forests interspersed with meadows or alpine fell-fields and they utilize edge habitat extensively. This species is an opportunistic predator and scavenger eating mostly small- to medium-sized mammals but also birds, insects, invertebrates, fruit, carrion, garbage and other foods depending on their seasonal availability (Perrine et al. 2010). The elevational range for this species is between approximately 3,940 feet and 11,800 feet. The Sierra Nevada red fox are seldom sighted below 4,920 feet other than during winter elevational migrations when they are known to move approximately 500 - 1,500 feet lower (Perrine et al. 2010). Sierra Nevada red fox are most often observed above 6,890 feet (Perrine et al. 2010).

This species is known to occur in Lassen National Park (U.S. Fish and Wildlife Service 2015). There was also one unconfirmed sighting within approximately four miles of the project site at approximately 4,200 feet in elevation from 1978 (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). A recent sighting also occurred near Butte Meadows approximately six miles south of LDCF (A. Bustillos pers. comm. 2016). No Sierra Nevada red foxes were observed during the site surveys, however they are seldom observed, even with the use of specialized survey methods. Sierra Nevada red foxes are not likely to den within the project site particularly during the summer / fall construction period due to the low elevations of the project site. The highest elevation of the project site is approximately 4,060 feet in elevation along the access road at a lower than typical range for this species during summer / fall. Suitable foraging habitat is present within, and in the vicinity of, the project site and foraging may occur within the study area during winter migration to lower elevations; however, impacts to foraging activities would not likely occur due to the summer / fall construction period. **No significant impacts to Sierra Nevada red foxes are anticipated from the proposed project.**

Natural Communities

A small amount of riparian vegetation will be disturbed in the project site (Tehama Environmental Solutions 2016). All disturbed areas will be revegetated after construction is complete.

The instream habitats identified as CNDDB rare communities including the Central Valley drainage spring-run Chinook stream, will also be temporarily impacted by the project. The instream habitats will be positively affected by the improvements to fish passage conditions, to enable anadromous fish access to additional upstream habitat.

A wetland delineation was conducted (Tehama Environmental Solutions 2016) within the study area which identified and mapped several wetlands and other aquatic features that may be jurisdictional under Sections 404 and 401 of the Clean Water Act and / or Section 1600 of the California Fish and Game Code. Potential impacts to these potentially jurisdictional features will be addressed during the regulatory permit processes.

CONCLUSIONS AND RECOMMENDED AVOIDANCE AND MINIMIZATION MEASURES

Listed and Candidate Species

Eight federally and / or state listed or candidate animal species have the potential to occur within the study area, including the little willow flycatcher, bald eagle, Central Valley steelhead, Central Valley spring-run Chinook salmon, gray wolf, Townsend's big-eared bat, Pacific Fisher and Sierra Nevada red fox.

Of these eight species, three may be potentially impacted by the project including the Central Valley steelhead, Central Valley spring-run Chinook salmon and the Pacific fisher. Recommended avoidance and minimization measures are provided for these three species below.

Fish

Central Valley Steelhead and Central Valley Spring-run Chinook Salmon

- Construction outside of the stream channel could start as early as July 1, based upon permits receipt, permit conditions, and / or consultation terms and conditions. For fisheries protection, instream work can occur between July 1 and September 30. Instream work could start sooner if CDFW determines that adult spring-run Chinook salmon are no longer present based on environmental conditions and real-time passage data. Instream work could be extended to October 14, if environmental conditions, which will preclude juvenile steelhead and spring-run Chinook salmon emigration or adult steelhead / fall-run Chinook salmon immigration, are expected to persist. Instream work outside of the July 1 to September 30 work window must be approved by CDFW and NMFS on a case-by-case basis with details on how take will be avoided and / or minimized. For work within the channel and banks, fish rescue efforts (herding fish, netting / seining) will be required prior to the onset of any dewatering of the area. This will be coordinated with CDFW.

- All construction debris (concrete, metal, etc.) from the fish passage improvement-related construction activities shall be removed from the active stream channel post-construction.

- CDFW will install a fish exclusion device downstream of the construction area, within two weeks prior to the initiation of instream- / channel-related construction work, to ensure fish are prevented from migrating upstream into the project area.

- Immediately prior to construction, a qualified biologist, in coordination with CDFW, will conduct snorkel surveys above and below LDCF to identify presence of salmonids. The USFWS, in coordination with the contractor, and in consultation with NMFS and CDFW, will ensure that qualified fish biologists are onsite to implement fish rescue operations within the dewatered area, through the use of herding, seining and / or electrofishing, if necessary, in a manner that best ensures safety of staff. This will potentially include opening the fish exclusion device to herd fish further downstream. Best professional determination will be used to decide which method(s) of rescue and relocation of captured fish, either upstream or downstream of the construction area, are to be used. Biologists will first try to haze and herd fish downstream. If fish biologists determine that the use of electrofishing is necessary for the efficient and successful removal of fish, the NMFS electrofishing guidelines (National Marine Fisheries Service 2000) will be strictly followed. The fish rescue team will be comprised of fishery biologists with professional experience using seines and electrofishing equipment.

- Adequate erosion and pollution control measures shall be taken to ensure that sediment, turbidity, petroleum products or other harmful chemicals do not enter Deer Creek as a result of construction activities. Standard Best Management Practices (BMPs) shall be incorporated into the project designs.

- BMPs will be developed and implemented to ensure that wet concrete does not enter Deer Creek during construction.

- All water pumps used during construction shall be screened to meet CDFW and NMFS criteria, unless deemed unnecessary by CDFW and NMFS (i.e. if water was being diverted from an off-channel pool). If pumps are using fuel, they will be outfitted with a spill kit.

- All dewatering and rewatering activities will be conducted slowly, in order to minimize disturbance to fish and will be coordinated with CDFW.

Mammals

Pacific Fisher

- Potential fisher denning habitat exists within the project in the form of hollow trees, decaying trees with heart rot, abnormal growths, and / or cavities. No vegetation disturbance and / or the onset of potentially disturbing construction activities including, but not limited to, mobilization of equipment / materials to the project site, temporary road or hillslope access improvements, road grading and / or use of equipment, shall occur prior to July 1, in order to minimize the likelihood of disrupting breeding and denning activities of the fisher. Vegetation removal and construction activities planned after June 30 should retain trees or logs that have maternal den tree characteristics as feasible. If fisher are found to be denning with kits within a tree or log proposed to be removed, construction activities shall be suspended until a qualified biologist, in consultation with CDFW and USFWS, can establish appropriate measures to minimize impacts to fisher. If removal of potential maternal den trees is necessary after June 30, the potential maternal den trees shall not be cut until the day after all other vegetation intended to be removed within a 375-foot-radius have been removed. If a female fisher with kits is using a maternal den tree within the project area, this will allow her additional time to move her young from the area.

Species of Special Concern, Fully Protected Species and Other Protected Species

Fifteen species designated by CDFW as Species of Special Concern or Fully Protected could potentially be significantly impacted by the proposed project. In addition, potentially significant impacts could occur to other species protected under the Migratory Bird Treaty Act and several sections of the California Fish and Game Code. Recommended avoidance and minimization measures are provided for these fifteen species below.

Amphibians

Foothill Yellow-legged Frog and Western Pond Turtle

- Prior to work in aquatic habitats, water bodies shall be surveyed by a qualified biologist to determine if any foothill yellow-legged frogs or western pond turtles are present. If any individuals of these species are found, a qualified and permitted biologist shall determine and implement appropriate relocation procedures, in coordination with CDFW. The site shall be checked daily by trained workers prior to work commencing, including underneath vehicles and equipment that will be used. If special-status species such as foothill yellow-legged frogs are found, they will be moved by a qualified and permitted biologist to an area of safety along the creek out of harm's way or to wetland / riparian areas that are fenced.

Birds

Northern Goshawk

- Any tree removal, vegetation disturbance and / or the onset of potentially disturbing construction activities including, but not limited to, mobilization of equipment / materials to the project site, temporary road or hillslope access improvements, road grading and / or use of equipment, shall occur between September 15 and February 15 (outside of the combined breeding season for songbirds, raptors and other migratory bird species).

- If tree removal, vegetation clearing, or the onset of potentially disturbing construction activities including, but not limited to, mobilization of equipment / materials to the project site, temporary road or hillslope access improvements, road grading and / or use of equipment, must occur during the nesting season, a nesting survey of the construction area and adjacent suitable habitat should be conducted by a qualified biologist no more than seven days prior to the initiation of the onset of these activities. If active bird nests are found to be present, tree removal, vegetation clearing and the onset of potentially disturbing construction activities shall be suspended until a qualified biologist, in consultation with CDFW, can establish an appropriate protective buffer area to minimize impacts to the nesting birds. No construction activities should commence within the buffer area until the qualified biologist determines that the young birds have fledged or the nest is no longer active.

California Spotted Owl

- Any tree removal, vegetation clearing, or the onset of potentially disturbing construction activities shall occur between August 31 and March 1 (outside of the nesting season for California spotted owl with potential to occur within, or in the vicinity of the project site).

- If tree removal, vegetation clearing, or the onset of potentially disturbing construction activities must occur during the breeding / nesting season, a protocol-level California spotted owl nesting survey of the construction area and adjacent suitable habitat shall be conducted by a qualified biologist. If active California spotted owl nests are found to be present, tree removal, vegetation clearing and the onset of potentially disturbing construction activities shall be suspended until a qualified biologist, in consultation with CDFW and / or USFWS can establish an appropriate protective buffer area to minimize impacts to the nesting owls. No construction activities shall commence within the buffer area until the qualified biologist determines that the young birds have fledged or the nest is no longer active.

Other Species of Special Concern and Fully Protected Species

- Any tree removal, vegetation clearing, or the onset of potentially disturbing construction activities shall occur between September 1 and January 30 (outside of the nesting season for golden eagle, long-eared owl, Vaux's swift, olive-sided flycatcher, yellow-breasted chat, purple martin and yellow warbler with potential to occur within, or in the vicinity of the project site).

- If tree removal, vegetation clearing, or the onset of potentially disturbing construction activities must occur during the breeding / nesting season, a nesting survey of the construction area and adjacent suitable habitat shall be conducted by a qualified biologist. If active nests are found to be present, tree removal, vegetation clearing and the onset of potentially disturbing construction activities shall be suspended until a qualified biologist, in consultation with CDFW and / or USFWS can establish an appropriate protective buffer area to minimize impacts to the nesting birds. No construction activities shall commence within the buffer area until the qualified biologist determines that the young birds have fledged or the nest is no longer active.

Other Nesting Raptors

- The avoidance and minimization measures identified for other Species of Special Concern and fully protected species will adequately mitigate for any potential impacts to other nesting raptors.

Other Nesting Migratory Birds

- The avoidance and minimization measures identified for other Species of Special Concern and fully protected species will adequately mitigate for any potential impacts to other nesting migratory birds.

Fish

Riffle Sculpin, Pacific Lamprey and River Lamprey

- The avoidance and minimization measures identified for Central Valley steelhead and the Central Valley spring-run Chinook salmon will adequately mitigate for any potential impacts to riffle sculpin, Pacific lamprey and river lamprey.

Mammals

Pallid Bat

- Prior to any vegetation removal, a survey of the vegetation to be removed shall be conducted by a qualified biologist to ensure that pallid bats are not roosting in the vegetation to be removed.

- If pallid bats are found to be roosting within the vegetation to be removed, vegetation removal shall be suspended until a qualified biologist, in consultation with CDFW, can establish appropriate measures to minimize impacts to this species.

Ringtail

- Potential ringtail denning habitat exists within the project in the form of hollow trees. Prior to construction, a biologist will inspect potential denning sites for signs of denning.

- If ringtail are found to be denning, construction activities will be suspended until a qualified biologist, in consultation with CDFW, can establish appropriate measures to minimize impacts to ringtail.

Natural Communities

The following avoidance and minimization measures are recommended in order to avoid potentially significant impacts of the proposed project on rare natural communities:

Central Valley Drainage Spring-run Chinook Stream

- Disturbance to instream habitats shall be avoided, where possible. If these habitats cannot be avoided, appropriate avoidance and minimization measures will need to be developed during the environmental permit processes with CDFW and other regulatory agencies.

Riparian Habitat

- Disturbing riparian habitat that is present within the study area associated with Deer Creek shall be avoided, where possible. For riparian habitat that cannot be avoided, appropriate avoidance and minimization measures will need to be developed during the environmental permit processes with CDFW and other regulatory agencies.

- All disturbed riparian areas shall be revegetated following the completion of construction activities.

Wetlands and Other Waters of the U.S. / State

- Because construction of the site requires that disturbance occur, and / or fill material be placed within wetlands or other waters of the U.S., a Clean Water Act Section 404 permit will likely be required from the U.S. Army Corps of Engineers. In addition, a Clean Water Act Section 401 Certification may also be required from the California Regional Water Quality Control Board. It has been determined that a California Fish and Game Code Section 1600 Lake or Streambed Alteration Agreement with CDFW will not be required; however, a California Fish and Game Code Section 1652, Habitat Restoration or Enhancement Project approval may be required from CDFW.

General Measures

The following avoidance and minimization measures are recommended in order to avoid potentially significant impacts of the proposed project on all special-status species and their associated habitats:

- A construction worker education program shall be implemented for all personnel onsite that includes an explanation of all special-status animal species, with the potential to occur, identification, avoidance measures, and federal and state laws that protect the species. This shall include, at a minimum, those special-status species analyzed in this document.

- A qualified biologist (biological monitor) shall regularly inspect construction-related activities to ensure that no unnecessary disturbance to special-status species and / or their associated habitats occurs. The biological monitor shall have the authority to stop all activities that may result in such disturbance until appropriate corrective measures have been completed. The biological monitor will also be required to report any unauthorized take to CDFW, USFWS and / or NMFS immediately.

- Appropriate measures will be used to avoid the spread of Aquatic Invasive Species such as Zebra / Quagga mussels, New Zealand mudsnails and Chytrid Fungus to and from the project area according to the 2015 CDFW Aquatic Invasive Species Cleaning / Decontamination Protocol (California Department of Fish and Wildlife 2015).

With incorporation of these avoidance and minimization measures, no significant impacts to state or federally listed animal species, special-status animal species or rare natural communities are expected to occur as a result of the proposed project. An unavoidable "may affect, likely to adversely affect" determination is anticipated for Central Valley steelhead and Central Valley spring-run Chinook salmon. This will be addressed as part of the consultation with NMFS under Section 7 of the Endangered Species Act.

A "may affect, but is not likely to adversely modify" determination is anticipated for Central Valley steelhead and Central Valley spring-run Chinook salmon CH. The proposed project is not likely to eliminate or significantly diminish or disrupt EFH for Pacific Salmon. This will also be addressed as part of the consultation with NMFS under Section 7 of the Endangered Species Act. With incorporation of these avoidance and minimization measures, the project is not expected to jeopardize the continued existence of any listed species and / or is expected to have temporal impacts below a level of significance to listed species.

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PERSONS CONSULTED

Mr. Dan Blake, Assistant Field Manager, USFWS, Klamath Falls Fish and Wildlife Office, Klamath Falls, Oregon.

Ms. Patricia Bratcher, Habitat Restoration Coordinator, CDFW, Region 1, Redding, California.

Ms. Arlene Bustillos, District Wildlife Biologist, USFS, LNF, Almanor Ranger District, Chester, California.

Mr. Felipe Carrillo, USFWS, Forest Foothills Branch, Sacramento Fish and Wildlife Office, Sacramento, California.

Ms. Laurie Earley, District Fish Biologist, USFS, LNF, Almanor Ranger District, Chester, California.

Ms. Patricia Parker Hamelberg, Habitat Restoration Coordinator, USFWS, Red Bluff Fish and Wildlife Office, Red Bluff, California.

Mr. John Hunt, Director, NCRLT, Chico, California.

Mr. Matt Johnson, Environmental Scientist, CDFW, Region 1, Redding, California.

Ms. Julie Kelley, Biologist, SPI, Anderson, California.

Ms. Melanie MacFarland, Forest Fisheries Biologist, USFS, LNF, Susanville, California.

Mr. Chris Mayes, Fisheries Biologist, USFS, LNF, Almanor Ranger District, Chester, California.

Mr. Peter Moyle, Distinguished Professor, Emeritus, Department of Wildlife, Fish, and Conservation Biology, Center for Watershed Sciences, University of California Davis, Davis, California.

Mr. Chris Nagano, Endangered Species Division Chief, USFWS, Forest Foothills Branch, Sacramento Fish and Wildlife Office, Sacramento, California.

Ms. Brenda Olson, Environmental Coordinator, USFS, Shasta Trinity National Forest, Redding, California.

Mr. Kevin Smith, Fisher Translocation Field Coordinator, Wildlife Conservation Society, Bozeman, Montana.

Mr. Ed Wallace, Principal, Northwest Hydraulic Consultants Inc., Pasadena, California.

Mr. Brian Wardman, P.E., Senior Engineer, Northwest Hydraulic Consultants Inc., Sacramento, California.

Mr. Brent Wolfe, Principal, Northwest Hydraulic Consultants Inc., Sacramento, California.

APPENDIX A

CNDDB Records Search Results

APPENDIX A
CNDDB Records Search Results
Lower Deer Creek Falls Fish Passage Improvements Project

COMMON NAME	SCIENTIFIC NAME	USGS 7.5' QUADRANGLE								
		LYVI	MINE	CHME	BAMO	ONBU	HUPE	DEPG	BUME	JONE
FAUNAL SPECIES										
Northern Goshawk	*Accipiter gentillis*	X	X	X	X	X	X		X	X
Golden Eagle	*Aquila chrysaetos*									
Western Bumble Bee	*Bombus occidentalis*		X						X	
Willow Flycatcher	*Empidonax trailii*		X	X						X
Western Pond Turtle	*Emys marmorata*							X		
Spotted Bat	*Euderma maculatum*	X	X							
Yellow-breasted Chat	*Icteria virens*				X					
Silver-haired Bat	*Lasionycteris noctivagans*	X	X		X					
Sierra Nevada Snowshoe Hare	*Lepus americanus tahoensis*	X	X							
Sierra Marten	*Martes caurina sierrae*	X	X				X			X
Gray-headed Pika	*Ochotona princeps schisticeps*	X	X							
Steelhead – Central Valley DPS	*Oncorhynchus mykiss irideus*		X	X	X	X	X	X		
Chinook Salmon - Central Valley Spring-run ESU	*Oncorhynchus tshawytscha*		X		X	X		X		
Osprey	*Pandion haliaetus*						X		X	X
Fisher – West Coast DPS	*Pekania pennanti*						X			
Foothill Yellow-legged Frog	*Rana boylii*				X	X		X		

APPENDIX A
CNDDB Records Search Results
Lower Deer Creek Falls Fish Passage Improvements Project

COMMON NAME	SCIENTIFIC NAME	USGS 7.5' QUADRANGLE								
		LYVI	MINE	CHME	BAMO	ONBU	HUPE	DEPG	BUME	JONE
Cascades Frog	*Rana cascadae*		X	X			X		X	X
Sierra Nevada Yellow-legged Frog	*Rana sierrae*						X		X	X
California Spotted Owl	*Strix occidentalis occidentalis*	X	X	X	X	X	X	X	X	X
Sierra Nevada Red Fox	*Vulpes vulpes necator*	X	X	X			X			X
NATURAL COMMUNITIES										
Central Valley Drainage Hardhead / Squawfish Stream								X		
Central Valley Drainage Resident Rainbow Trout Stream				X		X	X			
Central Valley Drainage Spring-run Chinook Stream			X		X	X		X		

LEGEND:

LYVI = Lyonsville
MINE = Mineral
CHME = Childs Meadows
BAMO = Barkley Mountain
ONBU = Onion Butte
HUPE = Humboldt Peak
DEPA = Devils Parade Ground
BUME = Butte Meadows
JONE = Jonesville

APPENDIX B

Potentially Occurring Special-status Species

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
AMPHIBIANS & REPTILES				
Western Pond Turtle *(Emys marmorata marmorata)*	---	CSC	In or near aquatic habitats in slow moving water. Often associated with basking substrate (e.g. logs, large rocks, etc.) Use adjacent uplands to nest and overwinter.	May occur within the project site. Known to occur in Deer Creek approximately five miles downstream of Lower Deer Creek Falls (LDCF) (C. Mayes pers. comm. 2015). Not observed during site surveys.
Foothill Yellow-legged Frog *(Rana boylii)*	---	CSC	In or near rocky streams in a variety of habitats. Rarely encountered far from permanent water.	Likely to occur within the project site. Potential breeding habitat present within the project site. Known to occur at the road crossings less than two miles upstream and downstream of LDCF (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). Not observed during site surveys.
Cascades Frog *(Rana cascadae)*	---	CSC	Closely restricted to water and surrounding vegetation in mountain lakes, small streams and ponds in meadows up to timber line.	Not likely to occur within the study area due to the fact that the study area is well outside the current known range of the species and a lack of preferred habitat within the project site. The nearest detection was in a meadow near Colby Creek, approximately seven miles southeast of the project in 2007 (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). Not observed during site surveys.
California Red-legged Frog *(Rana draytonii)*	T	CSC	Slow moving or pooled aquatic habitats with overhanging vegetation.	Not likely to occur within the study area due to the lack of pond-type habitat within the project site. No detections from numerous forestwide surveys since 1991 (U.S. Forest Service 2010). Not observed during site surveys, however protocol-level surveys not conducted.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Sierra Nevada Yellow-legged Frog *(Rana sierrae)*	E	T / CSC	In or near aquatic habitats in streams, lakes and ponds, in montane riparian, lodgepole pine, subalpine conifer and wet meadow habitats above 5,940 feet in elevation in the Sierra Nevada .	Not likely to occur within the study area due to the fact that the study area is well outside of the known range of the species and the fact that the project site is below the known elevation range for this species. Not known to occur in the Deer Creek watershed. The nearest observations are from 1923, approximately seven miles southeast of the project site near Butte Meadows and Jonesville (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). Not observed during site surveys.
BIRDS				
Northern Goshawk (*Accipiter gentilis*)	---	CSC	Dense mature conifer and deciduous forest interspersed with open spaces and riparian areas. Nests on north-facing slopes with high tree canopy cover near water.	May occur within the project site. Potential nesting and foraging habitat present within the project site. Not observed during site surveys however, protocol-level surveys not conducted. U.S. Forest Service set-aside habitat for this species is present within the project site (A. Bustillos pers. comm. 2016). Active nests detected approximately four miles southwest of the project site in 2010 (California Department of Fish and Wildlife, Biogeographic Data Branch 2016).
Golden Eagle *(Aquila chrysaetos)*	---	FP	Uses rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, and cliffs and rock outcrops. Generally inhabit more open country.	May occur within the project site. Potential nesting and foraging habitat present within the project site. No large nests observed within the project site. Not observed during site surveys. Nest recorded approximately two miles west of the project site in 1988 (England et al. 1988).
Long-eared Owl *(Asio otus)*	---	CSC	Riparian, live oak or conifer thickets with small, densely canopies trees used for roosting and nesting. Generally forages in open areas.	May occur within the project site. Potential nesting and foraging habitat present within the project site. Not observed during site surveys.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Vaux's Swift *(Chaetura vauxi)*	---	CSC	Nests in large hollow trees and snags in redwood, Douglas fir and other conifer habitats. Often nests in large colonies. Forages widely, but prefers rivers and lakes.	May occur within the project site. Potential nesting and foraging habitat present within the project site. Not observed during site surveys. Known to occur at Elam Creek campground approximately ten miles upstream of the project site (Sterling and Paton 2006).
Olive-sided Flycatcher *(Contopus cooperi)*	---	CSC	Nests in mostly montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain. In the Sierra Nevada, they utilize open mixed conifer forest and are generally considered an edge species.	May occur within the project site. Potential nesting and foraging habitat present within the project site. Not observed during site surveys.
Black Swift *(Cypseloides niger)*	---	CSC	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above surf. Forages widely.	May occur within the project site. Not likely to nest within the project site due to the fact that the study area is well outside of the breeding range for this species and a lack of potential nesting habitat in the form of cliffs near or behind waterfalls in the project site. May forage within the project site during spring and fall migration. Not observed during site surveys.
Little Willow Flycatcher *(Empidonax traillii brewsteri)*	---	E	Nests in upper elevation riparian and wet meadow habitats.	May occur within the project site. Not likely to nest due to a lack of suitable nesting habitat. Likely to forage within the project site during spring and fall. Not observed during site surveys however, protocol-level surveys not conducted. Known to occur in the Deer Creek watershed (The Habitat Restoration Group 1998) near Childs Meadow approximately 10.5 miles northeast of LDCF (England et al. 1988).

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
American Peregrine Falcon (*Falco peregrinus anatum*)	D	D / FP	Riparian areas, coastal and inland wetlands are important habitats. Breeds mostly in woodland, forest and coastal habitats on cliff ledges, occasionally in snag cavities and in other used raptor nests.	May occur within the project site. Not likely to nest within the project site due to a lack of suitable nesting habitat within the project site. Potential nesting habitat present within approximately .75 miles to one mile of the project site (England et al. 1988). Known breeding area and nests approximately nine miles southwest of the project site (England et al. 1988). Not observed during site surveys.
Bald Eagle *(Haliaeetus leucocephalus)*	D	E / FP	Nests in large trees with open branchwork, usually near permanent water including rivers, streams and lakes/reservoirs. Forages over large bodies of water with abundant fish.	May occur within the project site. Potential nesting and foraging habitat present within the project site, however, there is a low likelihood of nesting within the project site due to the lack of established existing nests within the study area. Nest sites are known to occur near Lake Almanor and winter roost sites are recorded in lower Deer Creek (The Habitat Restoration Group 1998, England et al. 1988). Summer and fall foraging habitat is present near Mineral, California approximately nine miles northeast of the project site. Not observed during site surveys.
Yellow-breasted Chat *(Icteria virens)*	---	CSC	Nests in dense shrubs along streams and rivers. Found up to about 4,800 feet in valley foothill riparian, and up to 6,500 feet east of the Sierra Nevada in desert riparian habitats.	May occur within the project site. Potential nesting and foraging habitat present within the project area. Known to occur within the Lassen area of Deer Creek watershed (Shuford and Gardali 2008) and breeding sites were recorded approximately six miles northwest of the project site, one mile upstream from Black Rock in the Mill Creek watershed in 1989 (England et al. 1988). Not observed during site surveys.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Purple Martin (*Progne subis*)	---	CSC	Inhabits open forests, riparian areas and woodlands with snags and very large trees in breeding season. Nests in tree cavities, bridges, utility poles, lava tubes and buildings with low canopy cover at the nest height. Nests located in Monterey County were located from sea level to 4,620 feet.	May occur within the project site. Potential nesting and foraging habitat present within the project site. Adults and historical nesting sites have been recorded in the Deer Creek watershed near Lassen Peak (Grinnell and Miller 1944). Not observed during site surveys.
Yellow Warbler *(Setophaga petechia)*	---	CSC	Nests in riparian habitats, montane chaparral and open conifer forests with substantial amounts of brush.	May nest in riparian habitats within the project site. Likely to forage within the project site during spring and fall migration if nesting does not occur locally. Breeding sites are known to occur near Childs Meadow, approximately 10.5 miles to the northeast of the project site (England et al. 1988). Not observed during site surveys.
California Spotted Owl *(Strix occidentalis occidentalis)*	---	CSC	Occurs in mature second growth and late-successional forest, uses dense multi-layered canopy cover for roost selection.	May occur within the project site. Potential nesting and foraging habitat present within the project site. Known to occur within 1.5 miles east of the project site (California Natural Diversity Database, California Department of Fish and Wildlife 2016). Not observed during site surveys however, protocol-level surveys not conducted.
FISH				
Riffle Sculpin *(Cottus gulosus)*	---	CSC	Found exclusively in permanent cold-water streams where riffles and rocky substrates predominate. Prefer shallow fast-flowing waters.	Likely to occur within the project site. Known to occur within the study area (The Habitat Restoration Group 1998). Not observed during site surveys, however intensive fish surveys not conducted.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Pacific Lamprey *(Entosphenus tridentatus)*	---	CSC	Occupy habitat downstream of impassable dams in Sacramento River tributaries primarily on the valley floor and foothills. Adults spawn in gravelly riffles in river tributary streams. Ammocoetes (young) use soft stream sediments.	Likely to occur within the project site. Adults are known to spawn within Deer Creek at the road crossing approximately one mile downstream of LDCF (P. Moyle pers. comm. 2016) and can potentially occur as far upstream as Lower Deer Creek Falls at the project site (The Habitat Restoration Group 1998). Not observed during site surveys, however intensive fish surveys not conducted.
Delta Smelt (*Hypomesus transpacificus*)	T	E	Use estuaries and the freshwater edge of the mixing zone at the saltwater-freshwater interface.	Not likely to occur within the project area due to the fact that the study area is well outside of the known range of the species. Not known to occur within the Deer Creek watershed. Not observed during site surveys, however intensive fish surveys not conducted.
River Lamprey (*Lampetra ayresii*)	---	CSC	Adults spawn in gravelly riffles in river tributary streams. Ammocoetes (young) use silty backwaters and eddies.	May occur within the project site. Not well studied in Deer Creek. Presumed to occur within the Valley Floor Reach of Deer Creek, over 30 miles downstream of the project site (Moyle et al. 2015). May be present within the ammocoete stage and may spawn within the study area. Not observed during site surveys, however intensive fish surveys not conducted.
Hardhead (*Mylopharodon conocephalus*)	---	CSC	Low to mid-elevation streams up to 4,900 feet in elevation in the Sacramento drainage. Also present in the San Joaquin River and Russian River. Clear, deep pools with sand, gravel, and boulder substrate. Slow water velocity. Not found where exotic centrarchids predominate.	Not likely to occur within the project area. Not typically known to occur upstream of the Ponderosa Way crossing, approximately 13 miles downstream of the project site (The Habitat Restoration Group 1998, C. Mayes pers. comm. 2016). Not observed during site surveys, however intensive fish surveys not conducted.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Central Valley Steelhead *(Oncorhynchus mykiss)*	T	---	Spawns in cool, clear water with clean spawning gravel in the Sacramento River and many tributaries.	Adults and juveniles are known to occur within the project site. Known to spawn at the road crossing approximately one mile downstream of project site (C. Mayes pers. comm. 2015). Rainbow trout / steelhead observed during site surveys.
Central Valley Fall- / Late Fall-run Chinook Salmon *(Oncorhynchus tshawytscha)*	SC	CSC	Spawn in cool, clear water with clean spawning gravel in the Sacramento River and many tributaries.	Not known to occur within or near the project site. Known to use lower portions of Deer Creek (U.S. Forest Service 1999, Hayes and Lindquist 1967, The Habitat Restoration Group 1998) with upstream limit near Moak Cave (The Habitat Restoration Group 1998). Not observed during site surveys.
Central Valley Spring-run Chinook Salmon *(Oncorhynchus tshawytscha)*	T	T	Spawns in the late summer / early fall in cool, clear water with clean spawning gravel in the Sacramento River and some tributaries.	Known to occur within the project site. Known to hold and spawn within the project reach. Observed during site surveys.
Sacramento River Winter-run Chinook Salmon *(Oncorhynchus tshawytscha)*	E	E	Spawns in the summer in cool, clear water with clean spawning gravel, almost exclusively in the main-stem of the Sacramento River.	Not known to occur within or near the project site. Rarely observed in Deer Creek and considered strays if they occur (The Habitat Restoration Group 1998). Spawning limited by warm water temperatures but could use lower reaches for rearing (The Habitat Restoration Group 1998), however rearing areas are over 40 miles downstream of LDCF.
MAMMALS				
Pallid Bat *(Antrozous pallidus)*	---	CSC	Uses a wide variety of habitats including grassland, shrubland, woodland and forest. Roosts in caves, mines, crevices, hollow trees and buildings.	Known to occur within the project site. Detected during acoustical site surveys. Potential roosting and foraging habitat within the project site.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Ringtail *(Bassariscus astutus)*	---	FP	Riparian habitats and forest and shrub habitats near rocky areas or riparian areas from low to middle elevations.	May occur. Potential denning and foraging habitat present within the project site. Observed near Black Rock campground in the Mill Creek watershed in 2010 approximately six miles from LDCF (U.S. Forest Service 2015). Not observed during site surveys.
Gray Wolf (*Canis lupis*)	E	E	Uses a variety of habitats including temperate forests, mountains, tundra, taiga and grasslands.	Potential denning and foraging habitat present within the project site, however there is an extremely low likelihood of occurrence within the project site due to the very low density of wolves in California and the extremely large territory wolves occupy. One detection was recorded within one mile of the project site in 2013 (California Department of Fish and Wildlife 2016c). Not observed during site surveys.
Townsend's Big-eared Bat *(Corynorhinus townsendii)*	---	CT / CSC	Roosts in caves, mines, tunnels, buildings and in large hollow trees. Very sensitive to human disturbance; however, in some instances it can become habituated to reoccurring and predictable human activity.	Not likely to roost within the project site. Marginal roosting habitat present near the project site in the form of hollow trees. No caves, mines, large tunnels or building are present. May forage in the project site if roosting in the general vicinity. No known detections within the Deer Creek watershed (U.S. Forest Service 1999, U.S. Forest Service 2015). Not detected during acoustical site surveys.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Spotted Bat *(Euderma maculatum)*	---	CSC	Prefers to roost in rock crevices on cliffs but occasionally roosts in caves and buildings. Forages over water in a variety of habitats.	Not likely to roost within the project site due to a lack of preferred habitat. May forage in the project site if roosting in the general vicinity. Detected in the Deer Creek watershed in 1996 (U.S. Forest Service 1999). One detection was recorded in 2000, approximately nine miles to the north of the project site near Diamond Lake (California Department of Fish and Wildlife, Biogeographic Data Branch 2016). In 2010 an acoustical detection occurred near Swain Meadow, approximately 33 miles northwest of the project site (U.S. Forest Service 201). Not detected during acoustical site surveys.
Western Mastiff Bat *(Eumops perotis)*	---	CSC	Roosts in crevices in cliff faces, high buildings, trees and tunnels. Occur in open arid to semi-arid habitats with abundant roost sites.	Not likely to roost within the project site. Due to a lack of roosting habitat in the form of rock crevices or buildings. No cliffs, buildings and / or tunnels are present. May forage in the project site if roosting in the general vicinity. Known to occur near Black Rock campground approximately six miles from the project site in the Mill Creek watershed and near Hole in the Ground campground approximately ten miles from the project site in 2010 (U.S. Forest Service 2015). Not detected during acoustical site surveys.
California Wolverine *(Gulo gulo)*	---	T / FP	Found in a wide variety of high elevation habitats (4,300 feet – 7,300 feet in elevation). Needs water sources, uses caves, logs, burrows for cover and den area. Hunts in more open areas and can travel long distances. Prefer areas with low human disturbance.	Low likelihood to den or forage within the project site because the project site is slightly below the known elevation range for this species and due to the regular recreational use of the area and regular use of the access roads. Wolverine observed in a den in 1993 near the upper Deer Creek watershed headwaters approximately 11 miles northeast of the project site (U.S. Forest Service 1999). Not observed during site surveys.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Western Red Bat (*Lasiurus blossevillii*)	---	CSC	Roosts primarily in trees, less often in shrubs. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Prefers edges or habitat mosaics that have trees for roosting and open areas for foraging.	Known to occur within the project site. Detected during acoustical site surveys. Potential roosting and foraging habitat present within the project site.
Sierra Nevada Snowshoe Hare *(Lepus americanus tahoensis)*	---	CSC	Generally found in high mountain habitat above the yellow pine zone from 4,800 feet to 7,000 feet in elevation in riparian areas with thickets of deciduous trees and shrubs.	Not likely to occur within the project site because the project site is slightly below the known elevation range for this species. Known to occur near Mineral, California, approximately nine miles northeast of the project site, recorded in 1924 and 1925. Not observed during site surveys.
Pacific Fisher *(Pekania pennanti)*	---	CT / CSC	Large areas of mature, dense coniferous forest and riparian forest stands with snags and high percent canopy cover.	Likely to occur within the project site. Potential denning and foraging habitat present within the project site. Known to den within two miles from the access road to the project site (J. Kelley pers. comm. 2015). Known to occur within the project site (K. Smith pers. comm. 2016). Not observed during site surveys.

APPENDIX B
Potentially-occurring Special-status Species
Lower Deer Creek Falls Fish Passage Improvements Project

SPECIES	LISTING STATUS		TYPICAL HABITAT	POTENTIAL FOR OCCURRENCE
Common Name (*Scientific Name*)	Federal	State		
Sierra Nevada Red Fox *(Vulpes vulpes necator)*	---	T	Uses high elevation barren, conifer and shrub habitats, montane meadows and subalpine woodlands above 4,000 feet, seldom found below 4,900 feet in elevation. Dens in rock outcrops, talus slopes, rock piles, hollow logs and underground burrows in deep, loose soil.	Not likely to den within the project site because the project site is slightly below the known elevation range for this species during denning period. May forage in area during winter elevational migration to lower elevations. Known to occur in Lassen National Park approximately 19 miles to the north of the project site (U.S. Fish and Wildlife Service 2015). There have been detections of red fox in the general area which may or may not be Sierra Nevada red fox including an unconfirmed sighting in 1978 within approximately four miles of the project site (California Department of Fish and Wildlife, Biogeographic Data Branch 2016) and unconfirmed recent sighting near Butte Meadows (A. Bustillos pers. comm. 2016). Not observed during site surveys.

LEGEND:

E = Endangered
T = Threatened
C = Candidate for listing as Endangered or Threatened
P = Proposed for listing as Endangered or Threatened
CSC = California Species of Special Concern
FP = California Fully Protected
SC = NMFS Species of Concern
D = Delisted
PD = Proposed for Delisting

APPENDIX C

Faunal Species Observed Within or Near the Project Site

APPENDIX C
Faunal Species Observed Within or Near the Project Site
Lower Deer Creek Falls Fish Passage Improvements Project

COMMON NAME	SCIENTIFIC NAME	LISTING STATUS	
		Federal	State
AMPHIBIANS & REPTILES			
California Newt	*Taricha torosa*		
Garter Snake	*Thamnophis sp.*		
Pacific Chorus Frog	*Pseudacris regilla*		
Western Fence Lizard	*Sceloporus occidentalis*		
Western Rattlesnake	*Crotalus viridis*		
BIRDS			
American Dipper	*Cinclus mexicanus*		
American Robin	*Turdus migratorius*		
Anna's Hummingbird	*Calypte anna*		
Belted Kingfisher	*Ceryle alcyon*		
Black Phoebe	*Sayornis nigricans*		
Black-headed Grosbeak	*Pheucticus melanocephalus*		
Black-throated Gray Warbler	*Setophaga nigrescens*		
Blue-headed Vireo	*Vireo solitarius*		
Common Raven	*Corvus corax*		
Dark-eyed Junco	*Junco hyemalis*		
Downy Woodpecker	*Picoides pubescens*		
Hairy Woodpecker	*Picoides villosus*		
Northern Flicker	*Calaptes auratus*		
Osprey	*Pandion haliaetus*		
Pine Siskin	*Spinus pinus*		
Red-tailed Hawk	*Buteo jamaicensis*		
Spotted Towhee	*Pipilo maculatus*		
Steller's Jay	*Cyanocitta stelleri*		
Turkey Vulture	*Cathartes aura*		
Unknown Hummingbird	*Unknown species*		
Violet-green Swallow	*Tachycineta thalassina*		
Western Scrub-Jay	*Aphelocoma californica*		
Western Tanager	*Piranga ludoviciana*		
Western Wood-Pewee	*Contopus sordidulus*		
FISH			
Chinook Salmon (spring-run)	*Oncorhynchus tshawytscha*	T	T
Rainbow Trout / Steelhead	*Oncorhynchus mykiss*	T	
MAMMALS			
Big Brown Bat	*Eptesicus fuscus*		
Black Bear	*Ursus americanus*		
Brazilian Free-tailed Bat	*Tadarida brasiliensis*		
California Bat	*Myotis californicus*		
California Ground Squirrel	*Spermophilus beecheyi*		
Canyon Bat	*Parastrellus hesperus*		
Fringed Bat	*Myotis thysanodes*		
Hoary Bat	*Lasiurus cinereus*		

APPENDIX C
Faunal Species Observed Within or Near the Project Site
Lower Deer Creek Falls Fish Passage Improvements Project

COMMON NAME	SCIENTIFIC NAME	LISTING STATUS	
		Federal	State
Little Brown Bat	*Myotis lucifugus*		
Long-eared Bat	*Myotis evotis*		
Long-legged Bat	*Myotis volans*		
Pallid Bat	*Antrozous pallidus*		CSC
Silver-haired Bat	*Lasionycteris noctivagans*		
Western Gray Squirrel	*Sciurus griseus*		
Western Red Bat	*Lasiurus blossevillii*		CSC
Yuma Bat	*Myotis yumanensis*		

LEGEND:

E = Endangered
T = Threatened
C = Candidate for listing as Endangered or Threatened
P = Proposed for listing as Endangered or Threatened
CSC = California Species of Special Concern
FP = California Fully Protected
SC = NMFS Species of Concern
D = Delisted
PD = Proposed for Delisting
***** = Non-native Species

APPENDIX D

Site Photos

Photo 1. View of current Lower Deer Creek Falls fishway, looking northwest. Photo date: June 9, 2015.

Photo 2. View of fishway tunnel entrance looking northeast. Photo date: January 27, 2016.

Photo 3. View of Lower Deer Creek Falls with fishway entrance (lower left corner), looking north. Photo date: June 9, 2015.

Photo 4. View of Deer Creek downstream of the fishway, looking south. Photo date: June 8, 2015.

Photo 5. View of Deer Creek upstream of the fishway, looking north. Photo date: June 8, 2015.

Photo 6. View of Deer Creek canyon from the helipad, looking northwest toward the approximate location of the falls. Photo date: January 27, 2016.

Photo 7. View of mixed hardwood-conifer habitat within the hillslope access area, looking southeast. Photo date: January 27, 2016.

Photo 8. View of upland mixed hardwood-conifer habitat within the hillslope access site looking southwest. Photo date: January 27, 2016.

Photo 9. View of walking access trail to Lower Deer Creek Falls, looking west. Photo date: June 9, 2015.