

Biological Report

Lake Shastina Community Services
Infrastructure Improvement Project
Lake Shastina, California

Prepared for:

Lake Shastina Community Services

February 2023

520022.500



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Prepared for:
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Prepared by:



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Abbreviations and Acronyms

Units of Measure

F	Fahrenheit
ft	feet
km	kilometer
m	meter

Additional Terms

APN	Assessor's Parcel Number
BIOS	Biogeographical Information and Observation System
BMP	best management practices
C	candidate
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CT	candidate threatened species status
CWA	Clean Water Act
D	delisted species status
DPS	distinct population segment/species status
E	endangered species status
EPA	United States Environmental Protection Agency
ESU	evolutionarily significant unit/species status
FESA	Federal Endangered Species Act
FP	fully protected species status
G	Global
G1/S1	critically imperiled species heritage rank
G2/S2	imperiled species heritage rank
G3/S3	vulnerable species heritage rank
G4/S4	apparently secure species heritage rank
G5/S5	secure species heritage rank
GIS	Geographic Information Systems
IPaC	Information for Planning and Conservation
LSA	Lake and Streambed Alteration
LSCSD	Lake Shastina Community Services District
MBTA	Migratory Bird Treaty Act
NCCP	Natural Community Conservation Planning
NEPA	National Environmental Policy Act
NL	not listed
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration



Abbreviations and Acronyms (cont'd)

NPPA	Native Plant Protection Act
NT	Near threatened species status
PT	proposed threatened species status
RWQCB	Regional Water Quality Control Board
S	State
SSC	species of special concern
SWRCB	State Water Resources Control Board
T	threatened species status
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program
WDR	Waste Discharge Requirement
WL	watch list species status



1.0 Introduction

SHN has conducted literature review, special-status animal species surveys, and habitat assessments to determine biological resources present and potential to occur in the vicinity of the Lake Shastina Community Services District (LSCSD) upgrades to their water meters, fire hydrants, water tanks, wells, and construction of one small pump station. This Biological Report is intended to provide biological resources information for planning and permitting purposes. Fieldwork was performed by an SHN staff biologist with over five years of experience.

1.1 Project Location

The project is located approximately five miles northeast of Weed, California, and 300 feet west of A29/Big Springs Road within Siskiyou County (Figure 1). The study area is in Township 43 North, Range 5 West, Sections 1, 2, 11, 12, 25, 26, 31, 35, and 36, Mount Diablo Meridian. The proposed activities are located within the following Assessor's Parcel Numbers (APNs) along with a brief description of the locations:

- Water tank 4 location APN: 020-071-270-000, LSCSD owned, Dead end of Tennis Court. See Appendix 1, Photo 4.
- Water tank 3 location APN: 108-200-120-000, LSCSD owned, Legal Description: Unit 9-2 Lot 238 Lake Shastina, west side of Stone Crest Drive near the southern dead end. See Appendix 1, Photo 3.
- Water tank 2 location APN: 106-380-450-000, LSCSD owned, Legal Description: Unit 4 Por Stag St & Deer Mtn Rd Lot 43 Lake Shastina, where Stag Street and Stag Mountain Road split. See Figure 2 and Figure 3-1.
- Water tank 1 location APN: 106-190-150-000, LSCSD owned, Legal Description: Unit 3 Par F Lake Shastina, Juniper Peak Rd is to the west and Windmill Dr is to the east. See Figure 2 and 3-1.
- Test Well 12 site location APN: 020-071-430-000, private resident, where Lake Shore Drive and Cottonwood Drive meet up and end. See Appendix 1, Photo 5, and Figure 2.
- Test Well 11 site location APN: 020-280-280-000, LSCSD owned, where Lake Shore Drive meets Big Springs Rd on the north side of the lake, the parcel is north east by 0.03 miles. See Figure 2.
- Place a temporary water tank outside of pump station 53 on APN: 107-080-270-000, LSCSD owned, legal description: Unit 5 Lots 8 & 9 One OR 98 9949 Lake Shastina. See Appendix 1, Photo 1 and Figure 2.
- New pump station would be placed where the demolished pump station #52 use to be (near fire hydrant 190): APN: 107-450-550-000 (east side of Elk Trail Rd), LSCSD owned, Legal description: Unit 7-2 Incl Por Puma Dr Cottontail Dr Elk Trail & All Fox Ct Lake Shastina See Appendix 2, Photo 10 and Figure 3.
- 319 fire hydrant replacements throughout the project area within Township 43 North, Range 5 West, sections 35, 26, 25, 31, 36, 1, 12, 11, 2, Mount Diablo Meridian, Siskiyou county. See Figure 4.



1.2 Project Description

LSCSD is planning to make upgrades to all water meters and fire hydrants throughout the project site. The water meters will be replaced with automatic sensor meters and no ground disturbance will be required at these locations. The fire hydrants will need to be replaced to the elbow joint in the ground. Soil disturbance within 10 feet of each fire hydrant and a few inches of depth is expected with the use of a backhoe and hand tools, within negligible vegetation or bare ground (See Figure 4).

- LSCSD proposes to make upgrades to water tanks 1, 2, 3, and 4. Water tanks 1, 2, and 3 will be painted and water tank 4 will be replaced with a larger tank to keep up with the water demands of the area. A crane and truck will be used to move and transport water tanks. Pump station 53 will house a temporary water tank outside of the pump station while tank 4 is being replaced (See Figure 2).
- A new test well 12 will be drilled (on APN 020-280-280-000; See Figure 2).
- A new test well 11 will be drilled next to existing test wells (on APN 020-280-280-000).
- A new pump house station will be constructed (on APN 107-450-550-000) to allow better water pressure to residents in that area. Soil disturbance and minor vegetation removal by using a backhoe and hand tools within 20 feet of the area will occur.

This plan will not involve vegetation or soil disturbance within 50 feet of a stream or drainage and will not have hydrological impacts to any adjacent jurisdictional (Regional Water Quality Control Board [RWQCB] or California Department of Fish and Wildlife [CDFW]) features. Minor soil disturbance would be required at several locations that vary from 170 feet to 5,000 feet away from the riparian habitat to replace fire hydrants, water tank 4, and the new pump house station.

1.3 Site Description

The study area is situated between approximately 2,680 and 3,230 feet (ft) above the mean sea level, with the highest elevations represented at the most south eastern corner of the study area where Jackson Ranch Road and A29/Big Springs Road meet. The residential areas that surround half of Lake Shastina was created because of the construction of the Dwinnell Dam with Shasta River flowing north from the north tip of the lake. The residential area within the study area has been under development for the past 54 years with road, underground power, water, and sewage improvements brought to the area to house around 2,400 residents. The habitat within the project area consists of rural residential development with managed landscapes. The areas not landscaped with fescue grasses and maples are sparse shrubs consisting of rabbitbrush (*Chrysothamnus* sp.) and manzanita (*Arctostaphylos* sp.), mixed with Western juniper (*Juniperus occidentalis*) and ponderosa pine (*Pinus ponderosa*).

2.0 Methods

2.1 Literature Review

This Biological Report includes a review of pertinent literature on habitat characteristics of the site, and a review of information related to special-status plant and animal species that could potentially use the described habitats.

The findings for this report are a result of several sources, including a review of existing literature regarding sensitive resources that have the potential to occur within the site. Resources for this determination included:



- California Natural Diversity Database (CNDDDB) query for the Lake Shastina and surrounding United States Geological Survey (USGS) 7.5-minute topographic quadrangles (Lake Shastina, Juniper Flat, Gazelle, Montague, Little Shasta, Solomons Temple, China Mountain, Weed, and Hotlum; CDFW, 2022a)
- Biogeographical Information and Observation System (BIOS; CDFW, 2022b)
- Electronic Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS], 2022a), queried for a list of all botanical species reported for the Lake Shastina and surrounding USGS 7.5-minute topographic quadrangles
- Special Animals of California List (CDFW, 2022c)
- Special Vascular Plants, Bryophytes, and Lichens of California List (CDFW, 2022d)
- United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) was queried for threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of the proposed project and/or may be affected by the proposed project (USFWS, 2022a)
- USFWS Critical Habitat Mapper (USFWS, 2022b)

From the database queries, a list of potential target species for the study area was compiled. Tables 1 and 2 in Appendix 2 include botanical and animal species reported by the CNDDDB and USFWS, and species listed in the CNPS inventory of rare plants.

2.2 Field Observations and Studies

An SHN biologist conducted a site visit on June 22, 2022 for biological surveys and habitat assessments. A total of seven hours of surveying occurred. A survey was conducted to identify all species present within the project-related study areas, including possible special-status species. In addition to surveying for target species, lists of all botanical and animal species encountered were compiled and included in Appendix 3. As this field visit was reconnaissance level, the survey was not conducted according to CDFW protocol as outlined in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW, 2018). Pre-construction protocol surveys are included in Section 7 Recommendations.

Site photographs from the site visit are included in Appendix 1.

3.0 Environmental Setting

The average annual 29 years precipitation data from the Mount Shasta Area from 1991 to 2020 is 36.03 inches (National Oceanic and Atmospheric Administration [NOAA], 2022) with most precipitation occurring between November and April. Temperatures in the Lake Shastina range from an average low of 28 degrees Fahrenheit (F) in December to an average high of 85 F in July; extremes in temperatures are relatively uncommon.

3.1 Hydrology

The project location is within the Shasta River watershed (hydrologic unit code 18010207; See Figure 4). Snowmelt from Mount Shasta contributes significantly to surface runoff and groundwater hydrology. Water from melted snow percolates down through porous volcanic rocks and flows subsurface,



eventually emerging as springs and seeps on the valley margin or floor. (Normandeau Associates, Inc., 2022). The study area contains four hydrology types: one lake (Lake Shastina), two freshwater ponds, and one river (Shasta River). Lake Shastina is a 1,613.31-acre lake that is classified as L1UBHh (lacustrine, limnetic, unconsolidated bottom, permanently flooded, and diked). Lost Lake, which is one of the freshwater ponds, is 10.41 acres and situated 0.28 miles west of Lake Shastina and is classified as a PABG (palustrine, aquatic bed, and intermittently exposed). The unnamed freshwater pond that is located within the northeast mouth of Lake Shastina, is 2.94 acres and classified as a PABGx (palustrine, aquatic bed, intermittently exposed, and excavated). The Shasta River enters Lake Shastina in the southwest corner and flows/exists through the riverine north of Lake Shastina. After 0.5 miles due north, the river flows northwest towards the Klamath River. Shasta River has various classifications within the study area that include R3UBH (riverine, upper perennial, unconsolidated bottom, permanently flooded), PEM1C (palustrine, emergent, persistent, seasonally flooded), PSSC (palustrine, scrub-shrub, seasonally flooded), PEM1A (palustrine, emergent, persistent, and temporary flooded), PEM1Ch (palustrine, emergent, persistent, seasonally flooded, diked), and PFOC (Palustrine, forested, and seasonally flooded) (USFWS, 2022c).

Lake Shastina has a large seepage rate to the groundwater basin beneath the Shasta River to the northwest. The Montague canal from Lake Shastina also has a high seepage rate (estimated as 25% of the canal flow) that recharges the groundwater between Lake Shastina and Montague. There is also considerable recharge from the irrigated pastures and alfalfa fields in other parts of Shasta Valley (CDFW, 2022e).

3.2 Geology and Soils

Geology within the location is a terrain built on deposits of lava flow from the eruption of ancestral Mt. Shasta, with slopes between 0 and 65 percent in the study area. The lava flows also developed the small hills just east of U.S. Highway 5 that spans from Weed to Yreka. To the west of U.S. Highway 5 are the Klamath Mountains, which comprise of ocean floor crust and sediment. Mount Shasta can be seen to the south east of Weed and has developed during the past 250,000 years in a series of eruptive episodes (Christiansen et al., 2017). The top three soils within the project area consist of Delaney sand, Delaney gravelly sand, and Mary-Rock outcrop complex. (See Appendix 4 Soils Map; United States Department of Agriculture [USDA]-Natural Resources Conservation Service [NRCS], 2022; McLaughlin and Harradine, 1965). Delaney sand (129), which occurs on 0 to 9 percent slopes and is somewhat excessively drained, Delaney gravelly sand (130) occurs on 0 to 9 percent slopes and is somewhat excessively drained, and Mary-Rock (188) outcrop complex which occurs on 2 to 50 percent slopes are well drained. The 18 different soil types within the study area range from very poorly drained (Gazelle silt loam) to excessively drained (rock outcrop and Lithic Haploxerolls-Rock outcrop complex; Hirt, 1995). The soils support residential homes, agricultural fields, a lake, ponds, rivers, scrub-shrub, mixed-conifer, and rocky outcrop habitats.

3.3 Vegetation

Vegetation composition varies across the study area. On the east side of the study area is cultivated crop land of alfalfa hay. The southeast portion of the study area contains the majority of the scrub-shrub habitat, consisting of rabbitbrush and manzanita. The subdivision residential areas around the lake are mixed with ponderosa pine, western juniper, and rocky outcrops surrounding Lake Shastina. The northern part of the study area contains Shasta River, which creates willow (*Salix*) and wetland habitats.



3.4 Wildlife Habitats

Common wildlife species expected on the site are those associated with northern California disturbed residential areas with small parcels of wet meadows, willow, ponderosa pine, western juniper, manzanita, and rabbitbrush. Lake Shastina provides foraging opportunity for special-status birds such as Osprey and Bald Eagle. Osprey were observed during the June 22, 2022 visit in the northern area near the Shasta River. No osprey nests were observed. Bald Eagles were not observed, nor bald eagle nests during the first assessment. Other wildlife species observed at the site included the Canada Goose (*Branta canadensis*), American goldfinch (*Spinus tristis*), Turkey vulture (*Cathartes aura*), Black-capped chickadee (*Poecile atricapillus*), and California scrub jay (*Aphelocoma californica*), among others (see Appendix 3, Table 1). Other wildlife species are likely to inhabit the surrounding area and it is expected that there are many other bird, mammal, and amphibian species that might use the project site, if only transitionally (see Appendix 2, Table 1 for special-status species reported within the vicinity). Human activities within the roadside, residential, and public utility portions of the study area may limit the abundance of a variety of birds and animals within those areas. See Section 5.4 for more special-status habitat descriptions observed within the study area.

3.5 Offsite Conditions

Offsite conditions are like those found within the study area; disturbed residential areas with pockets of rabbitbrush-manzanita shrub, ponderosa pine-western juniper evergreen mix, crop land of alfalfa hay, and willows/wetland vegetation in the Shasta River areas.

4.0 Regulatory Setting

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of legislative acts. The following section summarizes the federal, State, and local regulations for special-status species, jurisdictional waters of the U.S. and State of California, and other sensitive biological resources. This section provides a listing and overview of these federal, State, and local laws.

4.1 Federal Laws

4.1.1 Clean Water Act Sections 404 and 401

Under Section 404 (33 U.S. Code (USC) 1341) of the Clean Water Act (CWA), as amended, the United States Army Corps of Engineers (USACE) retains primary responsibility for permits to discharge dredged or fill material into waters of the U.S. All discharges of dredged or fill material into jurisdictional waters of the U.S. that result in permanent or temporary losses of waters of the U.S. are regulated by the (U.S. Environmental Protection Agency [EPA], 2008). A permit from the USACE must be obtained before placing fill or grading in wetlands or other waters of the U.S., unless the activity is exempt from CWA Section 404 regulation (for example, certain farming and forestry activities). The USACE defines wetlands as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory, 1987). In other words, the USACE defines wetlands by the presence of all three wetland indicators: hydrophytic vegetation, hydric soils, and wetland hydrology.

Waters of the U.S. are defined in 33 Code of Federal Regulations (CFR) Part 328. They include traditional navigable waters; relatively permanent, non-navigable tributaries of traditional navigable waters; and certain wetlands. Following recent court cases, the EPA and USACE published a memorandum entitled



“Clean Water Act Jurisdiction” (EPA/USACE, 2008) to guide the determination of jurisdiction over waters of the U.S., especially for wetlands. The applicability of Section 404 permitting over discharges to wetlands is, therefore, a two-step process: 1) determining the areas that are wetlands, and 2) where a wetland is present, assessing the wetland’s connection to traditional navigable waters and nonnavigable tributaries to determine whether the wetland is jurisdictional under the CWA. A wetland is considered jurisdictional if it meets certain specified criteria. The USACE is required to consult with the USFWS and/or National Marine Fisheries Service (NMFS) under Section 7 of the Federal Endangered Species Act (FESA) if the action subject to CWA permitting could result in “Take” of federally listed species or an adverse effect to designated critical habitat. The project is within the jurisdiction of the San Francisco District of the USACE.

Section 401 of the CWA (33 USC 1341; EPA, 1977) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification from the state in which the discharge originates or would originate, or if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and its nine RWQCBs. The project is within the jurisdiction of the North Coast RWQCB.

4.1.2 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC Sections 661-667e, as amended, 1958, 1978, 1994, and 1995) requires that whenever waters, the channel of a stream, or other body of water are proposed or authorized to be modified by a public or private agency under a federal license or permit, the federal agency must first consult with the USFWS and/or NMFS and with the head of the agency exercising administration over the wildlife resources of the state where construction will occur (in this case, the CDFW). These guidelines aim at conservation of birds, fish, mammals, and all other classes of wild animals, and all types of aquatic and land vegetation upon which wildlife is dependent (USFWS, 1934). If direct permanent impacts occur to waters of the U.S. from a proposed project, then a permit from USACE under CWA Section 404 is required for the construction of the proposed project. USACE is required to consult with USFWS and/or NMFS as appropriate regarding potential impacts to federally-listed species under FESA. Such action may prompt consultation with CDFW, which would review the project pursuant to California Endangered Species Act (CESA) and issue a consistency letter with USFWS and/or NMFS, if required.

4.1.3 Federal Endangered Species Act

The United States Congress passed the FESA in 1973 to protect species that are endangered or threatened with extinction (USACE/EPA, 1973). The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend and within which they live. The USFWS and the NMFS are the designated federal agencies responsible for administering the FESA. The FESA prohibits the “Take” of endangered or threatened wildlife species. A “Take” is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1531, 50 CFR 17.3). An activity can be defined as a “Take” even if it is unintentional or accidental. Taking can result in civil or criminal penalties. Activities that could result in “Take” of a federally-listed species require an incidental “Take”



authorization resulting from FESA Section 7 consultation or FESA Section 10 consultation. Plants are legally protected under the FESA only if “Take” occurs on federal land or from federal actions, such as, issuing a wetland fill permit. A federal endangered species is one that is considered in danger of becoming extinct throughout all, or a significant portion, of its range. A federal threatened species is one that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species proposed for listing as threatened or endangered. Proposed species are those for which a proposed rule to list as endangered or threatened has been published in the Federal Register. In addition to endangered, threatened, and proposed species, the USFWS maintains a list of candidate species. Candidate species are those for which the USFWS has on file sufficient information to support issuance of a proposed listing rule.

Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed endangered or threatened species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such a species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat designated or proposed to be designated for such species (16 USC 1536[3], [4]). Project-related impacts to species on the FESA endangered or threatened list would be considered significant and would require mitigation.

4.1.4 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21; USFWS, 1918). The MBTA also prohibits disturbance and harassment of nesting migratory birds at any time during their breeding season. The USFWS is responsible for enforcing the MBTA (16 USC 703). The migratory bird nesting season is generally considered to be between March 15 and August 15 within the study region.

4.2 State Laws

4.2.1 Porter-Cologne Water Quality Control Act

The state and RWQCB also maintain independent regulatory authority over the placement of waste, including fill, into waters of the state under the Porter-Cologne Water Quality Control Act (SWRCB, 1969). Waters of the state are defined by the Porter-Cologne Water Quality Control Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The SWRCB protects all waters in its regulatory scope but has special responsibility for isolated wetlands and headwaters. These water bodies might not be regulated by other programs, such as, Section 404 of the CWA. Waters of the state are regulated by the RWQCBs under the State Water Quality Certification Program, which regulates discharges of dredged and fill material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require an USACE permit, or fall under other federal jurisdiction, and have the potential to impact waters of the state are required to comply with the terms of the Water Quality Certification Program. If a proposed project does not require a federal license or permit but does involve activities that may result in a discharge of harmful substances to waters of the state, the RWQCBs have the option to regulate such activities under their state authority in the form of Waste Discharge Requirements (WDRs) or certification of WDRs.



4.2.2 California Endangered Species Act

The State of California enacted the CESA in 1984 (CDFW, 1984). The CESA is similar to the FESA, but pertains to state-listed endangered and threatened species. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened and endangered species designated under state law (California Fish and Game Code [CFG] 2070; CDFW, 1998). Section 2080 of the CFGC prohibits "Take" of any species that the commission determines to be an endangered or threatened species. "Take" is defined in Section 86 of the CFGC as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

The state and federal lists of threatened and endangered species are generally similar; however, a species present on one list may be absent from the other. CESA regulations are also somewhat different from the FESA in that the California regulations include threatened, endangered, and candidate plants on non-federal lands within the definition of "Take." CESA allows for "Take" incidental to otherwise lawful development projects. Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction

must determine whether any state-listed endangered or threatened species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such species. Project-related impacts to species on the CESA endangered or threatened list (or, in addition, designated by the CDFW as a Species of Special Concern [SSC], which is a level below threatened or endangered status) would be considered significant and would require mitigation.

4.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA; Sec. 1900-1913 of the CFGC) was enacted in 1977 and allows the Fish and Game Commission to designate plants as rare or endangered. The NPPA precedes the CESA. Statewide, there are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and after properly notifying CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations. Plants listed as rare or endangered under the NPPA should be considered during project review as if they were listed under the CESA. Appendix 2 includes potentially-occurring endangered or rare native plants that may occur in the project area (including CNPS lists).

4.2.4 California Environmental Quality Act

California Environmental Quality Act (CEQA) Guidelines Sections 15125(c) and 15380(d) provide that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria (CNRA, 1970). Thus, CEQA provides the ability to protect a species from potential project impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted. CNPS maintains an inventory of plant species native to California, with populations that are significantly reduced from historical levels, occur in limited distribution, or otherwise are rare or threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS, 2022a). Taxa with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, and 3 in the CNPS inventory consist of plants that are eligible for state listing and meet the definition of Rare or Endangered under CEQA Guidelines Sections 15125(c) and 15380(d). CRPR 4 populations may qualify for consideration under CEQA if they are peripheral or disjunct populations, represent the type of locality of the species, or exhibit unusual morphology and/or occur on unusual substrates. Additionally, CDFW maintains lists of special-status animals and plants. These lists include a species conservation ranking status from multiple sources, including FESA, CESA, federal departments with unique jurisdictions, CNPS, and other non-governmental



organizations. Based on these sources, CDFW assigns a heritage rank to each species according to their degree of imperilment (as measured by rarity, trends, and threats). These ranks follow NatureServe's Heritage Methodology, in which all species are listed with a G (global) and S (state) rank. Species with state ranks of S1-S3 are also considered highly imperiled. CEQA checklist IV(b) calls for the consideration of riparian habitats and sensitive natural communities.

Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. However, these communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by the CDFW (that is, the CNDDDB and Vegetation Classification and Mapping Program [VegCAMP]) or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA (California Code of Regulations [CCR]: Title 14, Div. 6, Chap. 3).

Although sensitive natural communities do not (at present) have legal protection, CEQA calls for an assessment of whether any such resources would be affected and requires a finding of significance if there will be substantial losses. High-quality occurrences of natural communities with heritage ranks of 3 or lower are considered by CDFW to be significant resources and fall under the CEQA guidelines for addressing impacts. Local planning documents (such as general plans) often identify these resources as well. Avoidance, minimizations, or mitigation measures should be implemented if project-affected stands of rare vegetation types or natural communities are considered high-quality occurrences of the given community. As a trustee agency under CEQA, CDFW reviews potential project impacts to biological resources, including wetlands. In accordance with the CEQA thresholds of significance for biological resources, areas that meet the state criteria for wetlands and could be impacted by a project must be analyzed. Pursuant to CFGC Section 2785, CDFW defines wet areas as "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools."

4.2.5 California Fish and Game Code Section 1600

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC (CDFW, 1994). Any activity that will do one or more of the following generally require a Lake and Streambed Alteration (LSA) Agreement:

- 1) Substantially obstruct or divert the natural flow of a river, stream, or lake
- 2) Substantially change or use any material from the bed, channel, or bank of a river, stream, or lake
- 3) Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake (CDFW, 1994).

The term "stream," which includes creeks and rivers, is defined in the CCR as, "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life." This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 CCR 1.72; CNRA, 1987).

In addition, the term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as



“on, or pertaining to, the banks of a stream”; therefore, riparian vegetation is defined as vegetation that occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself. Removal of riparian vegetation also requires an LSA agreement from CDFW.

4.2.6 California Fish and Game Code Sections 3503 and 3513

According to Section 3503 of the CFGC, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (except English sparrows [*Passer domesticus*] and European starlings [*Sturnus vulgaris*]). Section 3503.5 specifically protects birds in the orders Falconiformes and Strigiformes (birds of-prey). Section 3513 essentially overlaps with the MBTA, prohibiting the “Take” or possession of any migratory non-game bird. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “Take” by the CDFW.

4.2.7 Fully Protected Species and Species of Special Concern

The classification of “fully protected” was the CDFW’s initial effort to identify and provide additional protection to those animals that were rare or faced with possible extinction. Lists were created for fishes, amphibians, reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The CFGC sections (fish at Sec. 5515, amphibians and reptiles at Sec. 5050, birds at Sec. 3511, and mammals at Sec. 4700) dealing with “fully protected” species state that these species “...may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species,” (CDFW, 1998) although “Take” may be authorized for necessary scientific research. This language makes the “fully protected” designation the strongest and most restrictive regarding the “Take” of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize “Take” resulting from recovery activities for state-listed species.

SSCs are broadly defined as animals not listed under the CESA, but that are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing or historically occurred in low numbers with known threats to their persistence currently existing. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under CESA and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although the SSC designation provides no special legal status, they are given special consideration under CEQA during project review.

Table 1 in Appendix 2 includes potentially-occurring federal- and state-listed species and SSC animals that may occur in the project area.

4.2.8 Natural Community Conservation Planning Act

The Natural Community Conservation Planning (NCCP) Act of 1991 is an effort by the State of California and numerous private and public partners that is broader in its orientation and objectives than the CESA and FESA (refer to discussions above). The primary objective of the NCCP Act is to conserve natural communities at the ecosystem scale while accommodating compatible land uses (CDFW, 1991). The NCCP Act seeks to anticipate and prevent the controversies and gridlock caused by species listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.



No regionally-occurring natural community or associated plan is listed by the state for the project area.

5.0 Special-status Biological Resources

An evaluation was conducted for the presence or absence of potential habitat for special-status plant and animal species. CNDDDB RareFind (CDFW, 2022a), BIOS (CDFW, 2022b), and CNPS (CNPS, 2022a) searches were completed for the 7.5-minute USGS Lake Shastina quadrangle and all adjacent quadrangles. The databases were queried for historical and existing occurrences of listed species or species proposed for listing. In addition, a list of all federally-listed species that are known to occur or may occur in the vicinity was obtained from the USFWS' IPaC (USFWS, 2022a). The critical habitat mapper (USFWS, 2022b) was reviewed, however no critical habitat was mapped within or adjacent to the study area.

Table 1 in Appendix 2 includes all the animal species reported from the queries, their preferred habitat, and a notation whether there is suitable habitat present within the study area for the species. Table 2 in Appendix 2 includes all the plant species reported from the queries and the typical habitat where they occur. The potential for occurrence of those species included on the lists were then evaluated based on the habitat requirements of each species relative to the conditions observed during the field surveys. Each species was evaluated for its potential to occur in the study area according to the following criteria:

- None. Species listed having “none” are those species for which:
 - There is no suitable habitat present in the study area (that is, habitats in the study area suitable for the species requirements [for example, elevation, hydrology, disturbance regime, etc.]).
- Low. Species listed as having a “low” potential to occur in the study area are those species for which:
 - There is no known record of occurrence in the vicinity, and
 - There is marginal or very limited suitable habitat present within the study area
- Moderate. Species listed as having a “moderate” potential to occur in the study area are those species for which:
 - There are known records of occurrence in the vicinity, and
 - There is suitable habitat present in the study area
- High. Species listed have a “high” potential to occur in the study area are those species for which:
 - There are known records of occurrence in the vicinity (there are many records and/or records in proximity), and
 - There is high suitable habitat present in the study area
- Present. Species listed as “present” in the study area are those species for which:
 - The species was observed in the study area

5.1 Special-status Animal Species

Based on a review of special-status animal species, 43 special-status animal species have been reported with the potential to occur in the project region consisting of the Lake Shastina quadrangle and the



surrounding quadrangles. Of the special-status animal species potentially occurring in the region, 30 animal species are considered to have no or a low potential to occur at the project site and 13 species have a moderate to high potential. Species with a moderate or high potential for occurrence within the study area are described below.

5.1.1 Amphibians

No special-status amphibians have a moderate or high potential to occur within the study area.

5.1.2 Birds

The Cooper's Hawk (*Accipiter cooperii*) occupies woodlands, open and interrupted and marginal habitats. Nests are primarily in riparian areas with deciduous trees, in canyons bottoms, and among live pines and spruces. It is not listed under CESA or FESA, but is on the CDFW Watch List and has heritage ranking of G5/S4. Suitable habitat exists within the study area for this species, and it was detected. The project will not directly impact suitable habitat for this species. Noise disturbance from project activities has the potential to impact this species during the nesting season.

The golden eagle (*Aquila chrysaetos*) occupies cliff-walled canyons for nesting along with large trees in open areas and prefers rolling foothills, sage-juniper flats, and mountain areas. It is not listed under CESA or FESA, but is on the CDFW Watch List, listed as Sensitive and Fully Protected, is a USFWS Bird of Conservation Concern, and has heritage ranking of G5/S3. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.

The great blue heron (*Ardea Herodias*) is found in wetlands, riparian forests, and marshes. They typically nest on north slopes near water in rookeries in large trees that are red fir, lodgepole pine, Jeffrey pine, or aspens. It is not listed under CESA or FESA, but is listed as Sensitive by CDFW and has a heritage ranking of G5/S4. Suitable habitat exists within the study area for this species, and it was detected. The project will not directly impact suitable habitat for this species.

The black tern (*Chlidonias niger*) prefers large freshwater wetlands, dense marshes, river edges, and lakes. They nest in areas of shallow and still water sheltered by cattails and bulrushes. It is not listed under either CESA or FESA, but has a heritage ranking of G4G5/S2. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.

The prairie falcon (*Falco mexicanus*) occupies grassland and scrub in dry and open terrain. Nesting sites can be found on cliffs and it forages long distances for prey. It is not listed under either federal or California endangered species acts but is on the CDFW Watch List and has a heritage ranking of G5/S4. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.

The bald eagle (*Haliaeetus leucocephalus*) can be found near rivers and lake margins. Most nests will be within a mile of water and will be in tall protruding conifer trees. It is Delisted from FESA, but is Endangered under CESA with special status by CDFW of Fully Protected and Sensitive and by USFWS as a Bird of Conservation Concern. The bald eagle has a heritage ranking of G5/S3. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.



The California gull (*Larus californicus*) favors shorelines, lakes and marshes. They nest in large groups on islands within strongly alkaline lakes. It is not listed under CESA or FESA, but is on the CDFW Watch List and listed as a Bird of Conservation Concern by USFWS. The California gull has a heritage ranking of G5/S4. Suitable habitat exists within the study area for this species and it was detected. The project will not directly impact suitable habitat for this species.

The double-crested cormorant (*Nannopterum auritum*) is found near lakes and ponds with perching areas. It forms breeding colonies in fresh or strongly alkaline lakes. It is not listed under CESA or FESA, but is on the CDFW Watch List and has heritage ranking of G5/S4. Suitable habitat exists within the study area for this species, and it was detected. The project will not directly impact suitable habitat for this species.

The osprey (*Pandion haliaetus*) occupies any fish-filled water, including rivers, reservoirs, and lakes. They build nests on top of elevated telephone or power poles and treetops near bodies of water with large amounts of fish. It is not listed under CESA or FESA, but is considered Sensitive, is on the CDFW Watch List, and has heritage ranking of G5/S4. Suitable habitat exists within the study area for this species, and it was detected. The project will not directly impact suitable habitat for this species. Noise disturbance from project activities has the potential to impact this species during the nesting season.

The bank swallow (*Riparia riparia*) can be found in riparian scrub, riparian woodlands, and swamp edges. It requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, and lakes to dig nesting holes. It is not listed under FESA, but under CESA is listed as Threatened, listed as Sensitive by CDFW, and has heritage ranking of G5/S2. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.

The yellow warbler (*Setophaga petechia*) favors open woodlands, swamp edges, and streams below 9,000 ft. Nests are built near streamside thickets in willows, hawthorns, dogwoods, and white cedars, 10-40 ft off the ground. It is not listed under CESA or FESA and has heritage ranking of G5/S3S4. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.

5.1.3 Fishes

No special-status fishes have a moderate or high potential to occur within the study area.

5.1.4 Insects

No special-status insects have a moderate or high potential to occur within the study area.

5.1.5 Mammals

The North American porcupine (*Erethizon dorsatum*) occupies forested habitats in a wide variety of coniferous and mixed woodlands within the Sierra Nevada, Cascade, and Coast ranges. It is not listed under FESA and CESA and has heritage ranking of G5/S3. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.



5.1.6 Reptiles

The western pond turtle (*Emys marmorata*) occupies ponds, marshes, rivers and stream below 6,000 ft elevation. They require upland habitat 0.5 kilometers (km) from water for egg-laying. It is not listed under CESA or FESA, but is listed as a SSC, Vulnerable, and Sensitive with a heritage ranking of G5/S3S4. Although this species was not detected, suitable habitat does exist within the study area. The project will not directly impact suitable habitat for this species.

5.2 Special-status Plant Species

Based on review for the special-status botanical species, 42 special-status botanical species have been reported from the region consisting of the Lake Shastina quadrangle and the surrounding quadrangles. Of the special-status botanical species reported for the region, 30 botanical species are considered to have low or no potential to occur within the study area. Twelve (12) species have a moderate to high potential of occurring within the study area. Species with a moderate or high potential of occurrence within the study area are described below.

Woolly balsamroot (*Balsamorhiza lanata*) is a perennial herb in the Asteraceae family. It is neither state nor federally listed but has a CRPR of 1B.2 and a heritage rank of G3/S3. Its elevation range is reported from 2,624–3,444 ft above sea level. Within its range in northern California, its blooming period is reported as April to June. This species is reported in cismontane woodland and is typically found in rocky and volcanic areas. There are 34 occurrences that have been observed and reported within the nine-quad search, with the most recent occurrence within the Weed quad in 2003. This recorded occurrence was less than a mile from the study area situated southwest of Jackson Ranch Road.

Greene's mariposa-lily (*Calochortus greenei*) is a perennial herb in the Liliaceae family. It is neither state nor federally listed but has a CRPR of 1B.2 and a heritage rank of G3/S2S3. Its elevation is reported from 3,395–6,200 ft above sea level. Within its range in northern California, its blooming period is reported as June to August. This species is reported in cismontane woodland and is typically found in rocky and volcanic areas. Within the nine-quad search, numerous Rarefind occurrences are reported, the nearest is approximately 8 miles northeast of the study area with an observation date in 2011.

Shasta chaenactis (*Chaenactis suffrutescens*) is a perennial herb in the Asteraceae family. It is neither state nor federally listed, but has a CRPR of 1B.3 and a heritage rank of G2G3/S2S3. Its elevation is reported from 2,460–9,185 ft. Within its range in California, its blooming period is May to September. This species is reported in lower montane coniferous forest and is typically found in sandy or serpentinite areas. There are 10 Rarefind occurrences within the nine-quad search. The most recent observation was reported in 2007, approximately 4.4 miles east of the study area.

Modoc green-gentian (*Frasera albicaulis* var. *modocensis*) is a perennial herb in the Gentianaceae family. It is neither state nor federally listed, but has a CRPR of 2B.3 and a heritage rank of G5T3T4/S2S3. Its elevation is reported from 2,995–5,740 ft. Within its range in California, its blooming period is May to July. The species is reported in great basin grassland within openings. There are 2 Rarefind occurrences within the nine-quad search, with the most recent finding reported in 1940.

Alkali hymenoxys (*Hymenoxys lemmonii*) is a perennial herb in the Asteraceae family. It is neither state nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G4/S2S3. Its elevation is reported from 785–11,125 ft. Within its range in California, its blooming period is May to September. This species is



reported in Great Basin scrub and lower montane coniferous forest. There are 8 Rarefind occurrences within the nine-quad search with the closest being approximately 7.3 miles southwest of the study area reported in 1997.

Baker's globe mallow (*Iliamna bakeri*) is a perennial herb in the Malvaceae family. It is neither state nor federally listed, but has a CRPR of 4.2 and a heritage rank of G4/S3. Its elevation is reported from 3,280–8,205 ft. Within its range in California, its blooming period is June to September. This species is reported in chaparral, great basin scrub, lower montane coniferous forest, and pinyon and juniper woodland areas that are volcanic. Within the nine-quad search, 1 occurrence from 1969 was reported 3.7 miles east of the study area.

Peck's lomatium (*Lomatium peckianum*) is a perennial herb in the Apiaceae family. It is neither state nor federally listed, but has CRPR of 2B.2 and a heritage rank of G4/S1. Its elevation is reported from 2,295–5,905 ft above sea level. Within its range in California, its blooming period is April to June. This species is reported in chaparral, cismontane woodland, lower montane coniferous forest, and pinyon and juniper woodland with volcanic soil. There are 3 Rarefind occurrences within the nine-quad search, the most recent finding reported in 2012, 3.72 miles southwest of the study area.

Brittle prickly-pear (*Opuntia fragilis*) is a perennial stem in the Cactaceae family. It is neither state nor federally listed, but has a CRPR of 2B.1 and a heritage rank of G5/S1. Its elevation is reported from 2,690–2,885 ft above sea level. Within its range in California, its blooming period is April to July. This species is reported in pinyon and juniper woodland within volcanic areas. There are 2 Rarefind occurrences within the nine-quad search, the closest being approximately 5 miles northwest of the study area in 2005.

Shasta orthocarpus (*Orthocarpus pachystachyus*) is an annual herb in the Orobanchaceae family. It is neither state nor federally listed, but has a CRPR of 1B.1 and a heritage rank of G1/S1. Its elevation is reported from 2,755–2,790 ft above sea level. Within its range, the blooming period is in May. This species is reported in great basin scrub, meadows, seeps, valley and foothill grasslands. There are 2 Rarefind occurrences within the nine-quad search, with the most recent and closest reported 6 miles southwest of the study area in 1998.

Cooke's phacelia (*Phacelia cookei*) is an annual herb in the Hydrophyllaceae family. It is neither state nor federally listed, but has a CRPR of 1B.1 and a heritage rank of G1/S1. Its elevation is reported from 3,595–5,580 ft above sea level. Within its range, its blooming period is June to July. This species is reported in Great Basin scrub and lower montane coniferous forest with sandy and volcanic soils. There are 2 Rarefind occurrences nine-quad search, with the closest being 2 miles east of the study area in 1985.

Hairy Marsh hedge-nettle (*Stachys pilosa*) is a perennial rhizomatous herb in the Lamiaceae family. It is neither state nor federally listed, but has a CRPR of 2B.3 and a heritage rank of G5/S3. Its elevation is reported from 3,935–5,805 ft above sea level. Within its range, its blooming period is June to August. This species is reported in great basin scrub, meadows, and seeps. There is 1 Rarefind occurrence within the nine-quad search that is approximately 3.70 miles northwest of the study area in 2010.

Henderson's triteleia (*Triteleia hendersonii*) is a perennial herb in the Themidaceae family. It is neither state nor federally listed, but has a CRPR of 2B.2 and a heritage rank of G4/S1. Its elevation is reported



from 2,495–3,935 ft above sea level. Within its range, its blooming period is May to July. This species is reported in cismontane woodland. There is 1 Rarefind occurrence within the nine-quad search, 4.70 miles southwest of the study area in 1956.

5.3 Special-status Habitats and Natural Communities

5.3.1 Designated Critical Habitat

The IPaC query resulted in no critical habitats within the project area. The nearest Designated Critical Habitat to the study area is approximately six miles away to the southwest, mapped for Northern Spotted Owl (*Strix occidentalis caurina*; USFWS, 2020).

5.3.2 Vegetation Alliances

Sensitive vegetation communities as defined by the Manual of California Vegetation or CDFW Natural Communities list occurs within the study area (CNPS, 2022b; CDFW, 2022d) with a State rank of S3 or lower, require CEQA analysis if potential impacts may occur due to the proposed project. Sensitive vegetation communities were not surveyed and mapped during the site visit in 2022 and would be part of a pre-construction protocol botanical survey.

5.3.3 Wetland and Riparian Habitats

Streams and seasonal drainage features that flow into waters of the U.S. or State will likely fall under the jurisdiction of the U.S. CWA, California Porter-Cologne Water Quality Control Act, and CFGC 1600. Any potential impacts to aquatic features will be protected by existing regulations. Additional best management practices (BMPs) are included in Section 7.0 Recommendations.

Project components as they relate to distance to water features:

- Lost Lake's (northwest of Lake Shastina) three closest utility upgrades are to fire hydrant #292 at 533 ft to the nearest water feature, fire hydrant #294 at 570 ft to the nearest water feature, and fire hydrant #295 at 590 ft to the nearest water feature.
- Lake Shastina's three closest upgrades are to fire hydrant #293 at 300 ft to the nearest water feature; fire hydrant #286 at 335 ft to the nearest water feature; fire hydrant #294 at 360 ft to the nearest water feature.
- Shasta River's five closest utility upgrades are fire hydrant #277 at 172 ft to the nearest water feature, fire hydrant #266 at 205 ft to the nearest water feature, fire hydrant #265 at 235 ft to the nearest water feature, fire hydrant #267 at 264 ft to the nearest water feature, and fire hydrant #268 at 275 ft to the nearest water feature (See Figure 4).

A formal wetland delineation was not conducted as a part of this study.

5.3.4 Nesting Bird Habitat

All locations with vegetative cover, shrub layer, or tree canopy within the study area may provide suitable habitat for a diverse assemblage of birds, including special-status species. Ground disturbance and vegetation removal proposed as part of the project activities are minimal and localized to the immediate vicinities of existing development.



5.3.5 Wildlife Movement Corridors

The northern half of the project site is within the far western edge of the Siskiyou Mule deer (*Odocoileus hemionus*) winter range migration corridor and migration stopovers. Mule deer migrate for winter during mid-November to mid-January which begins in the Dorris, CA area and ends near Day, CA (CNRA, 2022b). Spring migration for mule deer occurs April-May depending on snow levels (CNRA, 2022a). Lake Shastina is also a stopover for migrating birds as it is a large body of water along the Pacific flyaway. Migration for waterfowl and songbirds begin in the spring (March-May) with them flying north and then in the fall (September-November) when they fly south.

The project site is approximately 5 miles southwest of the documented 2016-2020 elk migration area in East Shasta Valley. Elk will spend their time during the winter months (December-February) on private ranches in the Shasta Valley and then in the spring (March-May) they will move south and east to the Grass Lake area (Karuk Tribe, 2007). Their summer range includes Grass Lake, Bull Meadows, and Deer Mountain. The elk herd in this area is called the Shasta Valley Herd and is a mix of Rocky Mountain (*Cervus canadensis nelsoni*) and Roosevelt Elk (*Cervus canadensis roosevelti*; Wittmer, et al., 2021). Water courses and their associated riparian zones, due to complex structure providing cover, are likely the primary movement corridors for smaller mammals within the study area. Additionally, wildlife may use roads and trails that provide openings in areas of dense vegetation.

6.0 Conclusions

The purpose of this report is to assess the biological resources and habitat available within the study area, and to evaluate project-related impacts. The habitat value and availability were assessed for special-status species that could occur within the study area. See Section 7.0 for recommendations for avoiding and mitigating impacts.

6.1 Special-status Animal Species

Four special-status animal species were observed within the project area during the survey. These species are the double-crested cormorant, California gull, osprey, and Cooper's hawk. An additional nine species have a moderate or high potential to occur within the project area based on habitat suitability.

- The double-crested cormorant has low potential of nesting in the project area as the habitat is not conducive of hosting a colony of cormorants due to the existing residential and recreational human activity in the area.
- The California gull is unlikely to nest in the project area due to high disturbance and lack of suitable nesting habitat.
- The osprey has a moderate potential of nesting along the river or in trees near the lake of the Lake Shastina community. To mitigate disturbance, see recommendations in Section 7.0.
- The Cooper's hawk may have a moderate potential of nesting in the project area as ponderosa pines are present and this is a known tree used by this species. To mitigate disturbance, see recommendations in Section 7.0.

Impacts to special-status species can be reduced to less-than-significant levels by incorporating the recommendations within Section 7.0 of this report.



6.2 Nesting Birds

All locations with a shrub or tree canopy layer especially near a river within the study area may provide suitable nesting for a diverse assemblage of migratory birds. Although direct impacts to nesting birds and their habitat are not expected, noise disturbance may cause an impact during the nesting season. Impacts to nesting birds can be reduced to less-than-significant levels by incorporating the recommendations within Section 7.0 of this report.

6.3 Impacts on Wildlife Movement

Wildlife movement corridors within the study area are expected to be concentrated along shrubby and vegetated areas directed towards Lake Shastina. These vegetated areas are highly disturbed areas from existing residential development. Construction noise and traffic are not likely to impact wildlife movement in these areas. The construction is primarily to upgrade already present utilities, therefore very little habitat will be affected.

7.0 Recommendations

SHN recommends that the following measures be implemented within the project area to reduce impacts to less-than-significant levels for special-status biological resources:

- Conduct seasonally appropriate floristic surveys in accordance with CDFW protocol (CDFW, 2018) prior to ground disturbance.
- If construction activities begin during the bird nesting season (generally February 1 to August 15), a qualified biologist should conduct nest surveys no more than seven days prior to activities, within the construction limits and within 100 ft (200 ft for raptors) of the construction limits.
- Prior to ground disturbance near aquatic features, utilize standard erosion and sediment control BMPs, such as straw wattles, to avoid sediment discharge.

8.0 References

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Photo 1: Looking west at pump station 53 on Palmer Drive where the location of the temporary water tank outside of the building would be placed as water tank 4 is upgraded to a bigger size. Water tank #4 can be seen on top of the slope. Gravel is observed on the east side of the pump station where the temporary water tank would be placed. Photo taken: 6/22/2022.



Photo 2: Looking east at the location of the new pump station on Elk Trail Road and Hogan Drive by fire hydrant #191. Small sized rabbit brush, small rocks and cheat grass is observed as vegetation that would be disturbed. The ponderosa pines in the picture were observed for nests and zero were found. Photo taken: 6/22/2022.





Photo 3: Looking north west from Stone Crest Drive at water tank #3 which is surrounded by small rocks, gravel, and juniper trees. Water tank #3 will be re-painted. Photo taken: 6/22/2022.





Photo 4: Looking south from the service road to water tank #4 that will be replaced with a larger water tank. Water tank #4 is surrounded by manzanita shrub, gravelly soil, and juniper.





Photo 5: Looking west from the end of Lake Shore Drive where test well #12 would be drilled. Rabbit brush, small rocks, small mounds, and juniper trees can be observed and would be disturbed in the process. No burrows were observed in the mounds and no nests were observed in the trees. Photo taken: 6/22/2022.





Photo 6: Looking North east from the cul-de-sac of Stone Crest Drive at fire hydrant #289 that will be replaced with a new fire hydrant. This fire hydrant is surrounded by asphalt, small rocks, gravelly soil, and juniper trees. The soil directly around the fire hydrant will be disturbed as all parts of the hydrant will be replaced down to the elbow in the ground.





Photo 7: Looking east from Mountain Wood Drive onto fire hydrant #275 that will be replaced with a new fire hydrant. This fire hydrant is surrounded by asphalt, large rocks, gravelly soil, and juniper trees. The soil directly around the fire hydrant will be disturbed as all parts of the hydrant will be replaced down to the elbow in the ground.





Photo 8: Looking east from Jack Rabbit Road onto fire hydrant #175 that will be replaced with a new fire hydrant. This fire hydrant is surrounded by small rabbit brush, gravelly soil, and ponderosa pine. The soil directly around the fire hydrant will be disturbed as all parts of the hydrant will be replaced down to the elbow in the ground.



Photo 9: Looking south west from Indian Island onto fire hydrant #79 that will be replaced with a new fire hydrant. This fire hydrant is surrounded by small rabbit brush, gravelly soil, ponderosa pine, and juniper. The soil directly around the fire hydrant will be disturbed as all parts of the hydrant will be replaced down to the elbow in the ground.





Photo 10: Looking East from Elk Trail Road. Abandoned Pump Station #52 (Figure 3) that is proposed to be a new pump station. The concrete slab that is still present is surrounded by rabbitbrush and manzanita shrub. The soil directly around the concrete will be disturbed when building the pump house. Fire hydrant #190 is the closest to this proposed area (Figure 4).















