

Appendix E  
**Biological Resources Survey  
Report**

Final

# TISDALE WEIR REHABILITATION AND FISH PASSAGE PROJECT

Biological Resources Survey Report

Prepared for  
California Department of Water Resources

September 2020



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California Department of Water Resources

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2600 Capitol Avenue  
Suite 200  
Sacramento, CA 95816  
916.564.4500  
www.esassoc.com



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# EXECUTIVE SUMMARY

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Environmental Science Associates (ESA) conducted a biological resources survey within the approximately 130-acre study area (study area) for the Tisdale Weir Rehabilitation and Fish Passage Project (project), located in Sutter County, California. For this project, the California Department of Water Resources (DWR) proposes to make repairs to elements of the Tisdale Weir that are in disrepair and to create new infrastructure that will allow for adult salmon and sturgeon migrating up the Tisdale Bypass to successfully traverse past the weir into the mainstem Sacramento River. The study area includes the expected project footprint, construction equipment staging grounds, and the spoils disposal area.

The purpose of this report is to assess the suitability of the study area to support special-status species and sensitive habitat types, to provide recommendations for regulatory permitting or further analysis that may be required, and to recommend conservation measures to avoid or minimize potential impacts to special-status species and sensitive habitat types.

The following habitat types occur within the study area: seasonal riverine, seasonal wetland, annual grassland, riparian forest, riverine, irrigation ditch, developed, and disturbed. Of these, annual grassland, riparian forest, seasonal wetland, and riverine are considered natural communities. Potentially jurisdictional wetlands and other waters of the U.S. include seasonal riverine, seasonal wetland, irrigation ditch, and riverine. Based on the project description, the project is expected to be required to obtain permits from regulatory agencies for impacts to the seasonal riverine (Section 404 Clean Water Act Nationwide permit, Section 401 Water Quality Certification, Section 1600 Lake and Streambed Alteration Agreement) and riparian forest (Section 1600 Lake and Streambed Alteration Agreement).

The study area provides marginal habitat for non-listed special-status plant species including Baker's navarretia (*Navarretia leucocephala* subsp. *bakeri*), Coulter's goldfields (*Lasthenia glabrata* subsp. *coulteri*), Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*), recurved larkspur (*Delphinium recurvatum*), San Joaquin spearscale (*Extriplex joaquinana*), woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*), and Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*).

The study area provides suitable nesting habitat for listed and non-listed migratory birds and other birds of prey, including Swainson's hawk (*Buteo swainsoni*). Multiple special-status terrestrial wildlife species including mountain plover (*Charadrius montanus*), western red bat (*Lasiurus blossevillii*), pallid bat (*Antrozous pallidus*), western pond turtle (*Actinemys marmorata*), giant garter snake (*Thamnophis gigas*), and valley elderberry longhorn beetle (*Desmocerus californicus*

*dimorphus*) have the potential to occur within the study area. Additionally, multiple special-status anadromous fish species including Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley fall-/late fall-run Chinook salmon (*Oncorhynchus tshawytscha*), Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), and green sturgeon (*Acipenser medirostris*) have the potential to occur within the study area.

In addition, this report discusses conservation measures, including conducting pre-construction surveys, for the above-listed species and will be used to inform the CEQA Initial Study and biological assessment in determining potential environmental impacts/effects, respectively, to sensitive biological resources as a result of the project.



# CHAPTER 1

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## Introduction

### 1.1 Background and Purpose

This Biological Resources Survey Report (report) was prepared for the approximately 130-acre study area for the Tisdale Weir Rehabilitation and Fish Passage Project (project), located in Sutter County, California. The purpose of this report is to assess the suitability of the project study area (study area) to support special-status species and sensitive habitat types, to provide recommendations for regulatory permitting or further analysis that may be required, and to recommend conservation measures to avoid or minimize potential impacts to special-status species and sensitive habitat types.

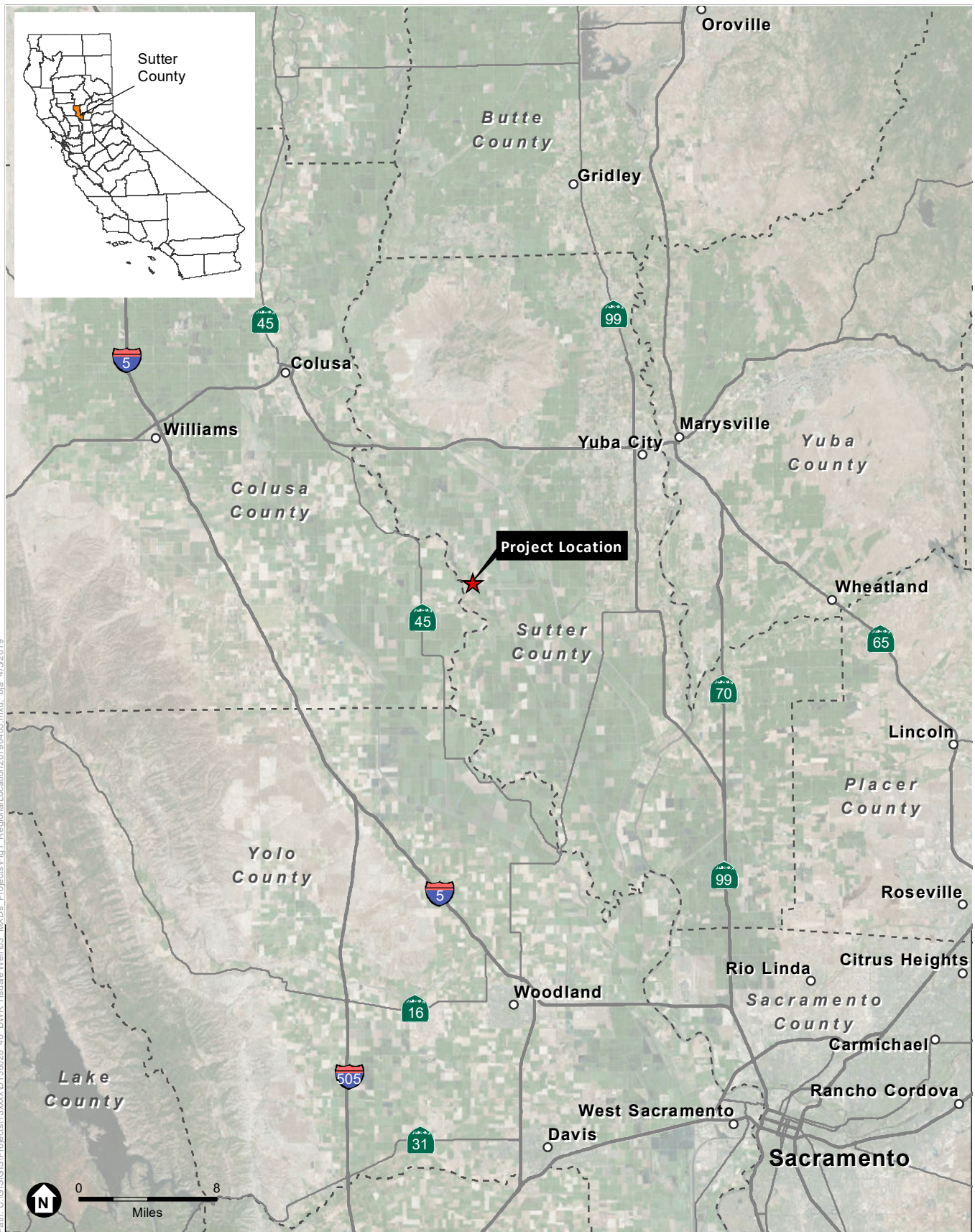
### 1.2 Project Description

The Tisdale Weir is located on the east side of the Sacramento River, approximately 13.5 miles southwest of Yuba City in Sutter County, California. It was built by the U.S. Army Corps of Engineers (USACE) in 1932 with a 50-year life expectancy and is now 35 years beyond its original design life. Because of the structure's age and frequent use, it has sustained damage that, if not repaired, could eventually result in failure of the weir, with resultant flooding, damage to property, and potentially loss of lives. Proposed rehabilitation of Tisdale Weir will extend its design life by an additional 50 years.

A fish passage facility is also proposed that includes a channel connecting the river to the bypass, and one or more notches to regulate water flow. Fish passage facilities would be designed to provide sufficient flows to attract and provide passage for adult upstream migrating fish (salmon and sturgeon) from the Tisdale Bypass to the Sacramento River after river flood flows over the weir have stopped. The facilities would be operated to provide minor and short-term post-flood flows for up to several days through the weir sufficient to entice fish out of the bypass and into the Sacramento River. A temporary cofferdam will be installed in the Sacramento River during construction activities.

### 1.3 Property Location

The study area is located in an unincorporated area of Sutter County, California (**Figure 1**). The study area is east of the Sacramento River, north of Tisdale Road, west of Reclamation Road, and south of Acme Road. The study area is located in Sections 26, 35, and 36 of Township 14 North, Range 1 East, and Section 30 of Township 14 North, Range 2 East of the Tisdale Weir, California



SOURCE: Esri, 2015; ESA, 2019

Tisdale Weir Rehabilitation and Fish Passage Project

**Figure 1**  
Regional Location



U.S. Geological Survey (USGS) 7.5-minute series quadrangle (USGS, 1967-1981). Topography is relatively flat with elevations that range from 35 feet to 60 feet above mean sea level.

The study area includes the east bank levee of the Sacramento River, Tisdale Weir, the western-most portion of the Tisdale Bypass, a spoils site, a haul route, and three potential equipment staging areas (**Figure 2**). Sutter County manages the Tisdale Boat Launching Facility on the Sacramento River. The boat launch ramp and the parking lot for the facility are located in the western portion of the study area. Sutter Mutual Water Company owns property located in the southwestern portion of the study area, which may serve as one of the potential staging areas. An approximately 82-acre spoils disposal site currently owned by DWR is located in the far northeastern section of the study area, and this site is connected to the rest of the study area via a proposed haul route along the crest of the north Tisdale Bypass levee. Garmire Road Bridge is within the study area and traverses over the Tisdale Bypass.

## 1.4 Regulatory Context

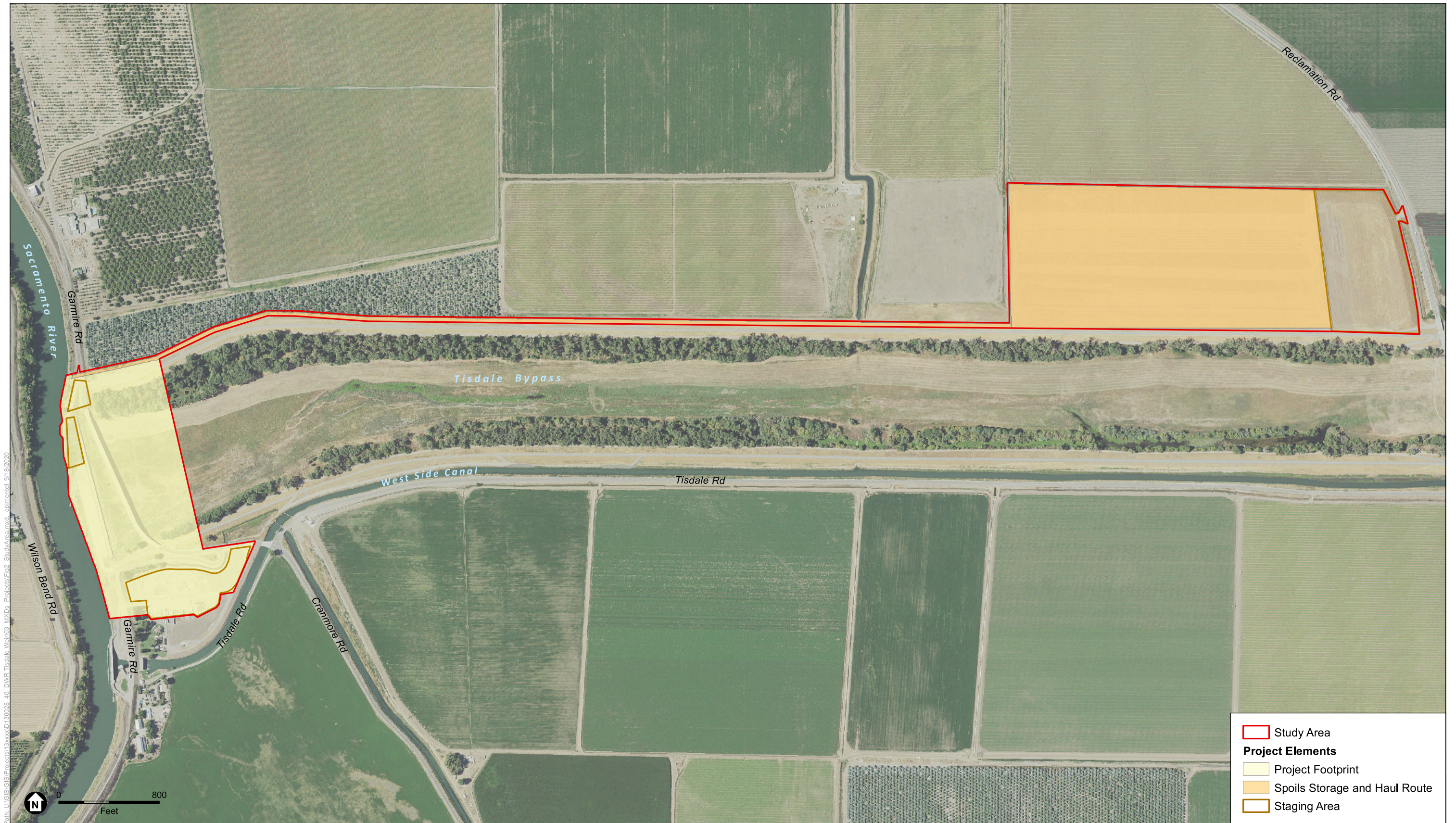
Biological resources in the study area may fall under the jurisdiction of various regulatory agencies and be subject to their regulations. This section summarizes the federal and state regulations that protect special-status species; waters of the U.S.; natural communities of special concern; and other sensitive biological resources. In general, the greatest legal protections are provided for plant and wildlife species that are formally listed under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA). The regulations and agencies listed in **Table 1** are commonly associated with projects that have the potential to affect biological resources.

**TABLE 1**  
**REGULATORY AGENCIES**

Agency	Regulation
<b>Federal</b>	
U.S. Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> <li>• Federal Endangered Species Act</li> <li>• Federal Migratory Bird Treaty Act</li> <li>• Bald and Golden Eagle Protection Act</li> </ul>
National Marine Fisheries Service (NMFS)	Federal Endangered Species Act
United States Army Corps of Engineers (USACE)	Clean Water Act, Section 404
<b>State</b>	
California Department of Fish and Wildlife (CDFW)	<ul style="list-style-type: none"> <li>• California Endangered Species Act</li> <li>• Fish and Game Code 3503</li> <li>• Native Plant Protection Act</li> <li>• Fish and Game Code Section 1600 Lake or Streambed Alteration Program</li> </ul>
Central Valley Regional Water Quality Control Board (CVRWQCB)	Clean Water Act, Section 401 Water Quality Certification
California State Water Resources Control Board (SWRCB)	Porter Cologne Water Quality Act

These regulations are presented and discussed in full in **Appendix A, Regulatory Context**.

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SOURCE: USDA, 2014; DWR, 2020; ESA, 2020

Tisdale Weir Rehabilitation and Fish Passage Project

**Figure 2**  
Study Area

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# CHAPTER 2

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## Methods

### 2.1 Survey Methodology

#### 2.1.1 Survey Dates and Surveying Personnel

ESA Senior Biologist Kelly Bayne and Biologist Daniel Huang conducted a general biological survey and an aquatic resources delineation within the study area on October 19, 2018. Ms. Bayne conducted subsequent botanical inventories within the study area on May 7, 2019 and June 21, 2019 with follow-up visits to the study area on July 31, 2019 and October 8, 2019. DWR environmental scientist Stephanie Ponce conducted a survey on March 25<sup>th</sup>, 2020 of the eastern portion of the spoils area near Reclamation Road. DWR environmental scientists Joy Nishida and Bethany Baibak conducted a supplemental investigation of the Sutter Mutual Water Company staging area on September 10, 2020. The majority of the study area was accessible by foot, excluding the densely vegetated areas within the riparian corridor which precluded access. The results of the aquatic resources delineation are provided herein and are discussed in detail under a separate cover (ESA, 2018).

#### 2.1.2 Habitat and Vegetation Surveys

The biological survey consisted of conducting a botanical inventory, evaluating vegetative communities, mapping wetlands and waterways, and documenting habitat for special-status species with the potential to occur within the study area. Vegetation communities and aquatic features were characterized and mapped in the field using aerial photography. The boundaries of vegetation communities and wetlands were subsequently digitized using Geographic Information System (GIS) software in the State Plane coordinate system (NAD 83) with units as “survey feet.”

The wetland delineation used the “Routine Determination Method” as described in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987), hereafter called the “1987 Manual.” The 1987 Manual was used in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE, 2008), hereafter called the “Arid West Supplement.” For areas where the 1987 Manual and the Arid West Supplement differ, the Arid West Supplement was followed. Presence or absence of positive indicators for wetland vegetation, soils, and hydrology was assessed per the 1987 Manual and Arid West Supplement guidelines. The delineation has not yet been verified by the U.S. Army Corps of Engineers.

## 2.2 Review of Background Information

Biological surveys were conducted for the study area and surrounding environs for prior projects, including the Garmire Road Bridge Project and the Tisdale Sediment Removal Project.

Information regarding biological resources developed for these projects were considered during the preparation of this report to the extent possible. However, given that the biological resources information analyzed for these projects are both in excess of 10 years in age, the preparation of this report substantially relied on updated biological resource data queries and the information gathered during the 2018, 2019, and 2020 biological surveys.

Prior to performing the biological survey, ESA reviewed publicly available data and subscription-based biological resource data. Data sources that assisted in this analysis included:

- Topographic maps (Tisdale Weir and surrounding 8 quadrangles);
- Online soil maps from the National Resources Conservation Service (NRCS);
- California Wildlife Habitat Relationships (CWHR) database;
- The CDFW California Natural Diversity Database (CNDDDB) list of plant and wildlife species documented on the Tisdale Weir and 8 surrounding quadrangles (CDFW, 2018);
- The California Native Plant Society (CNPS) online database of plant species documented on the Tisdale Weir and 8 surrounding quadrangles (CNPS, 2018); and
- A U.S. Fish and Wildlife Service (USFWS) list of species that may occur in the vicinity of the study area (USFWS, 2018).

The USFWS, CDFW, and CNPS lists are provided in **Appendix B**. The CNDDDB and CNPS lists include special-status species documented on the following nine quadrangles:

Meridian	Sutter Buttes	Sutter
Grimes	Tisdale Weir	Gilsizer Slough
Dunnigan	Kirkville	Sutter Causeway



# CHAPTER 3

## Environmental Setting

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This chapter provides the environmental baseline for soil types, habitat types, waters of the U.S., and special-status species potentially occurring within the study area.

### 3.1 Soil Types

The Natural Resources Conservation Service (NRCS) has mapped five soil units within the study area (**Figure 3**). General characteristics associated with these soil types are described below (USDA NRCS, 2018a).

#### 3.1.1 (117) Columbia Fine Sandy Loam, 0 to 2 Percent Slopes, MLRA 17

This soil unit occurs on floodplains with parent material comprised of mixed alluvium derived from igneous, metamorphic, and sedimentary rock. This is a somewhat poorly drained soil with a high available water storage comprised of about 9.8 inches. The typical profile is comprised of fine sandy loam from 0 to 38 inches and very fine sandy loam from 38 to 68 inches. The hydric soils list for Sutter County identifies the Shanghai and Byington components found in floodplains of this soil type as hydric (USDA NRCS, 2018a and b).

#### 3.1.2 (118) Columbia Fine Sandy Loam, Channeled, 0 to 2 Percent Slopes

This soil unit occurs on floodplains with parent material comprised of mixed alluvium. This is a somewhat poorly drained soil with a moderate available water storage comprised of about 6.6 inches. The typical profile is comprised of fine sandy loam from 0 to 14 inches and stratified fine sandy loam to very fine sandy loam from 14 to 60 inches. The hydric soils list for Sutter County identifies the Shanghai, Byington, and Columbia, fine sandy loam, channelized components found in floodplains of this soil type as hydric (USDA NRCS, 2018a and b).

#### 3.1.3 (119) Columbia Fine Sandy Loam, Clay Substratum, 0 to 2 Percent Slopes

This soil unit occurs on floodplains with parent material comprised of mixed alluvium. This is a somewhat poorly drained soil with a low available water storage comprised of about 5.3 inches. The typical profile is comprised of fine sandy loam from 0 to 15 inches, stratified sand to silt loam from 15 to 52 inches, and stratified very fine sandy loam to clay loam to silty clay loam from 52 to 60 inches. The hydric soils list for Sutter County identifies the Shanghai, Byington,

and Columbia, fine sandy loam, clay substratum components found in floodplains of this soil type as hydric (USDA NRCS, 2018a and b).

### 3.1.4 (135) Holillipah Loamy Sand, Frequently Flooded, 0 to 2 Percent Slopes

This soil unit occurs on floodplains with parent material comprised of sandy alluvium derived from mixed alluvium. This is a somewhat excessively drained soil with a low available water storage comprised of about 4.7 inches. The typical profile is comprised of sandy loam from 0 to 8 inches and stratified sand to loamy fine sand from 8 to 60 inches. The hydric soils list for Sutter County identifies the Holillipah, loamy sand frequently flooded, Shanghai, Columbia, and unnamed components found in floodplains and fans of this soil type as hydric (USDA NRCS, 2018a and b).

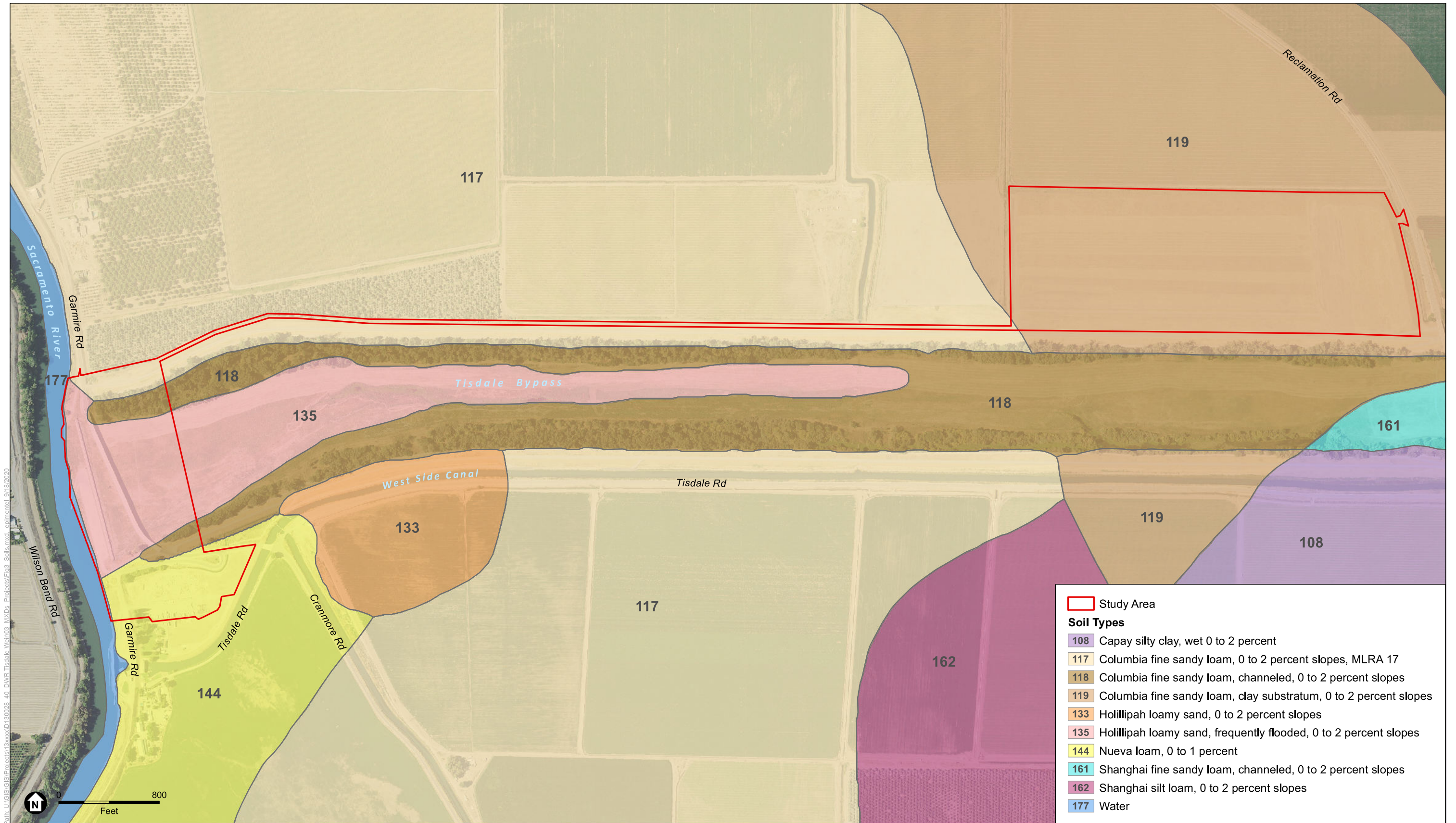
### 3.1.5 (144) Nueva Loam, 0 to 1 Percent Slopes

This soil unit occurs on floodplains with parent material comprised of loamy alluvium derived from mixed alluvium. This is a somewhat poorly drained soil with a high available water storage comprised of about 9.9 inches. The typical profile is comprised of loam from 0 to 17 inches, stratified sandy loam to silt loam from 17 to 42 inches, and clay loam from 42 to 60 inches. The hydric soils list for Sutter County identifies the Shanghai and Columbia components found in floodplains of this soil type as hydric (USDA NRCS, 2018a and b).

## 3.2 Vegetation Communities and Habitat Types

Vegetation communities are assemblages of plant species that occur together in the same area and are defined by species composition and relative abundance. These vegetation communities can be generally correlated to wildlife habitat types. Wildlife habitats are generally described in terms of dominant plant species and vegetation communities along with landform, disturbance regime, and other unique environmental characteristics. The vegetation community/wildlife habitat classification presented herein is based on field observations.

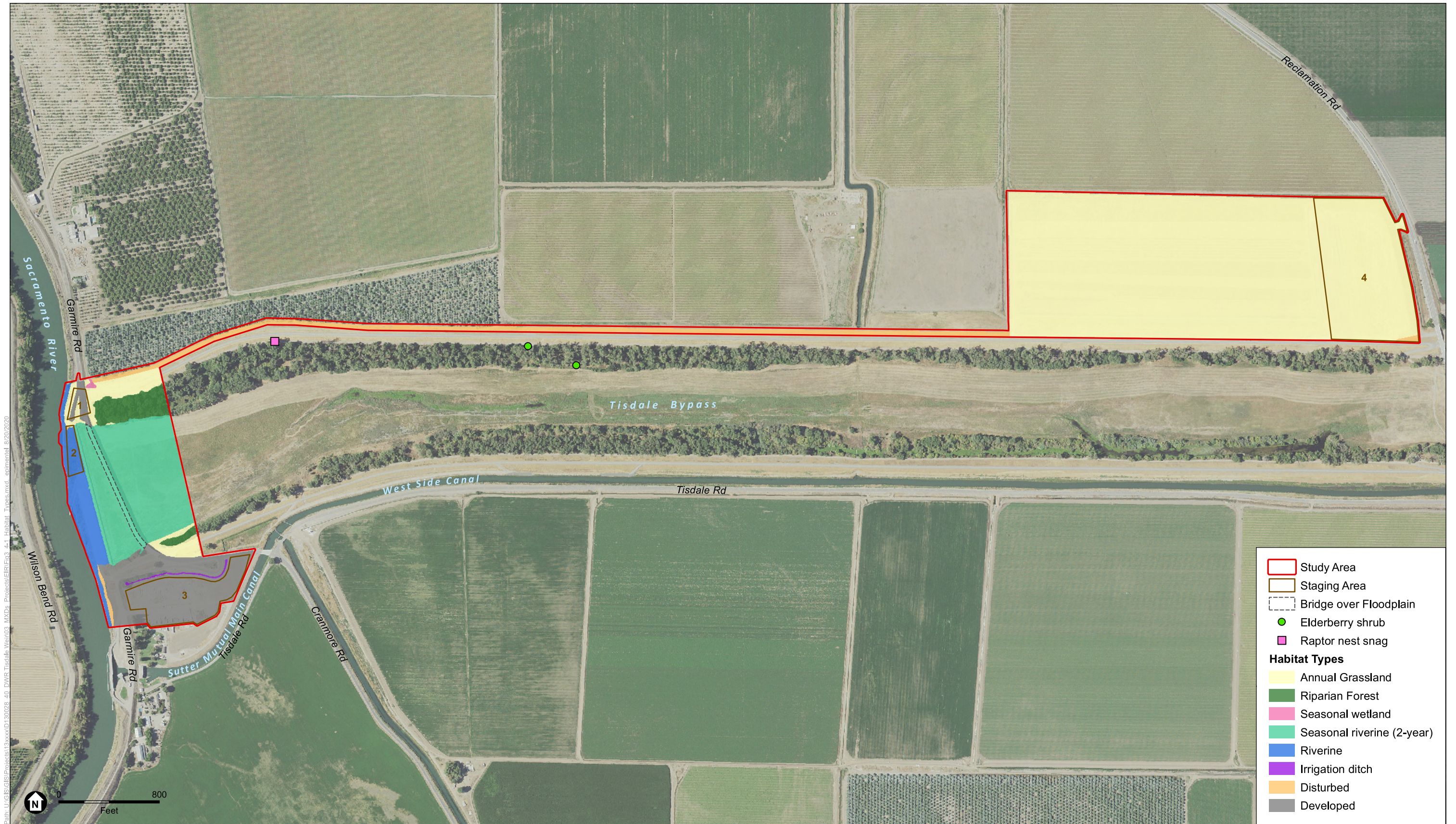
The following habitat types occur within the study area: annual grassland, riparian forest, seasonal riverine, seasonal wetland, riverine, irrigation ditch, developed, and disturbed. **Table 2** provides a summary of the habitat types by acreages. Habitat types within the study area are presented in **Figure 4**. Commonly occurring wildlife are identified for each of the habitat types. Complete lists of plant and wildlife species identified during surveys are provided in **Appendix C** and **Appendix D**, respectively. Representative photographs of habitat types are provided in **Appendix E**.



SOURCE: USDA, 2014; NRCS, 2012; DWR, 2020; ESA, 2020

Tisdale Weir Rehabilitation and Fish Passage Project

**Figure 3**  
Soils Map



SOURCE: USDA, 2014; DWR, 2019; ESA, 2020

Tisdale Weir Rehabilitation and Fish Passage Project

**Figure 4**  
Habitat Types

**TABLE 2**  
**HABITAT TYPES BY ACREAGES**

<b>Habitat Type</b>	<b>Acreage<sup>1</sup></b>
Annual grassland	85.99
Riparian forest	3.18
Seasonal wetland <sup>2</sup>	0.08
Seasonal riverine <sup>2</sup>	16.86
Riverine <sup>2</sup>	4.74
Irrigation ditch <sup>2</sup>	0.24
Disturbed	6.20
Developed	13.10
<b>Total</b>	<b>130.62</b>

## NOTES:

- 1 GIS calculations may not reflect exact acreage of study area due to rounding
- 2 Potentially jurisdictional wetlands or other waters of the U.S include seasonal wetland, seasonal riverine, riverine, and the irrigation ditch.

### 3.2.1 Annual Grassland

Annual grassland occurs primarily in the proposed spoils site for the project, located in the northeastern portion of the study area. Based on past aerial imagery, this area was formerly farmed agricultural land, but currently appears to have long been fallowed. The area was considered by the ESA biologists to have reverted to annual grassland habitat. The area had been mowed prior to the October 19, 2018 biological survey. Therefore, the majority of grass species were unidentifiable. Dominant vegetation includes wall barley (*Hordeum murinum*), common wild oat (*Avena fatua*), Johnson grass (*Sorghum halepense*), and milk thistle (*Silybum marianum*). The eastern portion of the spoils area was observed to be bare ground during the March 25, 2020 site visit; it appeared this area was being actively used for other projects.

Commonly occurring wildlife typically associated with annual grassland habitat includes mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), California ground squirrel (*Otospermophilus beecheyi*), and black-tailed jackrabbit (*Lepus californicus*).

### 3.2.2 Seasonal Riverine

Seasonal riverine is the second-most common habitat type within the study area. Since the Tisdale Bypass is only periodically inundated,<sup>1</sup> the Bypass is typically dry. As such, although the Bypass would be considered seasonal riverine, the vegetation is typical of that found in moderately disturbed upland habitat. Dominant vegetation was salt grass (*Distichlis spicata*). Other vegetation observed included Johnson grass (*Sorghum halepense*), cocklebur (*Xanthium strumarium*), white sweetclover (*Melilotus albus*), and tall flatsedge (*Cyperus eragrostis*).

<sup>1</sup> Based on historical records, the Tisdale Weir overflows about 43 days each year on average, or about 12 percent of the time, mostly between January and March

Commonly occurring wildlife typically associated with this type of vegetation includes species similar to those described under annual grassland above. Swallow nests were observed beneath the deck of Garmire Road bridge which crosses through the study area across Tisdale Bypass.

### 3.2.3 Riparian Forest

Riparian forest occurs along the northern and southern margins of Tisdale Bypass. Common overstory vegetation includes valley oak (*Quercus lobata*), narrow-leaved willow (*Salix exigua*), and Fremont cottonwood (*Populus fremontii* subsp. *fremontii*). Common understory vegetation includes box elder (*Acer negundo*), Himalayan blackberry (*Rubus armeniacus*), western poison oak (*Toxicodendron diversilobum*), and wild oat.

Commonly occurring wildlife typically associated with riparian habitat includes California vole (*Microtus californicus*), black-headed grosbeak (*Pheucticus melanocephalus*), lesser goldfinch (*Spinus psaltria*), and American goldfinch (*Spinus tristis*). A raptor nest was observed in a portion of riparian forest located east of the study area (Figure 4).

### 3.2.4 Seasonal Wetland

A seasonal wetland occurs within the northwestern portion of the study area. Dominant vegetation included salt grass. Other plant species observed included vervain (*Verbena litoralis*), Himalayan blackberry, and Johnson grass.

Commonly occurring wildlife typically associated with seasonal wetlands includes common yellowthroat (*Geothlypis trichas*), California toad (*Anaxyrus boreas halophylus*), Sierran tree frog (*Pseudacris sierra*), and common garter snake (*Thamnophis sirtalis*).

### 3.2.5 Disturbed

Disturbed areas within the study area include graded levees along the Sacramento River and north and south of the Tisdale Bypass. The area is mostly vegetated, but is sparse in pockets where the soil is extremely rocky (from cobbles and large gravels presumably intentionally placed to serve as levee bank protection). Dominant vegetation along the Sacramento River includes salt grass and rough horsetail (*Equisetum hyemale*).

### 3.2.6 Developed

Developed areas within the study area include paved areas for the Sutter County Tisdale Boat Launching Facility along the Sacramento River and the gravel/dirt lot for the Sutter Mutual Water Company where equipment staging will occur under the project. These areas are largely devoid of vegetation, except for sparsely distributed non-native plants such as bindweed (*Convolvulus arvensis*), mustard (*Brassica sp.*), and geranium (*Erodium sp.*).

### 3.2.7 Riverine

Riverine habitat exists within the mainstem Sacramento River located in the very western margin of the study area. Commonly occurring terrestrial wildlife typically associated with riverine

habitat includes black phoebe (*Sayornis nigricans*), belted kingfisher (*Megaceryle alcyon*), and beaver (*Castor canadensis*).

### 3.2.8 Irrigation Ditch

An irrigation ditch occurs in the southwestern portion of the study area. This ditch has an unlined bed and contains no vegetation. Vegetation along the banks is similar to species identified in the annual grassland and disturbed habitat types. No commonly occurring wildlife species are associated with irrigation ditches.

## 3.3 Wetlands and Other Waters of the U.S.

Wetlands are ecologically complex habitats that support a variety of both plant and animal life. In a jurisdictional sense, the federal government defines wetlands in Section 404 of the Clean Water Act as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support (and do support, under normal circumstances) a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b] and 40 CFR 230.3). Under normal circumstances, the federal definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater emergent wetlands, seasonal wetlands, and wet meadows that have a hydrologic link to other waters of the U.S. (see definition below for “other waters of the U.S.”).

“Other waters of the U.S.” refers to those hydric features that are regulated by the Clean Water Act but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high-water mark. Examples of other waters of the U.S. include rivers, creeks, intermittent and ephemeral channels, ponds, and lakes.

The following potentially jurisdictional wetlands and other waters of the U.S. occur within the study area: seasonal wetland, seasonal riverine, irrigation ditch, and riverine. These areas are depicted on an aquatic resources map (**Figures 5a** and **5b**). Based on the aquatic resource delineation report, the study area includes 0.08 acres of seasonal wetland, 16.86 acres of seasonal riverine, 0.20 acres of irrigation ditch, and 0.10 acres of riverine (ESA, 2018). On June 11, 2019, the USACE issued a preliminary jurisdictional determination, which concurred with the delineation map enclosed in the aquatic resource delineation report<sup>2</sup>.

<sup>2</sup> Since ESA conducted the field visit for the aquatic resources delineation in October 2018, the study area was expanded slightly, including extending the boundary of the spoils area further east towards Reclamation Road and extending the Sutter Mutual Water Company staging area boundary southward. During her site visit on October 8, 2019, ESA Senior Biologist Ms. Bayne did not find any additional aquatic resources within the expanded spoils area footprint. Additionally, DWR environmental scientists Joy Nishida and Bethany Baibak conducted a supplemental investigation of the expanded Sutter Mutual Water Company staging area on September 10, 2020 and similarly found no additional aquatic resources beyond those delineated by ESA’s 2018 aquatic resources delineation report.

## 3.4 Special-Status Species

Special-status species are legally protected under the state and federal Endangered Species Acts or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified under the following categories:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (FESA) (50 Code of Federal regulations [CFR] 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]);
2. Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 FR 40, February 28, 1996);
3. Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 California Code of Regulations [CCR] 670.5);
4. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
5. Animal species of special concern to CDFW;
6. Animals fully protected under Fish and Game Code (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
7. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists (State CEQA Guidelines, Section 15380); and
8. Plants considered under the CDFW and CNPS to be “rare, threatened or endangered in California” (California Rare Plant Rank [CRPR] 1A, 1B, and 2).

Species recognized under these terms are collectively referred to as “special-status species.”

Special-status species considered for this analysis are based on the CNDDDB, CNPS, and USFWS lists. A comprehensive list of special-status plant and wildlife species that were considered in the analysis is provided in **Appendix B**. The list includes the common and scientific names for each species, regulatory status (federal, State, local, CRPR), habitat requirements, the identification period, and a discussion of the potential for occurrence in the study area. Species which are not expected to occur within the study area (refer to Table B-1 in Appendix B) are excluded from the discussion below.

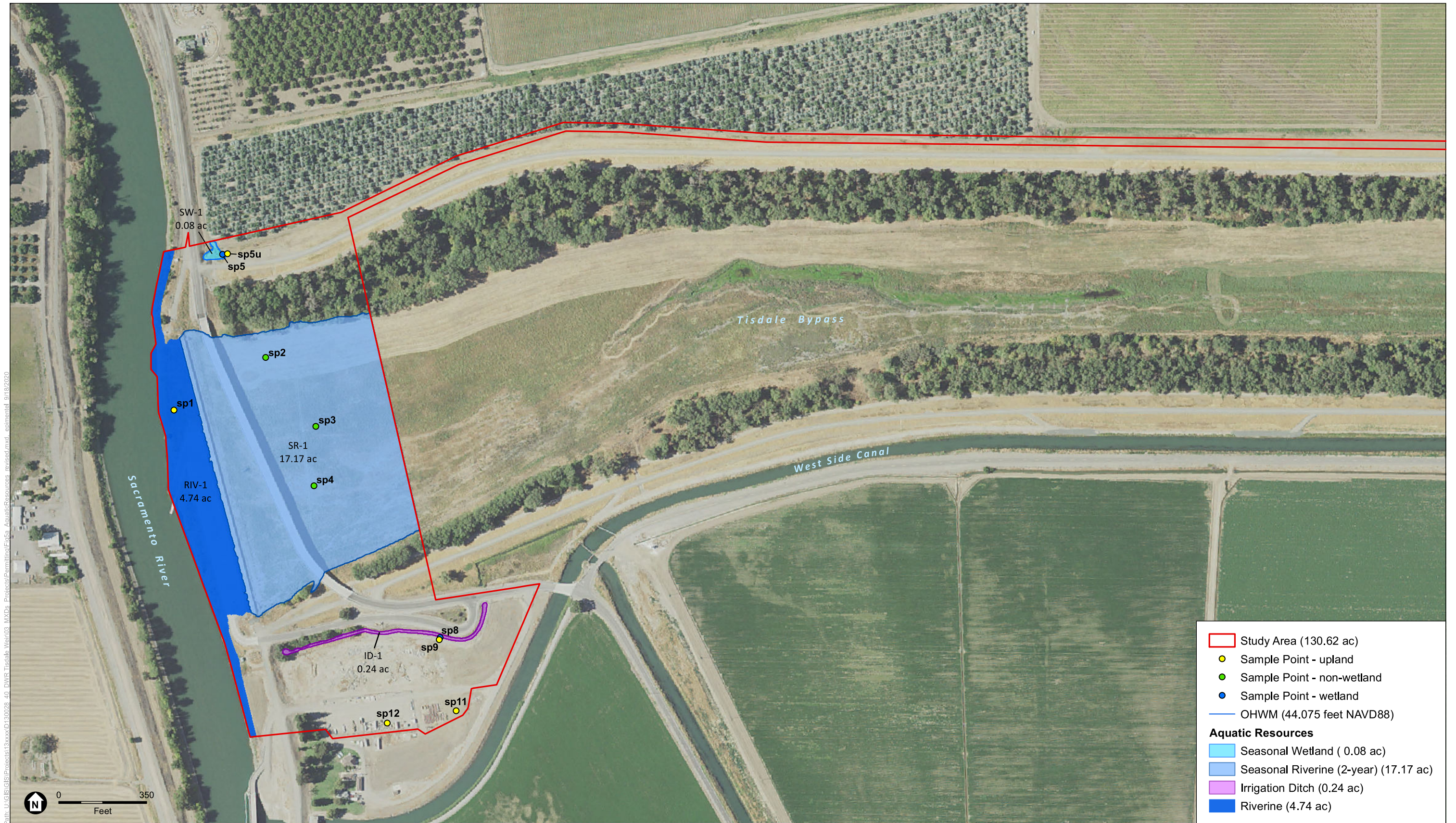
### 3.4.1 Federal and State-Listed Plants

No federally or state-listed plant species have the potential to occur within the study area.

### 3.4.2 Non-Listed Special-Status Plants

No non-listed special-status plant species have the potential to occur within the study area.





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SOURCE: USDA, 2014; DWR, 2020; ESA, 2019

Delineated by Daniel Huang and Kelly Bayne, ESA.  
Map created on December 5, 2018, and revised on September 19, 2020.

Tisdale Weir Rehabilitation and Fish Passage Project

**Figure 5a**  
Aquatic Resources  
Revised September 19, 2020





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SOURCE: USDA, 2014; DWR, 2020; ESA, 2020  
 Delineated by Daniel Huang and Kelly Bayne, ESA.  
 Map created on December 5, 2018, and revised on September 19, 2020.



Tisdale Weir Rehabilitation and Fish Passage Project

**Figure 5b**  
 Aquatic Resources  
 Revised September 18, 2020

### 3.4.3 Federal and State Listed Wildlife

#### **Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)**

Valley elderberry longhorn beetle is federally listed as threatened.

Valley elderberry longhorn beetle (VELB) is completely dependent on elderberry shrubs for all stages of their lifecycle, and is generally associated with riparian habitats. This species is restricted to the Central Valley. VELB is threatened by loss and fragmentation of riparian habitat and by predation and displacement by the invasive Argentine ant.

The life history of VELB is not well known. Adult beetles are active from March to June, which is their assumed breeding season. Adults are known to lay eggs in the crevices of bark of elderberry plants. Larvae hatch days later and bore into the stem of the elderberry shrubs where they feed on the pith. Larvae pupate inside the stem and emerge as adults in the spring. Larvae cut an emergence/exit hole through the wood and bark of the elderberry plant. Adults can fly between elderberry plants. Evidence of use by VELB is more commonly observed for clumps of elderberry bushes rather than isolated bushes.

Two isolated elderberry shrubs occur between 100 and 150 feet south of the study area access road within the riparian forest. The VELB framework recommends additional analysis of elderberry shrubs within 162 feet (50 meters) of the study area (USFWS, 2017). Therefore, VELB has the potential to occur within 165 feet of the study area.

#### **Giant Garter snake (*Thamnophis gigas*)**

Giant garter snakes are a federally listed threatened species and a State listed threatened species.

Giant garter snakes (GGS) resides in marshes, ponds, sloughs, small lakes, low-gradient streams, and other waterways and agricultural wetlands, including irrigation and drainage canals, rice fields, and the adjacent uplands. The ideal aquatic habitat for GGS is generally described as the following: presence of water from March through November, slow moving or static water with mud substrate, presence of emergent or bankside vegetation that provide cover from predators, available prey in the form of small amphibians and small fish, basking sites with vegetation immediately adjacent to escape cover, absence of large predatory fish, and absence of flooding that would inundated upland refugia (USFWS, 2017). Although GGS is predominantly an aquatic species, they utilize upland areas near aquatic habitat during their active spring and summer seasons. Upland habitat is used for basking to regulate body temperature, and for cover. They can utilize small mammal burrows and crevices in the soil to avoid predation.

There are dozens of documented CNDDDB occurrences of this species within 5 miles of the study area. There is a documented occurrence of this species in 2008 within the study area, along the north bank of the Sutter Mutual Main Canal. The Tisdale Bypass does not provide suitable habitat for this species given the ephemeral presence of water following seasonal flooding. The Sutter Mutual Main Canal to the south of the study area provides aquatic habitat and the agricultural land to the south of the Sutter Mutual Main Canal provides upland habitat for giant garter snake.

The Oji Ditch within the southern portion of the study area provides aquatic habitat. However, only marginally suitable upland habitat is present directly adjacent to the banks of the ditch given that few small mammal burrows are present for giant garter snake upland habitat and that few open areas are present for basking due to the weedy dense vegetation surrounding the banks. The Oji Ditch is surrounded by developed areas including a raised embankment to the road located approximately 15 feet to the north and the Sutter Mutual Water Company property approximately 13 feet to the south of the ditch. Suitable aquatic habitat for giant garter snake is also present in a canal located west of Reclamation Road, just outside the proposed spoils. Snakes could utilize burrows in the vicinity of this canal which are located within the spoils site. As such, this species is expected to be present within the study area.

### **Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)**

Western yellow-billed cuckoo is a federal listed threatened and a state listed endangered species.

Proposed critical habitat occurs approximately 1.7 miles east of the study area within the Sutter Bypass in the Sutter National Wildlife Refuge. Proposed critical habitat comprises such elements as large, contiguous patches (greater than 200 acres in extent and greater than 325 feet in width) of willow-cottonwood riparian woodland with dense canopy and understory structure; an adequate prey base, including large insect fauna and tree frogs; and a dynamic riverine system that encourages sediment movement and sustained regeneration of mixed-age riparian habitat.

Western yellow-billed cuckoo nests along broad, lower flood bottoms of larger river systems in dense riparian vegetation comprised of willow and cottonwood, with a lower story of black berry, nettles, or wild grape. In California, this species nests in scattered, isolated areas within Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys.

There are no CNDDDB records for this species within 5 miles of the study area. There are only two CNDDDB records for this species within the Tisdale quadrangle and eight surrounding quadrangles. These records are 12 and 14 miles northwest of the study area. One is from 1976 and the other is from 1988. This species no longer appears to nest in the vicinity of the study area given that only two records have been documented and both are over 30 years old. Because cuckoos tend to nest in large extents of habitat with a closed canopy and high humidity, there is low potential for western yellow-billed cuckoos to nest within the riparian forest given that it is a narrow strip of land cut off by the paved road to the west, levee roads to the north, and the bypass to the south. However, this habitat may be suitable foraging habitat. This species has a low likelihood of foraging within the study area.

### **Swainson's Hawk (*Buteo swainsoni*)**

Swainson's hawk is a state listed threatened species.

The Swainson's hawk population that nests in the Central Valley winters primarily in Mexico, while the population that nests in the interior portions of North America winters in South America (Bradbury et al., in prep.). Swainson's hawks arrive in the Central Valley between March and early April to establish breeding territories. Breeding occurs from late March to late August, peaking in late May through July (Zeiner et al., 1990a). In the Central Valley,

Swainson's hawks nest in isolated trees, small groves, or large woodlands next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. Nest locations are usually in close proximity to suitable foraging habitats, which include fallow fields, annual grasslands, irrigated pastures, alfalfa and other hay crops, and low-growing row crops. Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September (Bloom and De Water, 1994).

There are numerous CNDDDB records for this species within five miles of the study area. There are two recorded observations of this species within the study area and eight more located in close proximity, either further east within the Tisdale Bypass or along the Sacramento River. None of these occurrences were documented within the last five years. The trees within the riparian forest within the study area provide suitable nesting habitat for this species. The annual grassland within the study area, as well as the Tisdale Bypass itself when dry, provide suitable foraging habitat for this species. Although this species was not observed during the biological survey, the biological survey was conducted outside of the nesting season. The generally accepted nesting season for this species extends from March 1 through August 31. This species has a high potential to nest and forage within the study area.

### **Central Valley Spring-run Chinook Salmon (*Oncorhynchus tshawytscha*)**

Central Valley spring-run Chinook salmon is federally and state listed as a threatened species.

Central Valley spring-run Chinook salmon were historically the second most abundant run of Central Valley Chinook salmon (Fisher, 1994). They occupied the headwaters of all major river systems in the Central Valley where there were no natural barriers. Adults returning to spawn ascended the tributaries to the upper Sacramento River, including the Pit, McCloud, and Little Sacramento Rivers. They also occupied Cottonwood, Battle, Antelope, Mill, Deer, Stony, Big Chico, and Butte Creeks and the Feather, Yuba, American, Mokelumne, Stanislaus, Tuolumne, Merced, San Joaquin, and Kings Rivers. Spring-run Chinook salmon migrated into headwater streams where cool, well-oxygenated water is available year-round.

Spawning occurs in gravel beds from late August through October, and emergence takes place in March and April. Spring-run Chinook salmon appear to emigrate at two different life stages: fry and yearlings. Fry move between February and June, while the yearling spring-run emigrate October to March, peaking in November (Cramer and Demko, 1997). Juveniles display considerable variation in stream residence and migratory behavior. Juvenile spring-run Chinook salmon may leave their natal streams as fry soon after emergence or rear for several months to a year before migrating as smolts or yearlings (Yoshiyama et al., 1998).

A large portion of the spring-run Chinook salmon population migrate via the Sacramento River past the Tisdale Weir. Spring-run Chinook salmon adults may also attempt to migrate upstream via the Sutter Bypass and the Tisdale Weir when these bypasses are inundated. As such, spring-run Chinook salmon has a high potential to be seasonally present within the study area.

## **Sacramento River Winter-Run Chinook Salmon (*Oncorhynchus tshawytscha*)**

Sacramento River winter-run Chinook salmon is federally and state listed as an endangered species.

The distribution of winter-run spawning and initial rearing historically was limited to the upper Sacramento River (upstream of Shasta Dam), McCloud River, Pitt River, and Battle Creek, where springs provided cold water throughout the summer, allowing for spawning, egg incubation, and rearing during the mid-summer period (Yoshiyama et al., 1998). The construction of Shasta Dam in 1943 blocked access to all of these waters except Battle Creek, which currently has its own impediments to upstream migration (i.e., a number of small hydroelectric dams situated upstream of the Coleman National Fish Hatchery weir).

Adult winter-run Chinook salmon begin their upstream migration through the Sacramento/San Joaquin Delta in December and continue through July with a peak occurring between the months of December and April (NMFS, 2014). Adult winter-run Chinook salmon return from the ocean prior to reaching full sexual maturity and hold in the Sacramento River for several months before spawning while they mature. Currently, the spawning range of winter-run Chinook salmon is confined to the Sacramento River between Red Bluff Diversion Dam (RM 243) and Keswick Dam (RM 302) (Vogel and Marine, 1991; NMFS, 2014). Historically, spawning likely occurred upstream of Shasta Dam in spawning reaches which are no longer accessible to anadromous fish (Yoshiyama et al., 1998), as well as in an upper tributary to the Sacramento River, Battle Creek (Lindley et al., 2004).

Juvenile winter-run Chinook salmon begin to enter the Delta in October and outmigration continues until April. Juvenile outmigration timing is thought to be strongly correlated with winter rain events that result in higher flows in the Sacramento River (del Rosario et al., 2013). Winter-run Chinook salmon use the Delta primarily as a migration corridor as they make their way to Suisun and San Pablo Bays and eventually the Pacific Ocean.

The entire population of winter-run Chinook salmon population migrate via the Sacramento River past the Tisdale Weir. Adult winter-run Chinook salmon adults may also attempt to migrate upstream via the Sutter Bypass and the Tisdale Weir when these bypasses are inundated. As such, winter-run Chinook salmon has a high potential to be seasonally present within the study area.

## **Central Valley Steelhead (*Oncorhynchus mykiss*)**

Central Valley steelhead is federally listed as a threatened species.

Historically, steelhead spawned and reared in most of the accessible upstream reaches of Central Valley rivers and many of their tributaries. Compared with Chinook salmon, steelhead generally migrated farther into tributaries and headwater streams where cool, well-oxygenated water is available year-round.

The upstream migration of adult steelhead historically started in July, peaked in early fall, and continued through March. Central Valley steelhead spawn mainly from January through March,

but spawning has been reported from late December through April (McEwan and Jackson, 1996). During spawning, the female digs a redd (gravel nest) in which she deposits her eggs, which are then fertilized by the male. Egg incubation time in the gravel is determined by water temperature, varying from approximately 19 days at an average water temperature of 60°F to approximately 80 days at an average temperature of 58°F (McEwan and Jackson, 1996).

Steelhead fry usually emerge from the gravel 2–8 weeks after hatching, between February and May, sometimes extending into June (Barnhart, 1986; Reynolds et al., 1993). Newly emerged steelhead fry move to shallow, protected areas along streambanks but move to faster, deeper areas of the river as they grow. Juvenile steelhead feed on a variety of aquatic and terrestrial insects and other small invertebrates. Juvenile steelhead rear throughout the year and may spend 1–3 years in freshwater before emigrating to the ocean. Smoltification, the physiological adaptation that juvenile salmonids undergo to tolerate saline waters, occurs in juveniles as they begin their downstream migration. Smolting steelhead generally emigrate from March to June (Barnhart, 1986; Reynolds et al., 1993).

A large portion of the Central Valley steelhead population spawns in tributaries of the Sacramento River located north of the Tisdale Bypass. Juveniles outmigrating from these tributaries would pass past the Tisdale Weir. Adult steelhead may also attempt to migrate upstream via the Sutter Bypass and the Tisdale Weir when these bypasses are inundated. As such, Central Valley steelhead has a high potential to be seasonally present within the study area.

### **Green Sturgeon (*Acipenser medirostris*)**

Green sturgeon is federally listed as a threatened species and is a California species of special concern.

Habitat requirements of green sturgeon are poorly known. Indirect evidence indicates that green sturgeon spawn mainly in the Sacramento River; spawning has been reported in the mainstem as far north as Red Bluff. Spawning times in the Sacramento River are presumed to be from March through July, peaking from mid-April to mid-June. Adult sturgeon are in the river, presumably spawning, when temperatures range from 46°F to 57°F. Their preferred spawning substrate is large cobble, but substrates range from clean sand to bedrock. Eggs are broadcast-spawned and externally fertilized in relatively high water velocities and at depths of less than 10 feet.

Female green sturgeon produce 60,000 to 140,000 eggs, each approximately 0.15 inch in diameter. Eggs hatch approximately 196 hours after spawning, and larvae are 0.3 to 0.75 inch (8 to 19 mm) long. Juveniles range in size from less than one inch to almost five feet. Juveniles migrate to sea before two years of age, primarily during the summer and fall. They remain near estuaries at first, but may migrate considerable distances as they grow larger (SWRCB, 1999). Both juvenile and adult green sturgeon are benthic feeders and may also eat small fish.

Given their known spawning locations, this species is expected to be present in the Sacramento River at Tisdale Weir at least seasonally. Green sturgeon have also been known to attempt to migrate upstream through the Tisdale Bypass when it has been inundated. In summary, this species has a high potential to be seasonally present within the study area.

### 3.4.4 Non-Listed Special Status Wildlife

#### **Western Pond Turtle (*Actinemys marmorata*)**

Western pond turtle is a California species of special concern.

Western pond turtles are found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with suitable basking sites (Californiaherps, 2018). Suitable aquatic habitat typically has a muddy or rocky bottom and has emergent aquatic vegetation for cover (Stebbins, 2003). Western pond turtles nest and overwinter in areas of sparse vegetation comprised of grassland and forbs with less than ten percent slopes, less than 492 feet (150 meters) from aquatic habitat (Rosenberg et al., 2009). The irrigation ditch and the seasonal wetland within the study area provide potential aquatic habitat, but potential upland habitat is very limited because it is either highly disturbed or managed (e.g., there is an orchard located adjacent to the seasonal wetland). The Sacramento River is not expected to provide aquatic habitat for this species, because it preferentially occupies slow-moving or still waters. This species was not observed within the study area during the biological survey. This species has a moderate potential to occur within the study area.

#### **Burrowing Owl (*Athene cunicularia*)**

Burrowing owl is a California species of special concern.

Burrowing owl is a small ground-dwelling owl that occurs in western North America from Canada to Mexico and east to Texas and Louisiana. Although burrowing owls are migratory in certain areas of their range, these owls are predominantly non-migratory in California. Burrowing owls generally inhabit gently-sloping areas, characterized by low, sparse vegetation (Poulin et al., 2011). The breeding season for burrowing owls extends from March to August, peaking in April and May (Zeiner et al., 1990). Burrowing owls nest in burrows in the ground, often in old ground squirrel burrows. Burrowing owl is also known to use artificial burrows including pipes, culverts, and nest boxes. No burrowing owl or their sign were observed during the biological survey. There are no CNDDDB records of this species in the vicinity. This species has a low potential to occur within the study area.

#### **Western Red Bat (*Lasiurus blossevillii*)**

Western red bat is a California species of special concern.

Western red bat is locally common in certain areas of California. Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. The species feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. They roost primarily in trees, less often in shrubs. Roosts sites are often in edge habitats adjacent to streams, fields, or urban areas. Family groups roost together and nursery colonies are found with many females and their young.

The trees within the study area provide potential roosting habitat for this species in the trees located north of Tisdale Bypass. This species was not observed within the study area during the biological survey. This species has a moderate potential to occur within the study area.



### **Pallid Bat (*Antrozous pallidus*)**

Pallid bat is a California species of special concern.

Pallid bat occurs throughout California except in parts of the high Sierra and the northwestern corner of the state (Zeiner et al., 1990b). The pallid bat inhabits a variety of habitats, such as grasslands, shrublands, woodlands, and forests; however, it is most abundant in open, dry habitats with rocky areas for roosting. Pallid bats roost alone, in small groups, or gregariously (WBWG, 2005). Roosts include caves, crevices in rocky outcrops and cliffs, mines, trees, and various man-made structures (e.g., bridges, barns, porches), and generally have unobstructed entrances/exits and are high above the ground, warm, and inaccessible to terrestrial predators. Year-to-year and night-to-night roost reuse is common; however, bats may switch day roosts on a daily and seasonal basis. The trees and the Garmire Road Bridge within the study area provide potential roosting habitat for this species. No pallid bats were observed during the biological survey. This species has a moderate potential to occur within the study area.

### **Mountain Plover (*Charadrius montanus*)**

Mountain plover is a California species of special concern.

Mountain plovers breed in the Great Plains and down to southeastern New Mexico and Texas. They migrate to various locations including California, Arizona, Texas and north-central Mexico to winter. This species typically arrives in California starting in October. They typically forage and roost in flocks ranging from two to over 1,000 individuals throughout the winter. They often roost in depressions in the landscape, such as small mammal burrows, depressions caused by cattle hoof prints, or furrows. They are commonly observed to use grassland habitats and recently tilled fields as their overwintering habitat.

The annual grassland in the study area provides suitable overwintering habitat for this species. The Tisdale Bypass itself could provide potential habitat as well. No mountain plovers were observed during the biological survey. The species has a moderate potential to be present within the study area, but only seasonally.

### **Central Valley Fall-/Late Fall-Run Chinook Salmon (*Oncorhynchus tshawytscha*)**

Central Valley fall-/late fall-run Chinook salmon is a California species of special concern.

Adult Central Valley fall-/late fall-run Chinook salmon enter the Sacramento River system from September through January and spawn from October through February. During spawning, the female digs a redd (gravel nest) in which she deposits her eggs, which are then fertilized by the male. Newly emerged fry remain in shallow, lower-velocity edgewater, particularly where debris congregates and provides cover from predators (CDFG, 1998). The duration of egg incubation and time of fry emergence depends largely on water temperature. In general, eggs hatch after a 3- to 5-month incubation period, and alevins (yolk-sac fry) remain in the gravel until their yolk sacs are absorbed (2–3 weeks).

Juveniles typically rear in freshwater (in their natal streams and the Sacramento–San Joaquin Delta) for 3 to 6 months (fall-run) and up to 12 months (late fall-run) before entering the ocean. Juveniles migrate downstream from January through June. Juvenile Chinook salmon prefer water depths of 0.5–3.3 feet and velocities of 0.26–1.64 feet per second (Raleigh et al., 1986). Important winter habitat for juvenile Chinook salmon includes flooded bars, side channels, and overbank areas with relatively low water velocities. Juvenile Chinook salmon have been found to rear successfully in floodplain habitat, which routinely floods but is dry at other times. Growth rates appear to be enhanced by the conditions found in floodplain habitat.

Cover structures, space, and food are necessary components for Chinook salmon rearing habitat. Suitable habitat includes areas with instream and overhead cover in the form of undercut banks, downed trees, and large, overhanging tree branches. The organic materials forming fish cover also help provide sources of food, in the form of both aquatic and terrestrial insects.

The Sacramento River provides suitable habitat for this species. The Tisdale Bypass, when inundated, also provides habitat for this species. This species has a high potential to occur within the study area.

### **3.5 Wildlife Movement Corridors**

Wildlife movement corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. Topography and other natural factors in combination with urbanization can fragment or separate large open-space areas. The fragmentation of natural habitat can create isolated “islands” of vegetation and habitat that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. The retention of wildlife movement corridors ameliorates the effects of such fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished. Such movement may also promote genetic exchange between separated populations.

The Tisdale Bypass can function as a fish passage corridor for anadromous fish species, including Chinook salmon, steelhead and green sturgeon, when the Bypass is inundated from Sacramento River flows overtopping Tisdale Weir. However, the presence of the weir structure itself functions as a barrier to migration for adult fish attempting to migrate upstream via the Bypass under most circumstances.

### **3.6 Critical Habitat for Listed Fish and Wildlife Species**

The USFWS defines the term critical habitat in the federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The portion of the Sacramento River west of the study is designated as critical habitat for Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, Central Valley steelhead, and green sturgeon. The Tisdale Bypass is considered critical habitat for Central Valley spring-run Chinook salmon and Central Valley steelhead.

# CHAPTER 4

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## Recommendations

### 4.1 Habitat Impacts

The term “impact area” refers to the maximum area of disturbance associated with the construction of the proposed project. The footprint or description of the project has yet to be finalized; thus it was not possible during the preparation of this report to identify the amount of impacts to habitat types as a result of the construction and operation of the project. As such, for the purposes of this recommendations section, it was assumed that potential habitat impacts could occur throughout the entirety of the study area.

### 4.2 Impacts to Sensitive Biological Resources

The following discussion describes the potential effects to sensitive biological resources as a result of project development and provides recommended conservation measures (CMs) to protect these resources. This report will be used to inform the Environmental Impact Report and biological assessment in determining potential environmental impacts/effects, respectively, to sensitive biological resources as a result of the project.

#### 4.2.1 Potential Waters of the U.S. and Sensitive Natural Communities

The following potentially jurisdictional wetlands and other waters of the U.S. occur within the study area: seasonal riverine, seasonal wetland, riverine, and irrigation ditch. These features are likely to be considered jurisdictional under Section 404 of the Clean Water Act. Riparian forest is considered a sensitive natural community of special concern under CEQA and would also be subject to protection under Section 1600 of Fish and Game Code.

Impacts to these features would require the project to obtain permits from regulatory agencies (Section 404 Clean Water Act Nationwide permit, Section 401 Water Quality Certification, Section 1600 Lake and Streambed Alteration Agreement).

**CM-1:** Stakes and flagging will be used at the edge of the construction footprint if work is anticipated to occur within 50 feet of riparian areas that are proposed for avoidance. A biological monitor will be present during initial grading or vegetation-clearing activities within 50 feet of riparian areas proposed for avoidance.

**CM-2: Implement Best Management Practices (BMPs) to Protect Water Quality.**

- The construction contractor will develop and implement a spill prevention, control, and countermeasure plan to minimize the potential for, and effects from, spills of hazardous, toxic, and petroleum substances during construction and maintenance. The plan will be completed before construction activities begin. The spill prevention, control, and countermeasure plan will describe containment facilities and practices, including refueling procedures and spill response actions for each material or waste and procedures for notifying the appropriate agencies.
- Diesel fuel and oil will be used, stored, and disposed of in accordance with standard protocols for handling of hazardous materials.
- All personnel using hazardous materials will be trained in emergency response and spill control.
- All concrete washing and spoils dumping will occur in a designated location outside of jurisdictional waters, including the Tisdale Bypass.
- Construction stockpiles will be covered or protected with soil stabilization measures (e.g., protection of seeding by erosion controls until vegetation is established, sodding, mulching, erosion control blankets, hydromulch, gravel) and a temporary sediment barrier to prevent blowoff or runoff during weather events.
- Erosion control materials and devices for severe-weather events will be stored on-site for use as needed.
- All work will occur when the Tisdale Bypass is dry. Areas with permanent open water will be protected from disturbance during excavation by installing silt fencing or other suitable best management practices around the features, or by leaving a buffer of 15 feet from the ponded areas that will be identified by stakes and flagging. Shallow ponded areas will not be affected until they have dried down.
- Any excavated areas will be reseeded with an appropriate seed mix or otherwise treated to reduce erosion and/or siltation.
- Erosion control measures will be placed in areas that are upslope of aquatic habitat, to prevent any soil or other materials from entering aquatic habitat. Silt fencing and/or natural/biodegradable erosion control measures (i.e., straw wattles and hay bales) will be used. Plastic monofilament netting (erosion control matting) will not be allowed because wildlife can become entangled in this type of erosion control material.
- To address potential effects on receiving water quality during the construction period, DWR will prepare and comply with any requirements identified in a storm water pollution prevention plan to maintain water quality.

### 4.2.2 Valley Elderberry Longhorn Beetle

There are two elderberry shrubs identified within 150 feet of the study area. The elderberry plants provide suitable habitat for the valley elderberry longhorn beetle.

**CM-3:** All project activities will avoid suitable elderberry shrubs, defined as shrubs with stem diameters of at least 1 inch when measured at ground level. Shrubs will be flagged or temporarily fenced, as needed, with guidance from a designated biologist. These areas will be avoided by all project personnel and activities. When feasible, fencing will be placed at least 5 feet from the dripline of each shrub, unless otherwise approved by USFWS.

**CM-4:** DWR will not use insecticides, herbicides, or other chemicals that might harm the beetle or its host plant within established buffers (20 feet) around elderberry shrubs. Mowing will not occur within 5 feet of any suitable elderberry stem (i.e., a stem 1 inch in diameter or greater)..

**CM-5:** If it is determined that any project activity has the potential to result in the incidental take of VELB despite implementation of CM-4 and CM-5, DWR will obtain take authorization under the FESA. DWR will implement all measures developed through consultation with USFWS to mitigate the authorized take. The mitigation approach will conform to requirements stipulated by USFWS in its *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS, 2017a).

### 4.2.3 Western Pond Turtle

As noted previously, suitable habitat for western pond turtle exists within the seasonal wetland and irrigation ditch in the study area.

**CM-6:** A designated biologist will present a worker education and awareness program to all on-site personnel before materials staging or ground-disturbing activities begin. The biologist will explain to construction workers how best to avoid impacts on western pond turtle and will address the topics of species descriptions and identification, life history, and habitat requirements during various life stages. This education program can include handouts, illustrations, photographs, and project mapping showing areas of minimization and avoidance measures. The crew members will sign a sign-in sheet documenting that they received the training.

**CM-7:** A designated biologist will conduct a preconstruction survey within 7 days before the establishment of staging areas and the start of construction and maintenance activities.

**CM-8:** Should a western pond turtle be observed during the preconstruction survey, the biologist will identify the location using GPS coordinates. DWR will revisit these locations within 8 hours of ground disturbance. A designated biologist may relocate the turtle found within the construction footprint to suitable habitat away from the construction zone.

**CM-9:** If a western pond turtle is observed on land within the active construction zone, specifically in areas of ground disturbance, access routes, stockpile areas, or staging areas, DWR will immediately stop work within approximately 200 feet of the turtle and

notify a designated biologist. If possible, the turtle will be allowed to leave on its own, and the designated biologist will remain in the area for the remainder of the workday to ensure that the turtle is not harmed. Alternatively, with prior CDFW approval, the designated biologist may capture the turtle and relocate it unharmed to suitable habitat at least 200 feet from the project area. If the turtle does not voluntarily leave the project area and cannot be captured and relocated unharmed, construction activities within approximately 200 feet of the turtle will stop to prevent harm to the turtle, and CDFW will be consulted to identify next steps. DWR will implement the measures recommended by CDFW before resuming project activities in the area.

#### 4.2.4 Giant Garter Snake

**CM-10:** To the extent feasible, DWR will limit project construction and maintenance activities within the project footprint outside the Tisdale Bypass to the active season for GGS, May 1 to October 1. DWR may also conduct work between October 2 and November 1 or between April 1 and April 30 if ambient air temperatures exceed 75°F during the work and maximum daily air temperatures have exceeded approximately 75°F for at least 3 consecutive days immediately preceding the work.

**CM-11:** A designated biologist will present a worker education and awareness program to all on site construction personnel before materials staging or ground-disturbing activities begin. The program will describe how best to avoid impacts on GGS and will address the topics of species descriptions and identification, life history, and habitat requirements during various life stages. This education program can include handouts, illustrations, photographs, and project maps showing areas of minimization and avoidance measures. All construction personnel will sign a sign-in sheet documenting that they received the training.

**CM-12:** DWR will ensure that a designated biologist surveys the project footprint for burrows, soil cracks, crevices, and other features potentially suitable for use by GGS within terrestrial habitat located within 200 feet of suitable aquatic habitat in the Oji Ditch and seasonal wetland, excluding any areas within this buffer that may overlap the Tisdale Bypass. Surveys will be completed no more than 3 days before construction or maintenance activities in terrestrial habitat that could support GGS. Any identified burrows, soil cracks, crevices, or other habitat features will be flagged by the designated biologist or otherwise identified as biologically sensitive areas. DWR will avoid these biologically sensitive areas during construction and subsequent maintenance. If activities temporarily stop for more than 7 days, the designated biologist will repeat the surveys for soil cracks and similar features, as described above, before construction work resumes.

If feasible and accepted by CDFW and USFWS, DWR may also use other survey techniques (e.g., scent-detection dogs) as an alternative or supplement to surveys conducted by the designated biologist. Such surveys will identify cracks and burrows to help determine occupancy by GGS, and these burrows will be flagged as biologically sensitive areas to be avoided during subsequent work as described above.

**CM-13:** GGS exclusion fencing will be installed consistent with USFWS and CDFW guidance to divert moving snakes from the active construction zone during periods when GGS are active. This exclusion fencing will be installed south of the Oji Ditch between the ditch and the staging area; north of the Sutter Mutual Main Canal between the staging area and the canal; and between the canal that runs along the west side of Reclamation Road and the spoils site. DWR will also install and regularly maintain exclusion fencing around the southern and western margins of the seasonal wetland to redirect any GGS using the pond away from Garmire Road and the nearby construction access route on the Tisdale Bypass north levee.

The exclusion fencing will be installed before the start of construction. DWR will maintain the exclusion fencing for the duration of the construction activities. A designated biologist will inspect the exclusion fence daily to verify the condition and function of the fence and to verify that snakes are not becoming trapped in the excluded areas.

**CM-14:** If a GGS individual is observed within the project footprint, DWR will stop work and notify a designated biologist immediately. The snake will be allowed to leave on its own, and the designated biologist will remain in the area for the remainder of the workday to ensure that the snake is not harmed. Alternatively, with prior approval by CDFW and USFWS, the designated biologist may capture the snake and relocate it unharmed to suitable habitat at least 200 feet from the project area. DWR will notify CDFW and USFWS by telephone or email within 24 hours of a GGS observation during project activities. If the snake does not voluntarily leave the project area and cannot be captured and relocated unharmed, project activities will remain halted to prevent harm to the snake, and CDFW and USFWS will be consulted to identify next steps. DWR will implement the measures recommended by CDFW and USFWS before resuming project work in the area.

## 4.2.5 Swainson's Hawk Nesting Habitat

The trees within the study area provide nesting habitat for Swainson's hawk, including trees that may be removed as a result of project construction activities.

**CM-15:** If vegetation removal is to begin during the nesting season for Swainson's hawk (between March 1 and September 15), a designated biologist will conduct a minimum of one protocol-level preconstruction survey. The survey(s) will occur during the recommended survey periods for the nesting season that coincides with the start of construction activities, in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). Where legally permitted, the designated biologist will conduct surveys for nesting Swainson's hawk within 0.25 mile of the project area.

**CM-16:** If active Swainson's hawk nests are found within 0.25 mile of construction or maintenance activities, the findings will be reported to CDFW following the preconstruction survey. For purposes of this avoidance and minimization requirement,

“construction activities” are defined to include the operation of heavy equipment during construction (use of cranes or draglines, new rock-crushing activities) or other project-related activities that could cause nest abandonment or forced fledging within 0.25 mile of a nest site between March 1 and September 15. Should an active nest be present within 0.25 mile of a construction area, DWR will consult with CDFW to establish appropriate avoidance measures; determine whether high-visibility construction fencing will be erected around the buffer zone; and implement a monitoring and reporting program before any construction activities occur within 0.25 mile of the nest. Should the designated biologist determine that the construction activities are disturbing the nest, the biologist will halt construction activities until DWR consults with CDFW. The construction activities will not resume until CDFW determines that they will not result in abandonment of the nest site. Should the designated biologist determine that construction activities within the buffer zone have not disturbed the nest, DWR will report to CDFW summarizing the survey results within 30 days after the final monitoring event, and no further avoidance and minimization measures for nesting habitat are recommended.

#### 4.2.6 Swainson’s Hawk Foraging Habitat

The CDFW considers five or more vacant acres within ten miles of an active nest within the last five years to be significant foraging habitat for Swainson’s hawk, the conversion of which to urban or other heavy disturbance uses is considered a significant impact, in accordance with the *Staff Report Regarding Mitigation for Impacts to Swainson’s Hawk in the Central Valley of California* (CDFW, 1994; Staff Report). The Staff Report states that foraging habitat loss of five or more acres on projects located greater than five miles but less than ten miles of an active nest tree documented within the last five years shall be mitigated at a 1:1 ratio. Although there are records documented with nests within ten miles of the study area, none were documented within the last five years. If any active Swainson’s hawk nests are discovered in the area of the project, including through any protocol-level pre-construction surveys, mitigation for loss of annual grassland would be required.

#### 4.2.7 Nesting and Migratory Birds

Migratory birds and birds of prey, protected under 50 CFR 10 of the MBTA and/or Section 3503 of the California Fish and Game Code, have the potential to nest within the study area, including areas that would be impacted by project construction. Swallow nests were observed beneath the deck of the Garmire Road Bridge.

**CM-17:** If vegetation removal is to begin during the nesting season (February 15 to August 31), a designated biologist will conduct a preconstruction nesting survey before the vegetation is removed. The preconstruction survey will be conducted within 14 days before the start of ground-disturbing activities. If the survey shows no evidence of active nests, no additional measures are recommended. If construction does not begin within 14 days of the preconstruction survey, or if it halts for more than 14 days, an additional preconstruction survey is recommended.

**CM-18:** If any active nests are located in the project area, the construction contractor will establish an appropriate buffer zone around the nests, as determined by a designated



biologist. Typical buffer zones are 100 feet for migratory bird nests, 250 feet for raptor nests, and 500 feet for western yellow-billed cuckoo, unless a qualified CDFW biologist determines that smaller buffers would be sufficient to avoid impacts. Factors to be considered for determining buffer size will include the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; and baseline levels of noise and human activity. Buffers will be maintained until a qualified CDFW biologist has determined that the young have fledged and are no longer reliant upon parental care for survival. The designated biologist will monitor nests daily during construction to evaluate whether construction activities have the potential to disturb nesting. All feasible avoidance measures will be implemented (e.g., vehicle and pedestrian access under the Garmire Road Bridge will be reduced). If any project construction work is to occur within 100 feet of swallow nests located under the Garmire Road Bridge, the designated biologist will elect to implement a stop-work authority until concerning swallow behavior is alleviated if there is concern that the construction activities may result in incidental take of the migratory species.

**CM-19:** If mountain plovers are observed foraging in the project area or adjacent agricultural fields during project construction or maintenance activities, activities within 100 feet will cease until they disperse. This species will be covered under the working training classes presented to construction crews by a designated biologist.

## 4.2.8 Bats

Trees and manmade structures within the study area have the potential to support day roosts or maternities for pallid bat, and the riparian habitat may provide roosting habitat for Western red bat.

**CM-20:** Within 14 days before the beginning of removal of suitable bat roosting trees (larger than 24 inches in diameter at breast height), a designated biologist will conduct a preconstruction survey for special-status bats. If no special-status bats are observed roosting, no additional measures are required for the tree removal. If tree removal does not begin within 14 days of the preconstruction survey, or if removal halts for more than 14 days, a new survey will be conducted.

**CM-21:** If bats are found in the area where construction-related activities will occur, a minimum 100-foot avoidance buffer will be established around the roost/maternity area until it is no longer occupied. High-visibility fencing will be installed around the buffer and will remain in place until bats no longer occupy the tree or structure. The tree or structure will not be removed or modified until a designated biologist has determined that the bats are no longer occupying the roost. If construction activities must occur within the avoidance buffer, a designated biologist will monitor the activities either continuously or periodically during work, as determined by the biologist. The designated biologist will be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status bats. If construction activities are stopped, the designated biologist will consult with CDFW to determine appropriate measures that DWR will implement to avoid adverse effects.

Within 14 days before the start of work within 100 feet of the Garmire Road Bridge, a designated biologist will conduct a preconstruction emergence survey for special-status

bats. If avoidance of maternity roosts is not feasible, additional mitigation will be developed in consultation with CDFW.

**CM-22:** If construction activities must occur within the avoidance buffer, a designated biologist will monitor the work either continuously or periodically, as determined by the biologist. The designated biologist will be empowered to stop activities that, in the biologist's opinion, threaten to cause unanticipated and/or unpermitted adverse effects on special-status bats. If construction activities are stopped, the designated biologist will consult with CDFW to determine the appropriate measures to implement to avoid adverse effects.

#### 4.2.9 Green Sturgeon, Central Valley Steelhead, Sacramento-River Winter-Run Chinook Salmon, Central Valley Spring-Run Chinook Salmon, and Central Valley Fall/Late Fall-Run Chinook Salmon

The project is intended to provide benefits for listed fish species but construction activities have the potential to result in temporary direct and indirect impacts to these species. The following conservations measures are suggested to address these potential impacts.

**CM-23:** DWR will submit a dewatering and fish rescue plan to NMFS and CDFW before construction. NMFS- and CDFW-approved fish biologists will conduct fish rescues in isolated pools and channels in the project area. These biologists will also rescue any fish trapped in the cofferdam area before dewatering. Fish rescue will also occur in the unlikely event that Sacramento River flows overtop the cofferdam. Methods used for capturing fish could include seining and dip netting. Water will be pumped and discharged back into the Sacramento River from the cofferdam areas as needed to facilitate fish collection activities. Pump intakes will be fitted with appropriately sized, NMFS- and/or CDFW-approved fish screens to prevent fish from becoming entrained.

**CM-24:** If project activities must occur during non-daylight hours, a designated biologist will establish monitoring measures, including frequency and duration, based on fish species, individual behavior, and type of construction activities. When nighttime work cannot be avoided, nighttime lighting will be used only in the portion of the project area actively being worked on (limited to a minimum distance of 200 feet from habitat for FESA-listed fish species), and will be focused directly on the work area. Lights on work areas will be shielded and focused to minimize lighting of FESA-listed fish species habitat. If the work area is located near surface waters, the lighting will be shielded to avoid shining directly into the water.

**CM-25:** Work will be suspended if Tisdale Weir is forecast to be overtopped during the construction window.

# CHAPTER 5

## References and Report Preparation

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## 5.2 Document Preparation

Prepared by: Daniel Huang, *Biologist*  
Kelly Bayne, *Senior Biologist*  
Environmental Science Associates  
2600 Capitol Avenue, Suite 200  
Sacramento, CA 95816

# Appendix A

## **Regulatory Context**

## Federal

### **U.S. Fish and Wildlife Service**

The U.S. Fish and Wildlife Service (USFWS) administers the Federal Endangered Species Act (FESA) (16 U.S. Code [USC] 153 et seq.), the Migratory Bird Treaty Act (MBTA) (16 USC 703–711), and the Bald and Golden Eagle Protection Act (16 USC 668). These regulations are described below.

**Federal Endangered Species Act.** Under the FESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 USC § 1533(c)). Two federal agencies oversee the FESA: the USFWS has jurisdiction over plants, wildlife, and resident fish, while the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals. Section 7 of the FESA mandates that federal agencies consult with the USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. The FESA prohibits the “take”<sup>3</sup> of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

Section 10 requires the issuance of an “incidental take” permit before any public or private action may be taken that could take an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP) that would offset the take of individuals that may occur, incidental to implementation of a proposed project, by providing for the protection of the affected species.

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

**Critical Habitat.** The USFWS designates critical habitat for listed species under FESA. Critical habitat designations are specific areas within the geographic region that are occupied by a listed species that are determined to be critical to its survival and recovery in accordance with FESA. Federal entities issuing permits or acting as a lead agency must show that their actions do not negatively affect the critical habitat to the extent that it impedes the recovery of the species.

**Migratory Bird Treaty Act.** The MBTA (16 United States Code § 703 Supp. I, 1989) generally prohibits the killing, possessing, or trading of migratory birds, bird parts, eggs, and nests, except as provided by the statute.

**Bald and Golden Eagle Protection Act.** The Bald and Golden Eagle Protection Act, enforced by the USFWS, makes it illegal to import, export, take (which includes molest or disturb), sell,

<sup>3</sup> Take is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct.



purchase, or barter any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*) or parts thereof.

## **U.S. Army Corps of Engineers**

### **Clean Water Act**

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

#### **Section 401**

Under CWA Section 401, applicants for a federal license or permit to conduct activities which may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

#### **Section 402**

Under the CWA Section 402, the State Water Resources Control Board (SWRCB) has adopted a *General Construction Activity Storm Water Permit* (General Permit) for storm water discharges associated with any construction activity including clearing, grading, excavation reconstruction, and dredge and fill activities that results in the disturbance of at least one acre of total land area. The general permit requires the site owner to notify the state, to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP), and to monitor the effectiveness of the plan.

*De minimis* discharge activities that are regulated by an individual or general NPDES permit, such as discharges resulting in construction dewatering, also require the General Order for Dewatering and Other Low Threat Discharge to Surface Waters Permit (Section 402). Project applicants/proponents should apply for this permit concurrently with the NPDES permit application.

#### **Section 404**

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands. Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Waters of the United States are under the jurisdiction of the USACE and the Environmental Protection Agency (EPA).

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The USACE cannot issue an individual permit or verify the use of a general nationwide permit until the requirements of NEPA, ESA, and the National Historic Preservation Act (NHPA)

have been met. In addition, the USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

## State

### **California Department of Fish and Wildlife**

The California Department of Fish and Wildlife (CDFW), formerly identified as the California Department of Fish and Game, administers a number of laws and programs designed to protect fish and wildlife resources under the Fish and Game Code (FGC), such as the California Endangered Species Act (FGC Section 2050, et seq.), Fully Protected Species (FGC Section 3511), Native Plant Protection Act (FGC Sections 1900 to 1913) and Lake or Streambed Alteration Agreement Program (FGC Sections 1600 to 1616). These regulations are described below.

**California Endangered Species Act.** In 1984, the State of California implemented the California Endangered Species Act (CESA) which prohibits the take of State-listed endangered and threatened species; although, habitat destruction is not included in the State’s definition of take. Section 2090 requires State agencies to comply with endangered species protection and recovery and to promote conservation of these species. The CDFW administers the act and authorizes take through California Fish and Game Code Section 2081 agreements (except for designated “fully protected species,” see below). Unlike its federal counterpart, CESA protections apply to candidate species that have been petitioned for listing.

Regarding listed rare and endangered plant species, CESA defers to the California Native Plant Protection Act (see below).

**Fish and Game Code Section 3503.** California Fish and Game Code Section 3503.5 provides that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. Construction activities that result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment and/or reproductive failure are considered a “take” by CDFW. Any loss of eggs, nests, or young or any activities resulting in nest abandonment would constitute a significant project impact.

### **Fully Protected Species**

Certain species are considered *fully protected*, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. Section 5050 lists fully protected amphibians and reptiles, Section 5515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

It is possible for a species to be protected under the California Fish and Game Code, but not fully protected. For instance, mountain lion (*Puma concolor*) is protected under Section 4800 et seq., but is not a fully protected species.

**Native Plant Protection Act.** California Fish and Game Code Section 1900–1913, also known as the Native Plant Protection Act, is intended to preserve, protect, and enhance endangered or rare

native plants in California. The act directs CDFW to establish criteria for determining what native plants are rare or endangered. Under Section 1901, a species is endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more cause. A species is rare when, although not threatened with immediate extinction, it is in such small numbers throughout its range that it may become endangered. The act also directs the California Fish and Game Commission to adopt regulations governing the taking, possessing, propagation, or sale of any endangered or rare native plant.

**California Rare Plant Ranking System.** CDFW works in collaboration with the CNPS to maintain a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. These species are categorized by rarity in the California Rare Plant Rank (CRPR). This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CRPR species may receive consideration under CEQA review. The following identifies the definitions of the CRPR:

- Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere.
- Rank 2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
- Rank 3: Plants about which more information is needed - A Review List.
- Rank 4: Plants of limited distribution - A Watch List.

In general, plants with CRPR 1A, 1B, or 2 are considered to meet the criteria of CEQA Guidelines Section 15380. Additionally, with CRPR Rank 1A, 1B or 2 meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 (California Endangered Species Act) of the California Fish and Game Code.

**Lake or Streambed Alteration Program.** The CDFW regulates activities that would interfere with the natural flow of, or substantially alter, the channel, bed, or bank of a lake, river, or stream. Section 1602 of the California Fish and Game Code requires notification of the CDFW for lake or stream alteration activities. If, after notification is complete, the CDFW determines that the activity may substantially adversely affect an existing fish and wildlife resource, the CDFW has authority to issue a Streambed Alteration Agreement under Section 1603 of the California Fish and Game Code. Requirements to protect the integrity of biological resources and water quality are often conditions of Streambed Alteration Agreements. These may include avoidance or minimization of heavy equipment use within stream zones, limitations on work periods to avoid impacts to wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses.

**Species of Special Concern.** CDFW maintains lists for candidate-endangered species and candidate-threatened species. California candidate species are afforded the same level of protection as listed species. California also designates species of special concern, which are

species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species or fully protected species, but may be added to official lists in the future.

CDFW intends the species of special concern list to be a management tool for consideration in future land use decisions. The *Special Plants* list can be found online at:

<http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spplants.pdf>; and the *Special Animals* list may be found online at: <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/spanimals.pdf>.

### **State Water Resources Control Board**

**Porter Cologne Water Quality Act.** The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) (together “Boards”) are the principal state agencies with primary responsibility for the coordination and control of water quality. In the Porter-Cologne Water Quality Control Act (Porter-Cologne), the Legislature declared that the “state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation...” (California Water Code section 13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies and plans to protect the groundwater and surface waters of the state. Waters of the State determined to be jurisdictional would require, if impacted, waste discharge permitting and/or a Clean Water Act Section 401 certification (in the case of the required USACE permit). The enforcement of the State's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., the California Department of Fish and Wildlife) have the ability to enforce certain water quality provisions in state law.

### **CEQA Guidelines Section 15380**

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(b) provides 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 specific criteria. These criteria have been modeled after the definition of FESA and the section of Fish and Game Code discussing rare or endangered plants or animals. This section was included in the CEQA Guidelines primarily for situations in which a public agency is reviewing a project that may have a significant effect on a candidate species that has not yet been listed by CDFW or USFWS. CEQA provides the ability to protect species from potential project impacts until the respective agencies have the opportunity to designate the species protection.

CEQA also specifies the protection of other locally or regionally significant resources, including natural communities or habitats. Although natural communities do not presently have legal protection, CEQA requires an assessment of such communities and potential project impacts. Natural communities that are identified as sensitive in the CNDDDB are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents such as general and area plans often identify natural communities.

***Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP)***

The Yuba-Sutter NCCP/HCP is a cooperative planning effort initiated by Yuba and Sutter counties in connection with improvements to Highways 99 and 70 and future development in the area surrounding those highways. The planning area currently encompasses most of these two counties. The draft plan currently covers four different plant species and fifteen wildlife species. Since the NCCP/HCP is still in development, there are no requirements for compliance.

# Appendix B

## **Agency Lists and Special- Status Species Considered in the Study Area**

**TABLE B-1**  
**SPECIAL-STATUS SPECIES CONSIDERED IN THE STUDY AREA**

Common Name Scientific Name	Status (Federal/State/CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
<b>Plants</b>				
Baker's navarretia <i>Navarretia leucocephala</i> subsp. <i>bakeri</i>	--/--/1B.1	Annual herb found in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation 16 – 5710 feet	Blooming period: April – July.	<b>None.</b> While the grassland in the study area provides habitat for this species, this species was not observed during the botanical inventories conducted in May and June 2019.
Colusa layia <i>Layia septentrionalis</i>	--/--/1B.2	Annual found in sandy serpentine soils, chaparral, cismontane woodland, valley and foothill grassland. Elevation 330 – 3600 feet	Blooming period: April – May.	<b>None.</b> The study area is outside the known elevation range of this species.
Coulter's goldfields <i>Lasthenia glabrata</i> subsp. <i>coulteri</i>	--/--/1B.1	Annual herb found in marshes and swamps (coastal salt), playas, vernal pools. Elevation 3 – 4000 feet	Blooming period: February – June	<b>None.</b> While the seasonal wetland and irrigation canal within the study area provide habitat, this species was not observed during the botanical inventories conducted in May and June 2019.
Ferris' milk-vetch <i>Astragalus tener</i> var. <i>ferrisiae</i>	--/--/1B.1	Annual herb found in meadows and seeps (vernally mesic), valley and foothill grassland (subalkaline flats). Elevation 7 – 250 feet.	Blooming period: April – May.	<b>None.</b> While the grassland and seasonal wetland in the study area provide habitat, this species was not observed during a focused rare plant survey conducted in May 2019.
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	FE/CE/1B.1	Annual herb found in clay, often acidic soil; cismontane woodland, valley and foothill grassland. Elevation 50 – 490 feet	Blooming period: March– April.	<b>None.</b> The study area is outside the known current geographic distribution of this species.
heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	--/--/1B.2	Annual herb found good in saline or alkaline soils, chenopod scrub, meadows and seeps, valley and foothill grassland (sandy). Elevation 0 – 1840 feet	Blooming period: April – October.	<b>None.</b> The study area is outside the known current geographic distribution of this species.
palmate-bracted bird's-beak <i>Chloropyron palmatum</i>	FE/CE/1B.1	Annual herb found in alkaline soils, Chenopod scrub, valley and foothill grassland. Elevation 16 – 510 feet.	Blooming period: May – October	<b>None.</b> The study area is outside the known current geographic distribution of this species.
recurved larkspur <i>Delphinium recurvatum</i>	--/--/1B.2	Perennial herb found in chenopod scrub, cismontane woodland, valley and foothill grassland. 10 – 2600 feet	Blooming period: March – June.	<b>None.</b> While the annual grassland provides habitat, this species was not observed during the botanical inventories conducted in May and June 2019.
San Joaquin spearscale <i>Extriplex joaquinana</i>	--/--/1B.2	Annual herb found in alkaline soils, chenopod scrub, meadows and seeps, playas, valley and foothill grassland. 3 – 2740 feet	Blooming period: April – September.	<b>None.</b> While the annual grassland and seasonal wetland provides habitat, this species was not observed during the botanical inventories conducted in May and June 2019.
Veiny monardella <i>Monardella venosa</i>	--/--/1B.1	Annual herb found in heavy clay, cismontane woodland, valley and foothill grassland. 200 – 1350 feet	Blooming period: June – July.	<b>None.</b> The study area is outside the elevation range of this species.
woolly rose-mallow <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	--/--/1B.2	Perennial herb found in marshes and swamps (freshwater), Often found in riprap on sides of levees. 0 – 390 feet	Blooming period: June – September.	<b>None.</b> While the seasonal riverine provides habitat, this species was not observed during a focused rare plant survey conducted in June 2019.

**TABLE B-1**  
**SPECIAL-STATUS SPECIES CONSIDERED IN THE STUDY AREA**

Common Name Scientific Name	Status (Federal/State/CRPR)	Habitat Requirements	Identification/ Survey Period	Potential to Occur
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	--/--/2B.1	Found in alkaline soils, meadows and seeps, marshes and swamps, riparian forest, vernal pools. 16 – 1430 feet.	Blooming period: May – September.	<b>None.</b> While the riparian forest adjacent to the study area and the seasonal riverine within the project area provide habitat, this species was not observed during the botanical inventories conducted in May and June 2019.
<b>Wildlife</b>				
<b>Invertebrates</b>				
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT/--/--	Occurs only in the Central Valley of California, in association with blue elderberry ( <i>Sambucus nigra</i> ssp. <i>caerulea</i> ). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	Adults emerge in spring until June. Exit holes visible year – round.	<b>Moderate.</b> The study area's riparian habitat potentially contains elderberry shrubs, the host plant for the species.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT/--/--	Endemic to the grasslands of the central valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	USFWS protocol-level wet-season sampling and/or dry season cyst identification.	<b>None.</b> The study area does not provide suitable habitat for this species.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE/--/--	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass-bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	USFWS protocol-level wet-season sampling and/or dry season cyst identification.	<b>None.</b> The study area does not provide suitable habitat for this species.
<b>Amphibians/Reptiles</b>				
California red-legged frog <i>Rana draytonii</i>	FT/CSC/--	Found in permanent and temporary pools of streams, marshes, and ponds with dense grassy and/or shrubby vegetation from 0 to 4,920 feet.	Aquatic surveys of breeding sites between January and September. Optimally after April 15.	<b>None.</b> The study area does not provide suitable habitat for this species.
California tiger salamander <i>Ambystoma californiense</i>	FT/CT/--	Found in vernal pools, ephemeral wetlands, and seasonal ponds, including constructed stockponds, in grassland and oak savannah plant communities from 10 to 3,450 feet.	Aquatic surveys of breeding sites between March and May.	<b>None.</b> The study area does not provide habitat for this species.
Foothill yellow-legged frog <i>Rana boylei</i>	FC/SC/--	Inhabits partially shaded, rocky streams with perennial flow at low to moderate elevations, in areas of chaparral, open woodland, and forest. Elevation range extends from sea level to around 7,000 feet.	Surveys of breeding sites between April - June	<b>None.</b> The study area lacks suitable habitat for this species.



**TABLE B-1**  
**SPECIAL-STATUS SPECIES CONSIDERED IN THE STUDY AREA**

<b>Common Name Scientific Name</b>	<b>Status (Federal/State/CRPR)</b>	<b>Habitat Requirements</b>	<b>Identification/ Survey Period</b>	<b>Potential to Occur</b>
Giant garter snake <i>Thamnophis gigas</i>	FT/CT/--	Found in agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November – mid March).	Active outside of dormancy period November-mid March	<b>Present.</b> There is a past documented occurrence of this species within the study area. The irrigation canal present in the southwest portion of the study area provides habitat for this species, although its suitability is only moderate given the lack of cover in the aquatic habitat or in the upland habitat along the banks of the canal. The small seasonal wetland located in the northwest portion of the study area may also provide aquatic habitat for this species within the study area. Suitable aquatic habitat is also present in a canal located west of Reclamation Road, just outside the spoils area.
Western pond turtle <i>Emys marmorata</i>	--/CSC/--	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands.	Active outside of dormancy period November – February	<b>Moderate.</b> The irrigation canal and seasonal wetland located within the study area provide potential habitat for this species.
<b>Fish</b>				
Delta smelt <i>Hypomesus transpacificus</i>	FT/SE/--	Found in open surface waters in the Sacramento/San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Found in Delta estuaries with dense aquatic vegetation and low occurrence of predators. May be affected by downstream sedimentation.	Spawn December – July. Present year – round in the Delta.	<b>None.</b> The study area is outside the distribution range of this species.
Central Valley DPS steelhead <i>Oncorhynchus mykiss</i>	FT/--/--	Inhabits rivers and streams tributary to the Sacramento - San Joaquin Rivers and Delta ecosystems.	Spawn in winter and spring.	<b>High.</b> This species is seasonally present in the mainstem Sacramento River and could be present in the Tisdale Bypass during and immediately following events in which the Tisdale Weir is overtopped.
Central Valley ESU spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FT/ST/--	Inhabits rivers and streams tributary to the Sacramento - San Joaquin Rivers and Delta ecosystems.	Spawn in late summer and fall.	<b>High.</b> This species is seasonally present in the mainstem Sacramento River and could be present in the Tisdale Bypass during and immediately following events in which the Tisdale Weir is overtopped.
Central Valley ESU fall- / late fall-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	EFH/CSC/- -	Inhabits rivers and streams tributary to the Sacramento - San Joaquin Rivers and Delta ecosystems.	Spawn in fall and winter	<b>High.</b> This species is seasonally present in the mainstem Sacramento River and could be present in the Tisdale Bypass during and immediately following events in which the Tisdale Weir is overtopped.

**TABLE B-1**  
**SPECIAL-STATUS SPECIES CONSIDERED IN THE STUDY AREA**

<b>Common Name Scientific Name</b>	<b>Status (Federal/State/CRPR)</b>	<b>Habitat Requirements</b>	<b>Identification/ Survey Period</b>	<b>Potential to Occur</b>
Sacramento River ESU winter-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FE/SE/--	Inhabits rivers and streams tributary to the Sacramento - San Joaquin Rivers and Delta ecosystems.	Spawn in spring and summer	<b>High.</b> This species is seasonally present in the mainstem Sacramento River and could be present in the Tisdale Bypass during and immediately following events in which the Tisdale Weir is overtopped.
Green sturgeon <i>Acipenser medirostris</i>	FT/CSC/--	Spawns in large cobble in deep and turbulent mainstem rivers. The Southern Distinct Population Segment spawns in the Sacramento River basin and in the Sacramento-San Joaquin Delta and Estuary	Year – round	<b>High.</b> This species spawns in the mainstem Sacramento River and is expected to be present at least seasonally in the study area.
<b>Birds</b>				
Bank swallow <i>Riparia riparia</i>	--/CT/--	Nests in riverbanks and forages over riparian areas and adjacent uplands.	April – July	<b>None.</b> The study area does not provide suitable habitat for this species.
Burrowing owl <i>Athene cunicularia</i>	--/CSC/--	Forages in open plains, grasslands, and prairies; typically nests in abandoned small mammal burrows.	Year – round/Breeding season surveys between March and August.	<b>Low.</b> Although potential habitat is present, there are no documented observations of this species in the area.
California black rail <i>Laterallus jamaicensis coturniculus</i>	--/CT/--	Saltwater, brackish, and freshwater marshes. Nests in high portions of salt marshes, shallow freshwater marshes, wet meadows, and flooded grassy vegetation.	Year – round	<b>None.</b> The study area does not provide suitable habitat for this species.
Greater sandhill crane <i>Grus canadensis tabida</i>	--/CT/--	Nests in wetland habitats in northeastern California; winters in the Central Valley.	September – February	<b>None.</b> The study area does not support suitable roosting or foraging habitat for this species.
Mountain plover <i>Charadrius montanus</i>	--/CSC/--	Inhabits short grasslands, freshly plowed fields, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	December – February	<b>Moderate.</b> This species has the potential to be present in the study area within the wintertime.
Song sparrow ("Modesto" population) <i>Melospiza melodia</i>	--/CSC/--	Nests on the ground and in marshes. Inhabits grassland, chaparral, orchard, woodland, wetland, riparian, and scrub-shrub.	February – September	<b>None.</b> The study area is outside the known distribution range of this species.
Swainson's hawk <i>Buteo swainsoni</i>	--/CT/--	Nest peripherally to valley riparian systems lone trees or groves of trees in agricultural fields. Valley oak, Fremont cottonwood, walnut, and large willow trees, ranging in height from 41 to 82 feet, are the most commonly used nest trees in the Central Valley.	March – October	<b>High.</b> The mature trees within and in the vicinity of the study area provide suitable nesting habitat and the agricultural land and grassland habitat in the area provides suitable foraging habitat for this species.
Tricolored blackbird <i>Agelaius tricolor</i>	--/CT/-- (nesting colony)	Nests in dense blackberry, cattail, tules, bulrushes, sedges, willow, or wild rose within freshwater marshes. Nests in large colonies of at least 50 pairs (up to thousands of individuals).	Year – round	<b>None.</b> No suitable nesting habitat occurs within the study area for this species.

**TABLE B-1  
SPECIAL-STATUS SPECIES CONSIDERED IN THE STUDY AREA**

<b>Common Name Scientific Name</b>	<b>Status (Federal/State/CRPR)</b>	<b>Habitat Requirements</b>	<b>Identification/ Survey Period</b>	<b>Potential to Occur</b>
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FT/CE/--	Nests in riparian forests, along the broad, lower flood-bottoms of larger river systems, particularly in willows, cottonwoods, and with a lower story of blackberry, nettles, or wild grape.	June – August	<b>Low.</b> The study area provides suitable foraging habitat.
<b>Mammals</b>				
Western red bat <i>Lasiurus blossevillii</i>	--/CSC/--	Inhabits cismontane woodland, lower montane coniferous forest, riparian forest, and riparian woodland.	Year – round	<b>Moderate.</b> There is potential roosting habitat for this species in the riparian trees located north of the Tisdale Bypass. There are no known occurrences of this species in the vicinity of the study area.
Marysville California kangaroo rat <i>Dipodomys californicus eximius</i>	--/CSC/--	Inhabits chaparral and valley and foothill grasslands. Known only in the Sutter Buttes area.	Year – round	<b>None.</b> The study area is outside the known distribution range of this species.
Pallid bat <i>Antrozous pallidus</i>	--/CSC/--	Inhabits deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky roosting areas.	Year – round	<b>Moderate.</b> There is potential roosting habitat for this species in the riparian area north of the Tisdale Bypass and underneath the bridge that spans the Bypass. There are no known occurrences of this species in the vicinity of the study area.

**Status Codes****Federal:**

FE = federal endangered  
 FT = federal threatened  
 FC = candidate  
 PT = proposed threatened  
 FPD = proposed for delisting  
 FD = delisted  
 EFH = Essential Fish Habitat

**California:**

CE = California state endangered  
 CT = California state threatened  
 CR = California state rare  
 CSC = California species of special Concern  
 CCT = California state threatened candidate  
 CFP = California fully protected

**CNPS Rank Categories:**

1A = Plants presumed extirpated in California and either rare or extinct elsewhere  
 1B = Plants Rare, Threatened, or Endangered in California and elsewhere.  
 2A = Plants presumed extirpated in California, but more common elsewhere  
 2B = Plants Rare, Threatened, or Endangered in California, but more common elsewhere  
 3 = Plants about which more information is needed - A Review List  
 4 = Plants of limited distribution - A Watch List

**CNPS Code Extensions:**

.1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)  
 .2 = Fairly endangered in California (20-80% occurrences threatened)  
 .3 = Not very endangered in California (less than 20% of occurrences threatened or no current threats known)

SOURCES: CDFW, 2018; CNPS, 2018; USFWS, 2018

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# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Sacramento Fish And Wildlife Office  
Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:

October 29, 2018

Consultation Code: 08ESMF00-2019-SLI-0208

Event Code: 08ESMF00-2019-E-00613

Project Name: Tisdale Weir Rehabilitation and Fish Passage Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

[http://www.nwr.noaa.gov/protected\\_species/species\\_list/species\\_lists.html](http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html)

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Sacramento Fish And Wildlife Office**

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

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## Project Summary

Consultation Code: 08ESMF00-2019-SLI-0208

Event Code: 08ESMF00-2019-E-00613

Project Name: Tisdale Weir Rehabilitation and Fish Passage Project

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: Weir Rehabilitation and Fish Passage

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.02690190416382N121.8207015107059W>



Counties: Sutter, CA

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## Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

### Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened

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## Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2891">https://ecos.fws.gov/ecp/species/2891</a>	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2076">https://ecos.fws.gov/ecp/species/2076</a>	Threatened

## Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/321">https://ecos.fws.gov/ecp/species/321</a>	Threatened

## Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/7850">https://ecos.fws.gov/ecp/species/7850</a> Habitat assessment guidelines: <a href="https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf">https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf</a>	Threatened

## Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

CALIFORNIA DEPARTMENT OF  
**FISH and WILDLIFE RareFind**

**Query Summary:**

Quad **IS** (Tisdale Weir (3912117) **OR** Sutter Buttes (3912127) **OR** Sutter (3912126) **OR** Gilsizer Slough (3912116) **OR** Sutter Causeway (3812186) **OR** Kirkville (3812187) **OR** Dunnigan (3812188) **OR** Grimes (3912118) **OR** Meridian (3912128))

Print

Close

**CNDDDB Element Query Results**

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	951	11	None	Candidate Endangered	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Ambystoma californiense	California tiger salamander	Amphibians	AAAAA01180	1178	1	Threatened	Threatened	G2G3	S2S3	null	CDFW_WL-Watch List, IUCN_VU-Vulnerable	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Antrozous pallidus	pallid bat	Mammals	AMACC10010	415	1	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Ardea alba	great egret	Birds	ABNGA04040	43	1	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Ardea herodias	great blue heron	Birds	ABNGA04010	155	1	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Dicots	PDFAB0F8R3	18	3	None	None	G2T1	S1	1B.1	BLM_S-Sensitive	Meadow & seep, Valley & foothill grassland, Wetland
Atriplex cordulata var. cordulata	heartscale	Dicots	PDCHE040B0	66	1	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Chenopod scrub, Meadow & seep, Valley & foothill grassland
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	234	1	None	None	G3G4	S1S2	null	null	null
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	766	1	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland,

												Vernal pool, Wetland
<i>Branta hutchinsii leucopareia</i>	cackling (=Aleutian Canada) goose	Birds	ABNJB05035	19	5	Delisted	None	G5T3	S3	null	null	Artificial standing waters, Sacramento/San Joaquin standing waters, Valley & foothill grassland
<i>Buteo swainsoni</i>	Swainson's hawk	Birds	ABNKC19070	2465	82	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
<i>Charadrius montanus</i>	mountain plover	Birds	ABNNB03100	90	2	None	None	G3	S2S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Chenopod scrub, Valley & foothill grassland
<i>Chloropyron palmatum</i>	palmate-bracted bird's-beak	Dicots	PDSCR0J0J0	25	1	Endangered	Endangered	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden	Chenopod scrub, Meadow & seep, Valley & foothill grassland, Wetland
<i>Cicindela hirticollis abrupta</i>	Sacramento Valley tiger beetle	Insects	IICOL02106	6	1	None	None	G5TH	SH	null	null	Sand shore
Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	Marsh	CTT52410CA	60	2	None	None	G3	S2.1	null	null	Marsh & swamp, Wetland
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Birds	ABNRB02022	155	2	Threatened	Endangered	G5T2T3	S1	null	BLM_S-Sensitive, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Riparian forest
<i>Delphinium recurvatum</i>	recurved larkspur	Dicots	PDRAN0B1J0	100	2	None	None	G2?	S2?	1B.2	BLM_S-Sensitive	Chenopod scrub, Cismontane woodland, Valley & foothill grassland
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	Insects	IICOL48011	271	6	Threatened	None	G3T2	S2	null	null	Riparian scrub
<i>Dipodomys californicus eximius</i>	Marysville California kangaroo rat	Mammals	AMAFD03071	2	2	None	None	G4T1	S1	null	CDFW_SSC-Species of Special Concern	Chaparral, Valley & foothill grassland
<i>Emys marmorata</i>	western pond turtle	Reptiles	ARAAD02030	1346	1	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San

												Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Erethizon dorsatum	North American porcupine	Mammals	AMAFJ01010	508	1	None	None	G5	S3	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Closed-cone coniferous forest, Lower montane coniferous forest, North coast coniferous forest, Upper montane coniferous forest
Extriplex joaquinana	San Joaquin spearscale	Dicots	PDCHE041F3	124	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Valley & foothill grassland
Great Valley Cottonwood Riparian Forest	Great Valley Cottonwood Riparian Forest	Riparian	CTT61410CA	56	4	None	None	G2	S2.1	null	null	Riparian forest
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest	Riparian	CTT61420CA	68	7	None	None	G2	S2.2	null	null	Riparian forest
Great Valley Willow Scrub	Great Valley Willow Scrub	Riparian	CTT63410CA	18	1	None	None	G3	S3.2	null	null	Riparian scrub
Grus canadensis tabida	greater sandhill crane	Birds	ABNMK01014	606	1	None	Threatened	G5T4	S2	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, USFS_S-Sensitive	Marsh & swamp, Meadow & seep, Wetland
Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	Dicots	PDMAL0H0R3	173	10	None	None	G5T3	S3	1B.2	SB_RSABG-Rancho Santa Ana Botanic Garden	Freshwater marsh, Marsh & swamp, Wetland
Lasiurus blossevillii	western red bat	Mammals	AMACC05060	128	3	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Lasiurus cinereus	hoary bat	Mammals	AMACC05030	238	3	None	None	G5	S4	null	IUCN_LC-Least Concern, WBWG_M-Medium Priority	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Dicots	PDAST5L0A1	97	1	None	None	G4T2	S2	1B.1	BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden	Alkali playa, Marsh & swamp, Salt marsh, Vernal pool, Wetland
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	1	None	Threatened	G3G4T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List,	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland

												USFWS_BCC- Birds of Conservation Concern	
Layia septentrionalis	Colusa layia	Dicots	PDAST5N0F0	57	2	None	None	G2	S2	1B.2	BLM_S- Sensitive	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland	
Lepidurus packardi	vernal pool tadpole shrimp	Crustaceans	ICBRA10010	324	1	Endangered	None	G4	S3S4	null	IUCN_EN- Endangered	Valley & foothill grassland, Vernal pool, Wetland	
Linderiella occidentalis	California linderiella	Crustaceans	ICBRA06010	435	1	None	None	G2G3	S2S3	null	IUCN_NT- Near Threatened	Vernal pool	
Melospiza melodia	song sparrow ("Modesto" population)	Birds	ABPBXA3010	92	2	None	None	G5	S3?	null	CDFW_SSC- Species of Special Concern	null	
Monardella venosa	veiny monardella	Dicots	PDLAM18082	4	1	None	None	G1	S1	1B.1	BLM_S- Sensitive, SB_RSABG- Rancho Santa Ana Botanic Garden	Cismontane woodland, Valley & foothill grassland	
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	264	1	None	None	G5	S4	null	BLM_S- Sensitive, IUCN_LC- Least Concern, WBWG_LM- Low-Medium Priority	Lower montane coniferous forest, Riparian forest, Riparian woodland, Upper montane coniferous forest	
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Dicots	PDPLM0C0E1	58	2	None	None	G4T2	S2	1B.1	BLM_S- Sensitive	Cismontane woodland, Lower montane coniferous forest, Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland	
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	Herbaceous	CTT44110CA	126	2	None	None	G3	S3.1	null	null	Vernal pool, Wetland	
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	Fish	AFCHA0209K	31	4	Threatened	None	G5T2Q	S2	null	AFS_TH- Threatened	Aquatic, Sacramento/San Joaquin flowing waters	
Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	Fish	AFCHA0205A	13	1	Threatened	Threatened	G5	S1	null	AFS_TH- Threatened	Aquatic, Sacramento/San Joaquin flowing waters	
Perognathus inornatus	San Joaquin Pocket Mouse	Mammals	AMAFD01060	123	1	None	None	G2G3	S2S3	null	BLM_S- Sensitive, IUCN_LC- Least Concern	Cismontane woodland, Mojavean desert scrub, Valley & foothill grassland	
Pseudobahia bahiifolia	Hartweg's golden sunburst	Dicots	PDAST7P010	27	1	Endangered	Endangered	G2	S2	1B.1	SB_RSABG- Rancho Santa Ana Botanic Garden	Cismontane woodland, Valley & foothill grassland	
Rana boylei	foothill yellow- legged frog	Amphibians	AAABH01050	2268	1	None	Candidate Threatened	G3	S3	null	BLM_S- Sensitive, CDFW_SSC- Species of Special Concern, IUCN_NT- Near Threatened, USFS_S- Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San	

												Joaquin flowing waters
Riparia riparia	bank swallow	Birds	ABPAU08010	297	18	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian woodland
Spinus lawrencei	Lawrence's goldfinch	Birds	ABPBY06100	4	2	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Chaparral, Pinon & juniper woodlands, Riparian woodland
Thamnophis gigas	giant gartersnake	Reptiles	ARADB36150	366	51	Threatened	Threatened	G2	S2	null	IUCN_VU-Vulnerable	Marsh & swamp, Riparian scrub, Wetland
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	Dicots	PDAST9F031	9	2	None	None	G4T3	S1	2B.1	null	Marsh & swamp, Meadow & seep, Riparian forest, Vernal pool, Wetland



## Plant List

### Inventory of Rare and Endangered Plants

12 matches found. *Click on scientific name for details*

#### Search Criteria

Found in Quads 3912128, 3912127, 3912126, 3912118, 3912117, 3912116, 3812188 3812187 and 3812186;

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[Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
<a href="#">Astragalus tener var. ferrisiae</a>	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
<a href="#">Atriplex cordulata var. cordulata</a>	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
<a href="#">Centromadia parryi ssp. rudis</a>	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
<a href="#">Chloropyron palmatum</a>	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
<a href="#">Cryptantha rostellata</a>	red-stemmed cryptantha	Boraginaceae	annual herb	Apr-Jun	4.2	S3	G4
<a href="#">Extriplex joaquinana</a>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
<a href="#">Hibiscus lasiocarpus var. occidentalis</a>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
<a href="#">Lasthenia glabrata ssp. coulteri</a>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
<a href="#">Layia septentrionalis</a>	Colusa layia	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
<a href="#">Navarretia leucocephala ssp. bakeri</a>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
<a href="#">Navarretia nigelliformis ssp. nigelliformis</a>	adobe navarretia	Polemoniaceae	annual herb	Apr-Jun	4.2	S3	G4T3
<a href="#">Trichocoronis wrightii var. wrightii</a>	Wright's trichocoronis	Asteraceae	annual herb	May-Sep	2B.1	S1	G4T3

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**Questions and Comments**

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Appendix C  
**Plant Species Observed During  
Biological Survey**

**TABLE C-1**  
**PLANT SPECIES OBSERVED IN THE STUDY AREA**

Family	Scientific Name	Common Name	*
Adoxaceae	<i>Sambucus nigra</i> ssp. <i>caerulea</i>	Blue elderberry	N
Amaranthaceae	<i>Amaranthus</i> sp.	Amaranth, pigweed	--
Anacardiaceae	<i>Toxicodendron diversilobum</i>	Western poison oak	N
Asteraceae	<i>Xanthium strumarium</i>	Cocklebur	N
Asteraceae	<i>Artemisia californica</i>	California sagebrush	N
Asteraceae	<i>Heterotheca</i> sp.	Goldenaster, telegraph weed	N
Asteraceae	<i>Centaurea solstitialis</i>	Yellow star-thistle	I
Asteraceae	<i>Helminthotheca echioides</i>	Bristly ox-tongue	I
Asteraceae	<i>Cichorium intybus</i>	Chicory	I
Asteraceae	<i>Grindelia squarrosa</i> var. <i>serrulata</i>	Gumplant	I
Asteraceae	<i>Lactuca serriola</i>	Prickly lettuce	I
Asteraceae	<i>Erigeron bonariensis</i>	Flax-leaved horseweed	I
Asteraceae	<i>Baccharis pilularis</i>	Coyote brush	N
Brassicaceae	<i>Brassica</i> sp.	Mustard	--
Brassicaceae	<i>Lepidium latifolium</i>	Perennial pepperweed	I
Brassicaceae	<i>Hirschfeldia incana</i>	Perennial, shortpot, or summer mustard	I
Calycanthaceae	<i>Calycanthus occidentalis</i>	Sweet-shrub, spicebush	N
Cannabaceae	<i>Celtis</i> sp.	Hackberry	--
Chenopodiaceae	<i>Salsola tragus</i>	Russian thistle, tumbleweed	I
Chenopodiaceae	<i>Chenopodium</i> sp.	Pigweed, goosefoot	--
Convolvulaceae	<i>Convolvulus arvensis</i>	Bindweed	I
Cyperaceae	<i>Cyperus eragrostis</i>	Tall flatsedge	N
Equisetaceae	<i>Equisetum hyemale</i> ssp. <i>affine</i>	Common scouring rush	N
Fabaceae	<i>Melilotus albus</i>	White sweetclover	I
Fabaceae	<i>Acmispon procumbens</i>	Deervetch, deerweed	N
Fagaceae	<i>Quercus lobata</i>	Valley oak, roble	N
Geraniaceae	<i>Erodium</i> sp.	Geranium	--
Juglandaceae	<i>Juglans</i> sp.	Walnut	--
Malvaceae	<i>Malva parviflora</i>	Cheeseweed, little mallow	I
Moraceae	<i>Ficus carica</i>	Edible fig	I
Oleaceae	<i>Fraxinus latifolia</i>	Oregon ash	N
Phytolaccaceae	<i>Phytolacca</i> sp.	Pokeweed	I
Poaceae	<i>Distichlis spicata</i>	Salt grass	N
Poaceae	<i>Sorghum halepense</i>	Johnson grass	I
Poaceae	<i>Cortaderia selloana</i>	Pampas grass	I
Poaceae	<i>Bromus diandrus</i>	Ripgut grass	I
Poaceae	<i>Distichlis spicata</i>	Salt grass	N
Polygonaceae	<i>Rumex crispus</i>	Curly dock	I

**TABLE C-1**  
**PLANT SPECIES OBSERVED IN THE STUDY AREA**

<b>Family</b>	<b>Scientific Name</b>	<b>Common Name</b>	<b>*</b>
<b>Rosaceae</b>	<i>Rubus armeniacus</i>	Himalayan blackberry	I
<b>Rosaceae</b>	<i>Rosa californica</i>	California rose	N
<b>Salicaceae</b>	<i>Salix gooddingii</i>	Goodding's black willow	N
<b>Salicaceae</b>	<i>Populus fremontii</i> ssp. <i>fremontii</i>	Alamo or Fremont cottonwood	N
<b>Salicaceae</b>	<i>Salix exigua</i>	Willow	N
<b>Salicaceae</b>	<i>Populus</i> sp.	Cottonwood	--
<b>Sapindaceae</b>	<i>Acer negundo</i>	Box elder	N
<b>Scrophulariaceae</b>	<i>Verbascum</i> sp.	Mullein	I
<b>Scrophulariaceae</b>	<i>Verbascum thapsus</i>	Woolly mullein	I
<b>Solanaceae</b>	<i>Datura wrightii</i>	Jimson weed	N
<b>Verbenaceae</b>	<i>Verbena litoralis</i>	Vervain	I
<b>Vitaceae</b>	<i>Vitis californica</i>	California wild grape	N

NOTES:

\*N=Native; I=Invasive; -- = Unknown

Appendix D  
**Wildlife Species Observed  
During Biological Survey**

**TABLE D-1**  
**WILDLIFE SPECIES OBSERVED IN THE STUDY AREA**

<b>Family</b>	<b>Scientific Name</b>	<b>Common Name</b>
<b>Accipitridae</b>	<i>Buteo jamaicensis</i>	red-tailed hawk
<b>Ardeidae</b>	<i>Ardea alba</i>	great egret
<b>Ardeidae</b>	<i>Ardea herodias</i>	great blue heron
<b>Ardeidae</b>	<i>Bubulcus ibis</i>	cattle egret
<b>Cathartidae</b>	<i>Cathartes aura</i>	turkey vulture
<b>Corvidae</b>	<i>Aphelocoma californica</i>	scrub-jay
<b>Corvidae</b>	<i>Corvus corax</i>	common raven
<b>Fringillidae</b>	<i>Haemorhous mexicanus</i>	house finch
<b>Mimidae</b>	<i>Mimus polyglottos</i>	northern mockingbird
<b>Paridae</b>	<i>Poecile</i> spp.	chickadee
<b>Phalacrocoracidae</b>	<i>Phalacrocorax auritus</i>	double-crested cormorant
<b>Phrynosomatidae</b>	<i>Sceloporus occidentalis</i>	western fence lizard
<b>Sciuridae</b>	<i>otosperrnophius beecheyi</i>	California ground squirrel
<b>Sciuridae</b>	<i>Melanerpes formicivorus</i>	acorn woodpecker
<b>Tyrannidae</b>	<i>Sayornis nigricans</i>	black phoebe
<b>Viperidae</b>	<i>Crotalus atrox</i>	rattlesnake

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Appendix E  
**Study Area Photographs**



Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 1**  
Tisdale Weir (facing N). October 19, 2018



Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 2**  
Seasonal Wetland (facing NE). October 19, 2018



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Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 3**  
Tisdale Bypass (facing E). October 19, 2018



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Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 4**  
Tisdale Bypass (facing S). October 19, 2018



Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 5**  
Riparian Forest (facing N). October 19, 2018



Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 6**  
Riparian Forest (facing NW). October 19, 2018



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Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 7**  
Annual Grassland (facing N). October 19, 2018



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Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 8**  
Sacramento River (facing S). October 19, 2018



Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 9**  
Swallow Nests. October 19, 2018



Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 10**  
Haul Route (facing W). October 19, 2018



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Tisdale Weir Rehabilitation and Fish Passage Project

**Photo 11**  
Parking Lot (facing S). October 19, 2018