

3.9 Vegetation and Wetlands

3.9.1 Introduction

This section analyzes the proposed project's potential impacts related to vegetation and wetlands. It describes existing conditions in the study area and summarizes the overall Federal, state, and local regulatory framework for vegetation and wetlands, and it analyzes the potential for the proposed project to affect these resources.

3.9.2 Existing Conditions

This section discusses the existing conditions related to vegetation and wetlands in the study area. The study area for the proposed project encompassed the Feather River bed and bank in the southwest and northeast corners of the OWA D-Unit and the project area (Figure 3.9-1).

The approximately 1,500-acre study area is located in the Sacramento Valley subregion of the California Floristic Province (Baldwin et al. 2012:41). The area is relatively level, with elevations ranging from approximately 95 to 125 feet above mean sea level.

The primary parent rock types around Lake Oroville are granitic, volcanic, metamorphic, and sedimentary. Serpentine outcrops are located within the West Branch and Big Bend area of the North Fork arm of the reservoir, and gabbro-derived soils are located along the South Fork arm (California Department of Water Resources 2007). Soil mapping units in the study area, however, are nearly entirely dredge tailings (Xerorthents, Tailings and 0 to 50 percent slopes), which consist of soils that have been disturbed by gold dredging and quarrying for borrow material, such that the native soil profile has been obliterated. Minor areas of Water and Riverwash, 0 to 2 percent slopes, frequently flooded, are in large ponds and at the boundaries (Natural Resources Conservation Service 2015).

The study area is located in the Lower Feather watershed hydrologic unit (hydrologic unit code [HUC] 18020106) (U.S. Environmental Protection Agency 2016). The Feather River is the main tributary to the Sacramento River, which is a traditional navigable water. The climate is generally Mediterranean, with cool, moist winters and warm, dry summers. Precipitation occurs primarily between October and May, with a distinct dry period from June to September. The average total annual precipitation is approximately 28.75 inches (Western Regional Climate Center 2008).

OWA D-Unit is a highly disturbed floodplain that has been hydrologically disconnected from the Feather River by gold dredging and excavation of borrow pits during construction of the Oroville Dam. This floodplain is disconnected from the Feather River during times of low flow by a berm along its northeast boundary, which is adjacent to the river. During high flow events, water enters and exits the project area via a system of inflow and outflow weirs. Stormwater runoff also enters the project area from the east. A network of interior channels and disconnected ponds occurs in the project area. The bottoms of these interior channels and ponds are, in many places, lower in elevation than the Feather River. Based upon review of historical aerial photographs, the major interior channels were excavated after the construction of Oroville Dam and have remained largely unchanged since then. Additional details of the study area hydrology can be found in Chapter 3.3, *Hydrology*. (Peterson Brustad 2015:6, 9.)

Historic photographs of the project area show that in 1963 it was covered by mounded dredge tailings, and in 1967 it was a barren floodplain. By 1986, the same area was covered largely by scattered riparian vegetation. As a result of the 1997 levee break, much of the area flooded; 1999 aerial photographs show hundreds of dead, mature-sized riparian trees in an area dominated by the large shallow ponds. (California Department of Water Resources 2004a.)

Currently, most of the east side of the project area supports riparian trees, and the west side is a mosaic of ponds and stands of riparian trees.

3.9.2.1 Land Cover Types in the Study Area

Land cover mapping of the study area was based on the best available resources, including vegetation mapping and analyses prepared for the Federal Energy Regulatory Commission (FERC) relicensing of the Oroville Facilities (California Department of Water Resources 2003, 2004b) and a review of current aerial photographs. Eight land cover types—riparian forest, riparian scrub-shrub, freshwater emergent wetland, stream, pond, channel, ruderal, and developed—were identified in the study area. Figure 3.9-1 shows the locations of the mapped land cover types. Photographs of the study area showing some of the land cover types are available in Appendix 1-A.

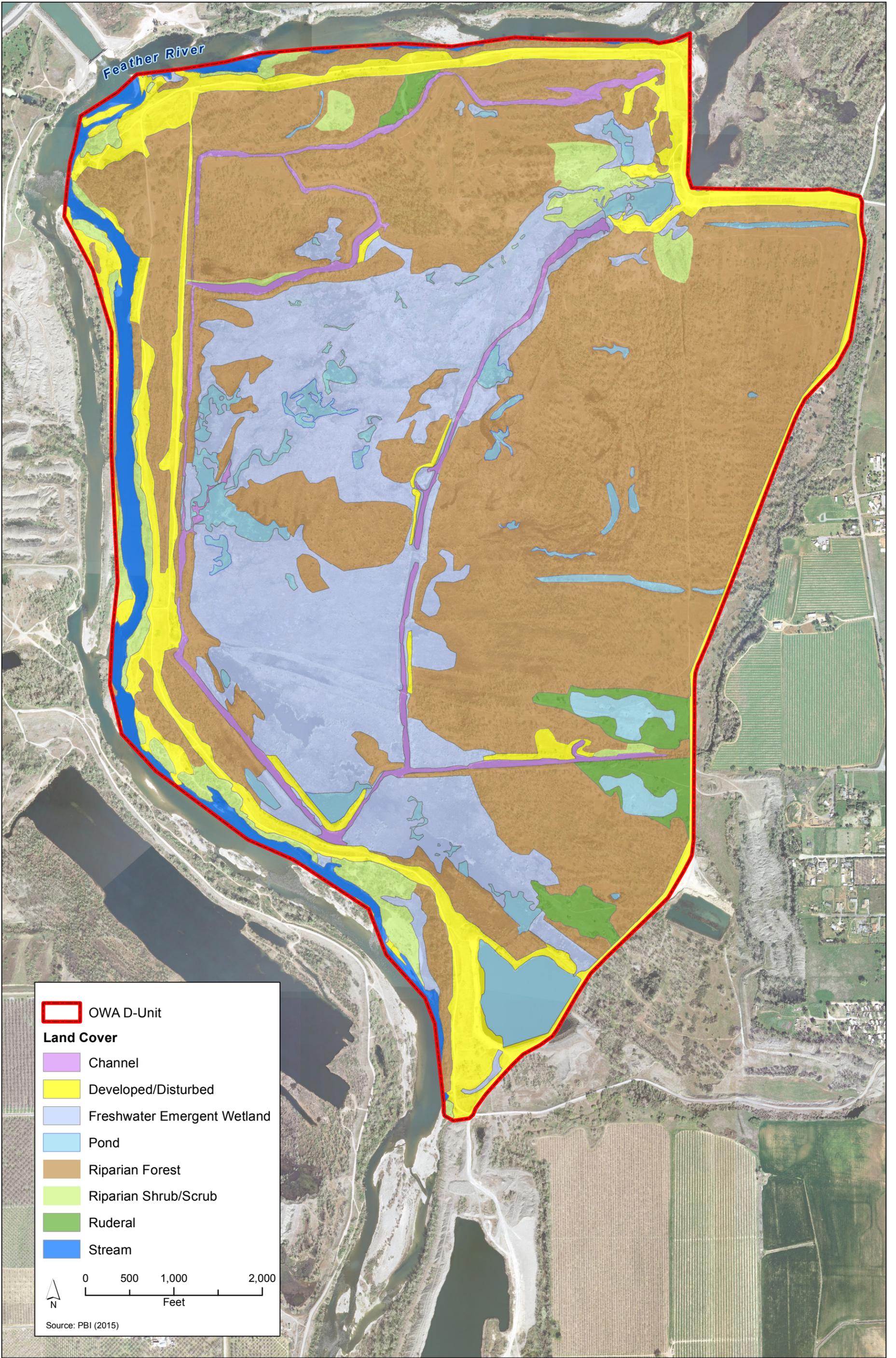
The study area supports both common and sensitive land cover types. Common land cover types are widespread vegetation communities with low plant species diversity. These types may reestablish naturally after disturbance, support primarily nonnative plant species, or be highly managed. They are not generally protected by agencies, unless they provide habitat for special-status species (e.g., raptor foraging or nesting habitat, upland habitat in a wetland watershed). The only common land cover type in the study area is ruderal. The developed cover type is not considered a vegetation community and is not sensitive.

Sensitive land cover types are rare vegetation communities with limited distribution. They may have high species diversity, high productivity, distinctive characteristics, or a declining status. Local, state, and Federal agencies that regulate biological resources consider these types to be important, and compensation for loss of sensitive land cover types is generally required by these agencies. U.S. Fish and Wildlife Service (USFWS) considers certain types, such as wetlands and riparian communities, important to wildlife; and U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) consider wetlands important for water quality and wildlife. Waters of the United States and waters of the State are regulated by USACE and the State Regional Water Quality Control Boards (RWQCBs), respectively. California Department of Fish and Wildlife's (DFW's) California Natural Diversity Database (CNDDDB) maintains a list of rare habitat types throughout the state. The land cover types in the study area that are considered sensitive are riparian forest, riparian scrub-shrub, freshwater emergent wetland, stream, pond, and channel.

Dominant plant species found in land cover types within the study area and their locations are described below. Descriptions of plant species in each land cover type are based on previously prepared study plan reports for the Oroville Facilities FERC relicensing (California Department of Water Resources 2003, 2004b, 2007; California Department of Fish and Wildlife 2015). Field surveys for these reports were conducted in 2002, 2003, and 2004.

Riparian Forest

Riparian forest dominates much of the study area. This vegetation community became established after gravel-mining disturbance of the study area ceased. Periods of flooding and high flows took



OWA D-Unit

Land Cover

- Channel
- Developed/Disturbed
- Freshwater Emergent Wetland
- Pond
- Riparian Forest
- Riparian Shrub/Scrub
- Ruderal
- Stream

0 500 1,000 2,000
Feet

Source: PBI (2015)

down some of the large trees, and there are many fallen trees throughout the riparian forest. Wildfire has also been responsible for the loss of riparian trees. The dominant tree species in the riparian forest cover type are Fremont's cottonwood and willow (*Salix* spp.) with an understory of nonnative forbs and grasses. Patchy areas dominated by oaks also occur in the northwest part of the study area that is mapped as riparian forest.

A number of invasive plant species are associated with riparian forest occur in the study area. Infestations of tree-of-heaven (*Ailanthus altissima*), scarlet wisteria, Spanish broom (*Spartium junceum*), Scotch broom (*Cytisus scoparius*), and French broom (*Genista monspessulana*) occur in riparian forest along the river; Himalayan blackberry (*Rubus armeniacus*) occurs along the central northern boundary of the study area; giant reed occurs in riparian forest in the northeast corner of the study area and in isolated patches throughout the study area; and purple loosestrife occurs in riparian forest at the southern tip of the study area (Figure 2-2).

Some areas of riparian forest may meet the three Federal wetland criteria (i.e., hydrophytic vegetation, hydric soils, wetland hydrology), depending on the specific soil and hydrologic conditions of a given location.

Riparian Scrub-Shrub

The riparian scrub-shrub vegetation occurs along perennial drainages and intermixed with taller riparian forest trees in the study area. This cover type includes shrubs and sapling tree species, such as arroyo willow (*Salix lasiolepis*), sandbar willow (*S. exigua*), mulefat (*Baccharis salicifolia*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), Oregon ash, and native perennial and annual herbs. Some areas of riparian scrub-shrub may meet the three Federal wetland criteria, depending on the specific soil and hydrologic conditions of a given location.

Freshwater Emergent Wetland

Freshwater emergent wetland occurs throughout the western and wettest part of the study area. These wetlands include species such as cattails (*Typha* spp.), rushes (*Juncus* spp.), sedges (*Carex* spp.), and spikerush (*Eleocharis* spp.) that are rooted in bottom muds and emerge above standing water around the edges of ponds or other areas of open water. This cover type also includes mats of invasive water primrose (*Ludwigia peploides*), which occurs along areas of full sun and wet margins with static or slow-flowing water (Appendix 2-A). Areas of the invasive purple loosestrife also occur in freshwater emergent wetlands along the western boundary of the study area; and an area of invasive broom species occurs in freshwater emergent wetland around ponds in the northeastern corner of the study area. Freshwater emergent wetlands in the study area may meet the three Federal wetland criteria.

Stream

The only stream in the study area is the lower Feather River, which originates at the Oroville Dam and meanders south to its confluence with the Sacramento River near Verona and drains the western slope of the Sierra Nevada Mountains and the Sutter Buttes. The segment of the Feather River in the study area is a water of the United States, but is upstream from the part of the river that is considered a navigable water.

Pond

Ponds scattered throughout the study area are remnants of gravel mining and the use of the area as borrow for construction of the Oroville Dam. The ponds are lined with large cobble. Areas mapped as ponds include open water, although water meal (*Wolffia* sp.) covers the surface of some ponds. Ponds also support invasive water primrose. The invasive purple loosestrife and broom species occur along the edges of large ponds. Ponds in the study area are potential waters of the United States.

Interior Channel

Interior channels occur throughout the study area. The main channels in the study area include one that roughly bisects the area from north to south, one along the northern and western edges that has a loop in the northwest corner, and one along the southern third of the area. Channels in the study area are generally in sand, gravel and cobble. There are segments of open water, but the surface of most of the channels is covered by water primrose. The invasive purple loosestrife also occurs along channels. Study area channels are potential waters of the United States.

Ruderal

Ruderal vegetation occurs in limited parts of the southeastern study area. This cover type is primarily at the edges of ponds, where there are openings in the riparian forest. Plant species in the ruderal cover type include annual grasses mixed with native and nonnative forbs that are primarily weedy species.

Developed/Disturbed

The developed/disturbed cover type includes existing roads, parking lots, scraped areas, and areas where vegetation has been removed.

3.9.2.2 Potential Wetlands and Non-Wetland Waters of the United States.

The study area contains numerous features that are potential wetlands and other (i.e., non-wetland) waters of the United States. According to the Federal Register (FR), wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR §328.3[b]). In order for an area to be considered a wetland, it must exhibit positive indicators of all three Federal wetland criteria.

For non-wetland water features such as rivers, streams, and channels, the extent of potential USACE jurisdiction is determined by identification of the ordinary high water mark (OHWM), which is defined as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR §328.3[e]).

No formal delineation of waters of the United States has been conducted in the study area, and the extent of these features is based on the land cover mapping that was done primarily from aerial photograph interpretation for the FERC relicensing reports (California Department of Water Resources 2004b). Land cover types that are known to be or might be waters of the United States

include riparian forest, riparian scrub-shrub, freshwater emergent wetland, stream, pond, and channel. The boundaries of the potential waters of the United States in the study area as shown on Figure 3.9-1, therefore, are pending a field delineation and subsequent verification by USACE Sacramento District. The segment of the Feather River in the study area is a waters of the United States; however, it is upstream of the river's limits of navigability.

3.9.2.3 Special-Status Plant Species

Special-status plant species are plants that are legally protected under the Federal Endangered Species Act (ESA), California Endangered Species Act (CESA), or other regulations, and species considered sufficiently rare by the scientific community to qualify for such listing. For the purposes of this document, special-status plant species fall into the following categories.

- Species listed or proposed for listing as threatened or endangered under ESA (CFR, Title 50, Section 17.12 [listed plants] and various notices in the FR (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (80 FR 80584, December 24, 2015).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (CCR, Title 14, Section 670.5).
- Species that meet the definitions of rare or endangered under California Environmental Quality Act (CEQA) (State CEQA Guidelines Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (CNPPA) (California Fish and Game Code Section 1900 et seq.).
- Plants considered by DFW and California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Rare Plant Ranks 1B and 2; California Department of Fish and Wildlife 2016; California Native Plant Society 2016).
- Plants identified by DFW and CNPS about which more information is needed to determine their status, and plants of limited distribution (Rare Plant Ranks 3 and 4, California Department of Fish and Wildlife 2016; California Native Plant Society 2016), which may be included as special-status species on the basis of local significance or recent biological information.

Nineteen special-status plant species have been reported in the six U.S. Geological Survey 7.5-minute quadrangles within 5 miles of the study area (California Department of Fish and Wildlife 2016; California Native Plant Society 2016; U.S. Fish and Wildlife Service 2016). Of these 19 species, 5 species also have been documented as occurring in the Oroville Facilities area as part of the FERC relicensing studies (California Department of Water Resources 2004a): Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeae*), Mosquin's clarkia (*C. mosquinii*), Butte County fritillary (*Fritillaria eastwoodiae*), Ahart's nailwort (*Paronychia ahartii*), and Sanford's arrowhead (*Sagittaria sanfordii*). Additional special-status plant species that were not documented on the DFW, CNPS, or USFWS lists were found during special-status plant surveys conducted as part of the FERC relicensing studies: four-angled spikerush (*Eleocharis quadrangulata*), Brazilian water-meal (*Wolffia brasiliensis*), and fox sedge (*Carex vulpinoidea*) (California Department of Water Resources 2004b). At the time of preparation of this document, the four-angled spikerush and fox sedge were no longer considered special-status species. The 20 special-status plants documented on the DFW, CNPS, or USFWS lists or in the California Department of Water Resources (DWR) reports are listed in Table 3.9-1,

including the scientific name, common name, status, distribution, habitat requirements, and potential for occurrence in the study area.

Seventeen of the 20 special-status plants were identified as having low potential for occurrence in the study area because it lacks suitable habitat (i.e., meadows, seeps, annual grassland, chaparral, oak woodland, coniferous forest, saltbush scrub, vernal pool, swale) and the quality of the habitat present has been lowered by past disturbance (i.e., dredging, gravel mining). Additionally, suitable microhabitat requirements (e.g., subalkaline flats, serpentine soils, heavy clay soils) for these 17 species may not be met in the study area.

Three of the 20 special-status plants were identified as having moderate potential to occur in the study area. Two of the species, rose-mallow and Sanford's arrowhead, have potential to occur based on the presence of potential habitat in the freshwater emergent wetlands, ponds, inundated portions of the Feather River floodplain, and along the margins of perennially-inundated channels. One species, Brazilian water-meal, was found to be associated with emergent wetland vegetation and edges of ponds in the portion of the Oroville Wildlife Area near the Thermalito Afterbay (California Department of Water Resources 2004b).

3.9.2.4 Invasive Plant Species

Comprehensive mapping of invasive plant species has not yet been conducted in the study area, but will be part of the Invasive Species Management Plan (Appendix 1A). Invasive species with known infestations in the study area include water primrose, tree-of-heaven, purple loosestrife, scarlet wisteria, Spanish broom, Scotch broom, French broom, and giant reed (California Department of Fish and Wildlife 2015), as discussed in the Land Cover Types section.

3.9.3 Regulatory Setting

This section summarizes key Federal and state regulatory information that applies to vegetation and wetlands.

3.9.3.1 Federal

The following Federal policies related to vegetation and wetlands may apply to implementation of the proposed project.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) was enacted to address concerns about environmental quality. NEPA acts to ensure that Federal agencies evaluate the potential environmental effects of proposed programs, projects, and actions before decisions are made to implement them, inform the public of Federal agency proposed activities that have the potential to significantly affect environmental quality, and encourage and facilitate public involvement in the decision-making process.

Table 3.9-1. Special-Status Plant Species with Potential to Occur in the Vicinity of the Oroville Wildlife Area Flood Stage Reduction Project Area

<i>Scientific Name</i> Common Name	Status ^a Federal/State/CRPR	General Habitat Description	Blooming Period	Potential for Occurrence in the Project Area
<i>Astragalus tener</i> var. <i>ferrisiae</i> Ferris' milk-vetch	-/-/1B.1	Historical range included the Central Valley from Butte to Solano County but currently only occurs in Butte, Glenn, Colusa, Sutter, and Yolo Counties. Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland; 2-75 meters.	April-May	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles from the study area.
<i>Balsamorhiza</i> <i>macrolepis</i> Big-scale balsamroot	-/-/1B.2	Scattered occurrences in the Coast Ranges and Sierra Nevada Foothills. Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 90-1,555 meters.	March-June	Low potential. No suitable vegetation communities for habitat in study area, which does not have serpentine soils and is below the known elevational range. Nearest recorded occurrence is more than 5 miles from the study area.
<i>California macrophylla</i> Round-leaved filaree	-/-/1B.2	Scattered occurrences in the Great Valley, southern North Coast Ranges, San Francisco Bay Area, South Coast Ranges, Channel Islands, Transverse Ranges, and Peninsular Ranges. Cismontane woodland, valley and foothill grassland on clay soils; 15-1,200 meters.	March-May	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.
<i>Castilleja rubicundula</i> var. <i>rubicundula</i> Pink creamsacs	-/-/1B.2	Inner North Coast Ranges with occurrences in Butte, Contra Costa, Colusa, Glenn, Lake, Napa, Santa Clara, and Shasta Counties. Serpentine soils in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland; 20-910 meters.	April-June	Low potential. No suitable vegetation communities for habitat or serpentine soils in study area. Nearest recorded occurrence is more than 5 miles north of the study area.

<i>Scientific Name</i> Common Name	Status ^a Federal/State/CRPR	General Habitat Description	Blooming Period	Potential for Occurrence in the Project Area
<i>Clarkia biloba</i> ssp. <i>brandegeae</i> Brandegee's clarkia	-/-/4.2	Northern Sierra Nevada Foothills from Butte to El Dorado Counties. Chaparral, cismontane woodland, lower coniferous forest, often on roadcuts; 75-915 meters.	May-July	Low potential. No suitable vegetation communities for habitat in the study area, which is below the known elevational range. Nearest recorded occurrence is more than 5 miles northeast of the study area.
<i>Clarkia mosquinii</i> Mosquin's clarkia	-/-/1B.1	Northern Sierra Nevada Foothills in vicinity of Feather River Canyon near Pulga in northeast Butte County and Plumas County. Rocky, roadside areas in cismontane woodland and lower montane coniferous forest; 185-1,219 meters.	May-July	Low potential. No suitable vegetation communities for habitat in study area, which is below the known elevational range. Nearest recorded occurrence is more than 5 miles northeast of the study area.
<i>Delphinium recurvatum</i> Recurved larkspur	-/-/1B.2	Central Valley from Colusa (extirpated) to Kern Counties. Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; 3-790 meters.	March-June	Low potential. No suitable vegetation communities for habitat in study area. No alkaline soils mapped in study area. Species is recorded one mile northeast of the study area.
<i>Fritillaria eastwoodiae</i> Butte County fritillary	-/-/3.2	Sierra Nevada Foothills, from Shasta to El Dorado Counties; also Oregon. Chaparral, cismontane woodland, openings in lower montane coniferous forest, sometimes on serpentine; 50-1,500 meters.	March-June	Low potential. No suitable vegetation communities for habitat in study area, which has no serpentine soils. Nearest recorded occurrence is more than 5 miles northeast of the study area.
<i>Frillaria pluriflora</i> Adobe-lily	-/-/1B.2	Northern Sierra Nevada Foothills, Inner North Coast Ranges, edges of Sacramento Valley. Chaparral, cismontane woodland, valley and foothill grassland, often on adobe soils; 60-705 meters.	February-April	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> Rose-mallow	-/-/1B.2	Freshwater marsh along rivers and sloughs; often in rip-rap on sides of levees; below 120 meters.	June-September	Moderate potential. Suitable freshwater emergent marsh habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.

<i>Scientific Name</i> Common Name	Status ^a Federal/State/CRPR	General Habitat Description	Blooming Period	Potential for Occurrence in the Project Area
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	-/-/1B.2	Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, Tehama, and Yuba Counties. Wet areas in valley and foothill grassland, vernal pool margins; 30–229 meters.	March–May	Low potential. No suitable vegetation communities for habitat in study area. Two recorded occurrences are 0.5 mile east of the study area.
<i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	-/-/1B.1	Northern Sacramento Valley and Cascade Range foothills with occurrences in Butte, Placer, Shasta, and Tehama Counties. Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 35–1,250 meters.	March–June	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles from the study area.
<i>Limnanthes floccosa</i> ssp. <i>californica</i> Butte County meadowfoam	E/E/1B.1	Endemic to Butte County. Wet areas in valley and foothill grassland, vernal pools and swales; 46–930 meters.	March–May	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.
<i>Navarretia</i> <i>leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	-/-/1B.1	Mesic areas in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools; 5–1,740 meters.	April–July	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles southwest of the study area.
<i>Orcuttia tenuis</i> Slender Orcutt grass	T/E/1B.1	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties. Vernal pools; 35–1,760 meters.	May– September (October)	Low potential. No suitable vegetation communities for habitat in study area. Two recorded occurrences are 0.5 mile east of the study area.
<i>Paronychia ahartii</i> Ahart's paronychia	-/-/1B.1	Northern Central Valley in Butte, Shasta, and Tehama Counties. Cismontane woodland, valley and foothill grassland, vernal pools; 30–510 meters.	February– June	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.
<i>Sagittaria sanfordii</i> Sanford's arrowhead	-/-/1B.2	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 650 meters.	May– October	Moderate potential. Suitable freshwater emergent marsh habitat in study area. Nearest recorded occurrence is ~2 miles west of the study area.

<i>Scientific Name</i> Common Name	Status ^a Federal/State/CRPR	General Habitat Description	Blooming Period	Potential for Occurrence in the Project Area
<i>Trifolium jokerstii</i> Butte County golden clover	-/-/1B.2	Known only from Butte County. Moist areas in valley and foothill grassland, swales, vernal pool margins; 50–385 meters.	March–May	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.
<i>Tuctoria greenei</i> Greene’s tuctoria	E/R/1B.1	Scattered distribution along eastern Central Valley and foothills from Shasta County to Tulare County. Dry vernal pools; 30–1,070 meters.	May–July (September)	Low potential. No suitable vegetation communities for habitat in study area. Nearest recorded occurrence is 4 miles northwest of the study area.
<i>Wolffia brasiliensis</i> Brazilian water-meal	-/-/2B.3	Known in California from a few occurrences along the Sacramento River in Butte, Glenn, Sutter, and Yuba Counties; widespread elsewhere in the U.S. Shallow freshwater in marshes and swamps; 20–100 meters	April– December	Moderate potential. Suitable freshwater emergent marsh and pond habitat in study area. Nearest recorded occurrence is more than 5 miles northwest of the study area.

Sources: California Native Plant Society 2016; California Department of Fish and Wildlife 2016; U.S. Fish and Wildlife Service 2016; California Department of Water Resources 2004b.

^a Status explanations:

Federal

- E = Listed as endangered under the Federal ESA.
- T = Listed as threatened under the Federal ESA.
- = No listing status.

State

- E = Listed as endangered under CESA.
- R = Listed as rare under the CESA. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
- = No listing status.

California Rare Plant Rank (CRPR)

- 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
- 2B = List 2B species: rare, threatened, or endangered in California but more common elsewhere.
- 3 = List 3 species: more information is needed about this plant.
- 4 = List 4 species: limited distribution; species on a watch list.
- .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).

Federal Endangered Species Act

The Federal ESA of 1973 and subsequent amendments provide for the conservation of listed endangered or threatened species or candidates for listing and the ecosystems on which they depend. USFWS has jurisdiction over Federally listed plants, wildlife, and resident fish.

Endangered Species Act Authorization Process for Federal Actions (Section 7)

Section 7 of the ESA provides a means for authorizing take of threatened and endangered species by Federal agencies. It applies to actions that are conducted, permitted, or funded by a Federal agency. Under ESA Section 7, the lead Federal agency conducting, funding, or permitting an action must consult with USFWS or National Marine Fisheries Service (NMFS), as appropriate, to ensure that a proposed action will not jeopardize the continued existence of an endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed action may affect a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. In response, USFWS or NMFS issues a biological opinion (BO), with one of the following determinations about the proposed action:

- May jeopardize the continued existence of one or more listed species (*jeopardy finding*) or result in the destruction or adverse modification of critical habitat (*adverse modification finding*).
- Will not jeopardize the continued existence of any listed species (*no jeopardy finding*) or result in adverse modification of critical habitat (*no adverse modification finding*).

The BO issued by USFWS or NMFS may stipulate mandatory *reasonable and prudent measures and terms and conditions*. If it is determined the proposed project would not jeopardize the continued existence of a listed species, USFWS or NMFS would issue an incidental take statement to authorize the proposed activity.

Clean Water Act

The CWA serves as the primary Federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The CWA empowers EPA to set national water quality standards and effluent limitations and includes programs addressing both point-source and nonpoint-source pollution. *Point-source pollution* is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. *Nonpoint-source pollution* originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

Permits for Fill Placement in Waters and Wetlands (Section 404)

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States, which are oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following.

- Areas within the OHWM of a stream, including nonperennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.

- Seasonal and perennial wetlands, including coastal wetlands.

On January 9, 2001, the U.S. Supreme Court made a decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (SWANCC) [121 S.Ct. 675, 2001] that affected the USACE's jurisdiction in isolated waters. Based on SWANCC, USACE no longer has jurisdiction or regulates isolated wetlands (i.e., wetlands that have no hydrologic connection with a water of the United States).

In 2006, a Federal ruling on two consolidated cases (June 19, 2006; *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers*), referred to as the *Rapanos decision*, affects whether some waters or wetlands are considered jurisdictional under the CWA. In these cases, the U.S. Supreme Court reviewed the USACE's definition of waters of the United States and whether or not it extended out to tributaries of traditional navigable waters (TNWs) or wetlands adjacent to those tributaries. The decision provided two standards for determining jurisdiction of water bodies that are not TNWs.

- If the non-TNW is a relatively permanent water (RPW) or is a wetland directly connected to a RPW.
- If the water body has *significant nexus* to a TNW. The significant nexus definition is based on the purpose of the CWA ("restore and maintain the chemical, physical, and biological integrity of the Nation's waters").

Guidance issued by the EPA and USACE on the Rapanos decision requires application of these two standards and use of substantially more documentation to support a jurisdictional determination for a water body.

Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. USACE may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. The nationwide permits are a type of general permit issued to cover particular fill activities. Each nationwide permit specifies particular conditions that must be met for the nationwide permit to apply to a particular project.

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

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System program, administered by EPA. In California, the State Water Board is authorized by EPA to oversee the NPDES program through the RWQCBs (see the related discussion under "Porter-Cologne Water Quality Control Act" in Section 3.2, *Water Quality and Groundwater Resources*). The study area is located within the jurisdiction of the Central Valley RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent (NOI) to discharge stormwater, and to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a Federal license or permit to conduct activities that 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.

Executive Order 11990: Protection of Wetlands

Executive Order (EO) 11990 (May 24, 1977) requires Federal agencies to prepare wetland assessments for proposed actions located in or affecting wetlands. Agencies must avoid undertaking new construction in wetlands unless no practicable alternative is available and the proposed action includes all practicable measures to minimize harm to wetlands.

Executive Order 13112: Prevention and Control of Invasive Species

EO 13112, signed February 3, 1999, directs all Federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. This EO established the National Invasive Species Council (NISC), which is composed of Federal agencies and departments, and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. In 2008, the NISC released an updated national invasive species management plan that recommends objectives and measures to implement the EO and prevent the introduction and spread of invasive species (National Invasive Species Council 2008). The EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential effects, and measures to prevent or eradicate them.

3.9.3.2 State

The following state policies related to vegetation and wetlands may apply to implementation of the proposed project.

California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental effects. A project normally has a significant environmental effect on biological resources if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or

substantially diminishes habitat for fish, wildlife, or plants. The State CEQA Guidelines define rare, threatened, and endangered species as those listed under the ESA and CESA and any other species that meet the criteria of the resource agencies or local agencies (e.g., DFW-designated species of special concern). The guidelines state that the lead agency preparing an Environmental Impact Report (EIR) must consult with and receive written findings from DFW concerning project effects on species listed as endangered or threatened. The effects of a proposed project on these resources are important in determining whether the project has significant environmental effects under CEQA.

California Endangered Species Act

California implemented the CESA in 1984. The act prohibits the take of listed endangered and threatened species. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. DFW administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected).

California Native Plant Protection Act

The CNPPA of 1977 prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the CNPPA are not protected under CESA but rather under CEQA.

California Fish and Game Code (Section 1600 et seq.)

DFW regulates work that would substantially affect resources associated with rivers, streams, and lakes, including riparian vegetation, pursuant to California Fish and Game Code Sections 1600–1616. Any action from a public project that substantially diverts or obstructs the natural flow or changes the bed, channel, or bank of any river, stream, or lake, or uses material from a streambed must be previously authorized by DFW in a lake or streambed alteration agreement under Section 1602 of the California Fish and Game Code. This requirement may in some cases apply to any work undertaken within the 100-year floodplain of a body of water or its tributaries, including intermittent streams and desert washes. Preliminary notification and project review generally occur during the environmental process. Any project modifications proposed by DFW to address effects on biological resources (e.g., rivers, fish, wildlife) and protect those resources are formalized in a streambed alteration agreement that becomes part of the plans, specifications, and bid documents for the project.

Porter-Cologne Water Quality Control Act

The California Water Code addresses the full range of water issues in the state and includes Division 7, known as the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code Sections 13000–16104). Section 13260 requires “any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the State to file a report of discharge (an application for waste discharge requirements [WDRs])” with the appropriate RWQCB. Under this act, each of the nine RWQCBs must prepare and periodically update Water Quality Control Basin Plans (Basin Plans). Each Basin Plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution. Projects that affect waters of the State must meet the WDRs of the RWQCB. Pursuant to CWA Section 401, an

applicant for a Section 404 permit to conduct any activity that may result in discharge into navigable waters must provide a certification from the RWQCB that such discharge will comply with state water quality standards. As part of the wetlands permitting process under Section 404, the project proponent will be required to apply for water quality certification from the Central Valley RWQCB.

Section 13050 of the Porter-Cologne Act authorizes the State Water Board and the relevant RWQCB to regulate biological pollutants. The California Water Code generally regulates more substances contained in discharges and defines discharges to receiving waters more broadly than the CWA.

3.9.3.3 Local

Butte Regional Conservation Plan

The BRCP is a program to provide regional conservation strategies for covered special-status species and sensitive natural communities in the lowland and foothill region of Butte County plan area, which includes the study area. However, SBFCA is not a permit applicant, and its activities are not covered under the BRCP.

Butte County General Plan 2030

The policies below are taken from the Conservation and Open Space Element of the Butte County General Plan 2030, adopted in October 2010 and amended in November 2012 (County of Butte County 2012:235–240). These policies are designed to guide planning related to and affecting habitat and biological resources, including vegetation and wetlands, within Butte County’s jurisdiction.

- **Goal COS-6:** Engage in cooperative planning efforts to protect biological resources.
 - COS-P6.1 The County shall coordinate with applicable Federal, State, regional and local agencies on natural resources and habitat planning.
- **Goal COS-7:** Conserve and enhance habitat for protected species and sensitive biological communities.
 - COS-P7.1 Conservation easements that protect habitat areas, habitat corridors and sensitive biological resources shall be promoted.
 - COS-P7-2 Clustered development patterns shall be encouraged in order to conserve habitat for protected species and biological resources.
 - COS-P7.3 Creeks shall be maintained in their natural state whenever possible, and creeks and floodways shall be allowed to function as natural flood protection features during storms.
 - COS-P7.6 New development projects shall include setbacks and buffers along riparian corridors and adjacent to habitat for protected species, except where permitted in the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP) Planning Area and where such development is consistent with the conditions of the HCP/NCCP, upon the future adoption of the [Butte Regional] HCP/NCCP.
 - COS-P7.7 Construction barrier fencing shall be installed around sensitive resources on or adjacent to construction sites. Fencing shall be installed prior to construction activities and maintained throughout the construction period.

- COS-P7.8 Where sensitive on-site biological resources have been identified, construction employees operating equipment or engaged in any development-associated activities involving vegetation removal or ground disturbing activities in sensitive resource areas shall be trained by a qualified biologist and/or botanist who will provide information on the on-site biological resources (sensitive natural communities, special status plant and wildlife habitats, nests of special-status birds, etc.), avoidance of invasive plant introduction and spread, and the penalties for not complying with biological mitigation requirements and other state and Federal regulations.
- COS-P7.9 A biologist shall be retained to conduct construction monitoring in and adjacent to all habitats for protected species when construction is taking place near such habitat areas.
- **Goal COS-8:** Maintain and promote native vegetation.
 - COS-P8.1 Native plant species shall be protected and planting and regeneration of native plant species shall be encouraged, wherever possible, in undisturbed portions of development sites.
 - COS-P8.2 New landscaping shall promote the use of xeriscape and native tree and plant species, including those valued for traditional Native American cultural uses.
- **Goal COS-9:** Protect identified special-status plant and animal species.
 - COS-P9.1 A biological resources assessment shall be required for any proposed development project where special-status species or critical habitat may be present. Assessments shall be carried out under the direction of Butte County. Additional focused surveys shall be conducted during the appropriate season if necessary. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), assessment requirements of the [Butte Regional] HCP/NCCP shall be implemented for development projects within the [Butte Regional] HCP/NCCP area.
 - COS-P9.2 If special-status plant or animal species are found to be located within a development site, proponents of the project shall engage in consultation with the appropriate Federal, state and regional agencies and mitigate project impacts in accordance with state and Federal law. Upon adoption of the Butte Regional Habitat Conservation Plan (HCP) and Natural Community Conservation Plan (NCCP), mitigation requirements of the [Butte Regional] HCP/NCCP shall be implemented for development projects within the [Butte Regional] HCP/NCCP area. Examples of mitigation may include:
 - a. Design the proposed project to avoid and minimize impacts.
 - b. Restrict construction to specific seasons based on project-specific special-status species issues (e.g. minimizing impacts to special-status nesting birds by constructing outside of the nesting season).
 - c. Confine construction disturbance to the minimum area necessary to complete the work.
 - d. Mitigate for the loss of special-status species by purchasing credits at an approved conservation bank (if a bank exists for the species in question), funding restoration or habitat improvement projects at existing preserves in Butte County, or purchasing or donating mitigation lands of substantially similar habitat.
 - e. Maintain a minimum 100-foot buffer on each side of all riparian corridors, creeks and streams for special-status and common wildlife.

- f. Establish setbacks from the outer edge of special-status species habitat areas.
- g. Construct barriers to prevent compaction damage by foot or vehicular traffic.

3.9.4 Environmental Effects

Potential impacts of the proposed project on vegetation and wetlands are discussed in the context of State CEQA Guidelines Appendix G checklist items.

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact VEG-1: Loss of Special-Status Plants as a Result of Vegetation Management and Project Construction (less than significant with mitigation for vegetation management and hydraulic improvements; less than significant for recreational features)

Loss of special-status plants could result from the removal of vegetation for installation of irrigation lines in planting areas and the construction of hydraulic improvements and recreation enhancements in the project area. Because special-status plant surveys of the project area have not yet been conducted, the absence of special-status plants cannot be verified. Therefore, project implementation could result in the removal of special-status plants if they are present in affected areas. The specific potential impacts for the three project components and their respective impact determinations are discussed below.

Vegetation Management: Mechanical or hand removal treatments would be used for water primrose, giant reed, and scarlet wisteria. The interior channels in which water primrose removal would occur have low potential to support special-status plant species because the invasive plant tends to form dense mats in the channel and on the lower channel banks, excluding all other plants. Therefore, there is low potential for the occurrence of special-status plants in channels that support water primrose, and this would be a less-than-significant impact.

Invasive species in freshwater emergent wetland, open water channels, and pond habitats also degrade habitat for special-status plants. In spite of the degraded habitat, however, these communities have potential to support special-status plants known to occur in the project region, including Sanford's arrowhead and Brazilian water-meal. Although removal of invasive species would ultimately benefit special-status plants and their habitat, the removal of vegetation in freshwater emergent wetlands has potential to damage or remove special-status plants, if they are present in the project area. This would be a potentially significant impact. Implementation of Mitigation Measures VEG-MM-1 and VEG-MM-2 will reduce this potential impact to a less-than-significant level.

Installation of riparian woodland, riparian scrub-shrub, and gravel understory plantings would occur in areas currently identified as riparian forest and developed/disturbed land. Special-status plants are unlikely to occur in the developed/disturbed areas or the riparian areas with gravel understory, due to the gravel substrate and lack of suitable habitat. In addition, no special-status plants that occur in riparian habitat were identified as having potential to occur in the project area. Therefore, this would be a less-than-significant impact.

Hydraulic Improvements: Construction of hydraulic improvements, including the inflow and outflow weirs, notch connections to the river, fish barrier berm, interior channel grading, and interior road culvert crossings would occur in areas mapped as freshwater emergent wetland or pond that could support special-status plants. Construction activities could result in the removal of special-status plants, if any are present in the project footprint. Construction activities could also result in alteration of special-status plant habitat, if present, by removing existing vegetation and/or changing local topography and hydrology of the habitat. This would be a potentially significant impact. Implementation of Mitigation Measures VEG-MM-1 and VEG-MM-2 will reduce this impact to a less-than-significant level.

Recreation Features: Construction of parking lots and a concrete pad for the existing portable restrooms would occur in areas mapped as developed/disturbed; therefore, construction activities have low potential to affect special-status plants due to the lack of suitable habitat in the proposed footprints of these features. Construction of the vehicle access bridge and the two footbridges would cross riparian habitat; however, as discussed above for the vegetation management impacts, no special-status plants that occur in riparian habitat were identified as having potential to occur in the project area. Therefore, this would be a less-than-significant impact.

Mitigation Measure VEG-MM-1: Retain Qualified Botanists to Conduct Floristic Surveys for Special-Status Plants during Appropriate Identification Periods

SBFCA will retain a qualified botanist to survey the biological study area to document the presence of special-status plants before project implementation. The botanist will conduct a floristic survey that follows the DFW botanical survey guidelines (California Department of Fish and Game 2009). All plant species observed will be identified to the level necessary to determine whether they qualify as special-status plants or are plant species with unusual or significant range extensions. The guidelines also require that field surveys be conducted when special-status plants that could occur in the area are evident and identifiable, generally during the reported blooming period. To account for different special-status plant identification periods, one or more series of field surveys may be required in spring and summer.

If any special-status plants are identified during the surveys, the botanist will photograph and map locations of the plants, document the location and extent of the special status-plant population on a CNDDDB Survey Form, and submit the completed Survey Form to the CNDDDB. The amount of compensatory mitigation required will be based on the results of these surveys. If no special-status plants are found, the botanist will document the findings in a letter report to SBFCA, DWR, and DFW, and no further mitigation will be required. If special-status plants are found in the project area during the surveys and could be affected by project construction or operation, Mitigation Measure VEG-MM-2 would be implemented.

Mitigation Measure VEG-MM-2: Implement Measures to Avoid or Compensate for Long-Term Effects on Special-Status Plants Documented in the Project Area

If special-status plant species are found during the surveys conducted under Mitigation Measure VEG-MM-1, to the extent practicable and in consideration of other design requirements and constraints (e.g., meeting project objectives and needs, avoidance of other sensitive resources), SBFCA will design the project to avoid or minimize potential impacts on special-status plants.

If special-status plants cannot be avoided, SBFCA will consult with DFW and USFWS (if Federally listed species are found) to determine the appropriate compensatory measures for direct and indirect impacts that could result from project construction or operation.

Compensatory measures for loss of special-status plants, if required by DFW and/or USFWS, could include preserving and enhancing existing populations, establishment of offsite populations in a preservation area through seed collection or transplantation, and restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. The preservation area will be preserved and managed in perpetuity. A mitigation and monitoring plan will be developed that describes how unavoidable effects on special-status plants will be compensated for, including success criteria for the preservation area populations. Detailed information will be provided to the agencies on the location and quality of the preservation area, the feasibility of protecting and managing the area in perpetuity, and the responsible parties. Other pertinent information also will be provided, to be determined through future coordination with the resource agencies.

Impact VEG-2: Loss of Special-Status Plant as a Result of Project Operation (less than significant with mitigation for hydraulic improvements; no impact for vegetation management and recreational features)

The alteration of project area hydrology would cause increased frequency and depth of flooding that could result in the loss of special-status plants. If special-status plants that are restricted to shallow aquatic habitats, such as freshwater emergent wetland, are present in areas of increased flooding, particularly the 2-year flooding area, project operation could result in mortality of these plants. The specific potential impacts for the three project components are discussed below.

Vegetation Management: Maintenance of the restoration plantings during the operational phase of the project is considered a related, but separate action and is not analyzed as part of the proposed project. Therefore, there would be no impact associated with vegetation management under the proposed project.

Hydraulic Improvements: The hydraulic improvement would result in changes in project area hydrology such as alteration of the depth and duration of inundation, particularly in the 2-year flooding area. Changes in inundation could flood existing areas of shallow freshwater emergent wetland, causing mortality of emergent species and a transition to a community supporting species of deeper aquatic habitats. If any special-status plant species are present in areas that are not currently flooded to the proposed depth and at the proposed frequency, the hydrologic changes could cause mortality of these plants. Because special-status plant surveys have not been conducted in the project area, the presence or absence of these species cannot be verified. Therefore, this would be a potentially significant impact.

Implementation of Mitigation Measures VEG-MM-1, VEG-MM-2, and VEG-MM-3 will reduce this potential impact to a less-than-significant level.

Mitigation Measure VEG-MM-3: Monitor Special-Status Plant Populations in the Project Area after Construction

If special-status plant species are found during the surveys conducted under Mitigation Measure VEG-MM-1, annual monitoring of these populations and a nearby reference population will be added to the monitoring efforts proposed for the project for a minimum of 3 years to ensure

ongoing viability of the special-status plants. If the number of special-status plants in the project area decrease at a rate that is more than 10% of that observed at the reference population, SBFCA will provide additional compensation as outlined in Mitigation Measure VEG-MM-2.

Recreation Features: No operational impacts on special-status plants are anticipated as a result of the constructed recreation features.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Impact VEG-3: Loss of Vegetation in Riparian Forest and Riparian Scrub-Shrub Vegetation Communities as a Result of Project Construction and Vegetation Management (beneficial for vegetation management; less than significant for hydraulic improvements and recreational features)

Loss of riparian forest and riparian scrub-shrub vegetation would result from removal of vegetation for installation of irrigation lines in planting areas and construction of hydraulic improvements and recreation enhancements in the project area. The specific potential impacts for the three project components are discussed below.

Vegetation Management: Mechanical or hand removal treatments for invasive species within the existing riparian forest and riparian scrub-shrub vegetation communities in the project area would reduce competition and enhance the habitat for native species. This would be a beneficial impact.

Installation of the riparian woodland, riparian scrub-shrub, and gravel understory plantings would occur in areas currently identified as riparian forest. The installation of new plants and irrigation lines in existing riparian habitat could disrupt or damage root systems of woody riparian vegetation and result in the mortality of some plants. Up to 90.2 acres of riparian forest and 0.1 acre of riparian scrub-shrub could be affected during planting. However, the enhancement of 150 acres of riparian woodland and riparian scrub with new plantings would offset the temporary effects of planting and the potential loss of some plants, and the overall impact would be beneficial.

Hydraulic Improvements: Construction of hydraulic improvements, including the inflow and outflow weirs, notch connections to the river, fish barrier berm, and interior road culvert crossings, would occur in areas mapped as riparian forest and riparian scrub-shrub. A limited amount of the interior channel grading, primarily in the southeast part of the project area, would abut riparian habitats. Construction of the hydraulic improvements would require removal of riparian vegetation, resulting in the direct permanent loss of up to 6.8 acres of riparian forest and 0.1 acre of riparian scrub-shrub in the project area. Temporary losses of riparian vegetation could occur within the larger designated construction areas, and interior channel grading could affect several additional acres of riparian vegetation, depending on how equipment would access the interior channels. The extent of this loss would depend on equipment access needs, but could be up to 4.7 acres of riparian forest and 0.9 acre of riparian scrub-shrub. The loss of riparian habitat, which is a sensitive habitat in decline and regulated by local, state, and Federal agencies, would be mitigated by implementation of the vegetation management project component that would enhance 150 acres of riparian woodland and riparian scrub. Therefore, this impact would be less than significant.

Recreation Features: Construction of recreation features, including the vehicle access bridge, the two footbridges, and the parking lot regrade, would occur in areas mapped as riparian forest and

riparian scrub-shrub. Construction would require removal of riparian vegetation, resulting in the direct permanent loss of up to 1.0 acre of riparian forest and less than 0.1 acre of riparian scrub-shrub in the project area. Temporary losses of riparian vegetation could occur within the larger designated construction areas. The extent of this loss would depend on equipment access needs, but could be up to 0.3 acre of riparian forest and 0.2 acre of riparian scrub-shrub. The loss of riparian habitat, which is a sensitive habitat in decline and regulated by local, state, and Federal agencies, would be mitigated by implementation of the vegetation management project component that would enhance 150 acres of riparian woodland and riparian scrub. Therefore, this impact would be less than significant.

Impact VEG-4: Loss of Vegetation in Riparian Forest and Riparian Scrub-Shrub Vegetation Communities as a Result of Project Operation (less than significant for hydraulic improvements; no impact for vegetation management and recreational features)

Loss of riparian forest and riparian scrub-shrub vegetation could result from the alteration of project area hydrology due to increased frequency and depth of flooding. If riparian vegetation that is restricted to non-wetland or shallow aquatic habitats is present in areas of increased flooding, particularly the 2-year flooding area, project operation could result in mortality of the vegetation. The specific potential impacts for the three project components are discussed below.

Vegetation Management: Maintenance of the restoration plantings during the operational phase of the project is considered a related, but separate action and was not analyzed as part of the proposed project. Therefore, there would be no impact associated with vegetation management under the proposed project.

Hydraulic Improvements: Changes in hydrology as a result of the hydraulic improvements would include alteration of the depth and duration of inundation, particularly in the 2-year flooding area. Most of this area already experiences some flooding, and the riparian community in this 2-year flooding area is likely adapted to inundation. There is potential for the increased flooding to cause vegetation community transitions from riparian forest wetland to emergent wetland and result in less riparian habitat. However, the loss of riparian habitat, which is a sensitive habitat in decline and regulated by local, state, and Federal agencies, would be mitigated by implementation of the vegetation management project component that would enhance 150 acres of riparian woodland and riparian scrub. Therefore, this impact would be less than significant.

Recreation Features: No operational impacts on riparian forest and riparian scrub-shrub vegetation are anticipated as a result of the constructed recreation features.

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact VEG-5: Loss of Wetlands and Non-Wetland Waters of the United States as a Result of Project Construction and Vegetation Management (less than significant with mitigation for all components)

Loss of wetlands and non-wetland waters of the United States in the project area, including riparian wetlands, freshwater emergent wetlands, stream, ponds, and interior channels could result from excavation for installation of irrigation lines in planting areas and construction of hydraulic improvements and recreation enhancements in the project area. If wetlands or non-wetland waters

of the United States are present in these areas, construction could result in placement of fill or hydrologic interruption. Project effects on water quality in waters of the United States are addressed in *Section 3, Hydrology and Water Quality*. The specific potential impacts for the three project components are discussed below. All impact acreages identified for wetland and non-wetland waters of the United States are preliminary, pending a delineation of the project area and verification of the delineated boundaries by the USACE.

Vegetation Management: The use of mechanical treatments for infestations of invasive species that occur in ponds and interior channels and on the banks of the Feather River in the project area could remove vegetation located below the OHWMs of these features. This removal could potentially affect water quality in waters of the United States, if heavy machinery is used, but would not likely result in placement of fill or alteration of hydrology. Potential impacts on water quality would be reduced to a less-than-significant level through implementation of the SWPPP, as described in *Section 3, Hydrology and Water Quality*. No loss of waters of the United States would be anticipated as a result of invasive species removal, and there would be no impact.

Installation of riparian forest, riparian scrub-shrub, and gravel understory plantings would occur in areas currently identified as riparian forest and developed/disturbed. Wetlands and non-wetland waters would not be present in the developed/disturbed areas or the riparian areas with gravel understory, due to the porous gravel substrate. However, some areas of riparian forest and riparian scrub-shrub in the proposed planting areas with a soil substrate and suitable hydrology could be wetlands. If wetlands are present in these areas, the installation of new plants and irrigation lines could remove wetlands by excavating them. Wetlands and non-wetland waters are regulated by local, state, and Federal agencies, and there is a Federal policy of no-net-loss of wetlands. Because of the anticipated increase in wetland area from proposed hydrologic changes in the project area, construction impacts on project area wetlands and non-wetland waters would be compensated for onsite, and this impact would be less than significant. Implementation of Mitigation Measure VEG-MM-4 would be required to obtain state and Federal approvals and permits needed for this project.

Hydraulic Improvements: Construction of hydraulic improvements, including the inflow and outflow weirs, notch connections to the river, fish barrier berm, interior channel grading, and interior road culvert crossings would occur in areas mapped as riparian, freshwater emergent wetland, channel, and pond. Construction would place fill in these wetlands and non-wetland waters, resulting in the direct permanent loss of less than 0.1 acre of non-riparian wetlands and non-wetland waters in the project area. Because potential wetland areas in riparian habitat have not yet been delineated, the impacts on potential riparian wetlands are not part of this impact, but are included in the overall impact on riparian habitat discussed in Impact VEG-3. Construction activities could also result in alteration of wetlands, by removing existing vegetation and/or changing local topography and hydrology of the wetland. Temporary loss of non-wetland waters would occur as a result of installing a cofferdam for construction of the notched connection to the Feather River. Wetlands and non-wetland waters are regulated by local, state, and Federal agencies, and there is a Federal policy of no-net-loss of wetlands. Because of the anticipated increase in wetland area from proposed hydrologic changes in the project area, construction impacts on project area wetlands and non-wetland waters would be compensated for onsite, and this impact would be less than significant. Implementation of Mitigation Measure VEG-MM-4 to conduct a delineation of the project area would be required prior to obtaining state and Federal approvals and permits needed for this project.

Potential impacts on water quality would be reduced to a less-than-significant level through implementation of the SWPPP and Mitigation Measure WQ-MM-1, as described in *Section 3, Hydrology and Water Quality*.

Recreation Features: Construction of parking lots and a concrete pad for the existing portable restrooms would occur in areas mapped as developed/disturbed that do not support wetlands or non-wetland waters; therefore, construction activities would not affect wetlands or non-wetland waters in the proposed footprints of these features. Construction of the vehicle access bridge and the two footbridges would cross interior channels, and construction activities could result in the placement of fill in interior channels in the project area. Grading for the river access areas could place fill below the OHWM of the Feather River. Construction would place fill in these wetlands and non-wetland waters, resulting in the direct permanent loss of up to 0.3 acre of wetlands and non-wetland waters in the project footprint. Construction activities could also result in alteration of adjacent wetlands by removing existing vegetation and changing local topography and hydrology. Wetlands and non-wetland waters are regulated by local, state, and Federal agencies, and there is a Federal policy of no-net-loss of wetlands. Because of the anticipated increase in wetland area from proposed hydrologic changes in the project area, construction impacts on project area wetlands and non-wetland waters would be compensated for onsite, and this impact would be less than significant. Implementation of Mitigation Measure VEG-MM-4 would be required prior to obtaining state and Federal approvals and permits needed for this project.

Potential impacts on water quality would be reduced to a less-than-significant level through implementation of the SWPPP and Mitigation Measure WQ-MM-1, as described in *Section 3, Hydrology and Water Quality*.

VEG-MM-4: Conduct a Delineation of Waters of the United States

SBFCA will conduct a delineation of waters of the United States for the entire project area and submit the delineation to the USACE for verification. It is assumed that a preliminary jurisdictional determination will be adequate and agreeable to the USACE.

Impact VEG-6: Loss of Wetlands and Non-Wetland Waters of the United States as a Result of Project Operation (less than significant for hydraulic improvements; no impact for vegetation management and recreational features)

Vegetation Management: Maintenance of the restoration plantings during the operational phase of the project is considered a related, but separate action and was not analyzed as part of the proposed project. Therefore, there would be no impact associated with vegetation management under the proposed project.

Hydraulic Improvements: Changes in hydrology as a result of the hydraulic improvements would include alteration of the depth and duration of inundation, particularly in the 2-year flooding area. Most of this area already experiences some flooding and supports existing freshwater emergent wetlands and ponds. Riparian forests in this area may also meet all three Federal wetland criteria. There is potential for the increased flooding to cause vegetation community transitions from riparian forest wetland habitats to emergent wetland habitats and result in less riparian habitat. However, the loss of any riparian forest wetland habitat would be mitigated by implementation of the vegetation management project component; the vegetation community in the wetlands could potentially change, but the area encompassed by them would not. Therefore, this impact would be less than significant.

Recreation Features: No operational effects on wetlands and non-wetland waters of the United States are anticipated as a result of the constructed recreation features. There would be no impact.

Impact VEG-7: Improvement of Habitat Quality in Wetlands and Non-Wetland Waters of the United States as a Result of Project Operation (beneficial for vegetation management and hydraulic improvements; no impact for recreation features)

Vegetation Management: Removal of invasive plants from waters of the United States would benefit the habitat quality of the wetlands and non-wetland waters in the project area. In any of the identified riparian planting areas that meet the Federal criteria for wetlands, the planting of native riparian vegetation would also improve those wetland habitats. This would be a beneficial impact.

Hydraulic Improvements: The proposed hydraulic improvements in the project area would increase inundation and improve water quality in isolated interior channels and ponds in the project area, as well as in the Feather River. Although there is potential for types of waters of the United States to change as a result, and as discussed above in Impact VEG-6, the improvement in water quality and quantity would improve the habitat quality. This would be a beneficial impact.

Recreation Features: No improvement of habitat quality in wetlands and nonwetland waters of the United States would result from the constructed recreation features. There would be no impact.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

This impact is discussed in Section 3.10, *Wildlife* and Section 3.11, *Fisheries and Aquatic Resources*.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The proposed project does not conflict with the Butte County General Plan 2030. The proposed project is designed to enhance the value of special-status species habitat and sensitive biological communities. There would be no impact.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

At the time of preparation of this document, the BRCP was still in draft form, and SBFCA activities are not covered under the BRCP. Therefore, the proposed project will not conflict with any adopted habitat conservation plan or natural community conservation plan. There would be no impact.