Technical Report

BIOLOGICAL RESOURCES ASSESSMENT
Mokelumne Watershed Routine Maintenance Project

April 2021

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Acronyms and Abbreviations

amsl	above mean sea level
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CWA	Clean Water Act
DPS	distinct population segment
EBMUD	East Bay Municipal Utility District
EFH	Essential Fish Habitat
ESA	Endangered Species Act
ESU	evolutionary significant unit
HCP	Habitat Conservation Plan
Horizon	Horizon Water and Environment, LLC
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NPPA	Native Plant Protection Act
Proposed Project or Project	Mokelumne Watershed Routine Maintenance Project
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
USC	U.S. Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
°F	degrees Fahrenheit
USGS	U.S. Geological Survey
VELB	Valley Elderberry Longhorn Beetle
Watershed	EBMUD's Mokelumne Watershed or Mokelumne Watershed

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Executive Summary

East Bay Municipal Utility District (EBMUD) owns and manages 28,744 acres of land for water supply along the Mokelumne River and around the Pardee and Camanche Reservoirs in Amador, Calaveras, and San Joaquin Counties, California, herein referred to as EBMUD's Mokelumne Watershed (Watershed). The Mokelumne Watershed Routine Maintenance Project (Project) involves the continuation of routine maintenance of the Watershed facilities, roads, and infrastructure at locations within the Watershed previously authorized under prior Lake and Streambed Alteration Agreements (LSAAs) by the California Department of Fish and Wildlife (CDFW). Given the expiration of prior LSAAs, the Project seeks a new LSAA permitting the continuation of routine maintenance activities critical to Watershed operations.

The purpose of this document is to characterize existing biological conditions of the Mokelumne Watershed as it pertains to EBMUD's Project. CDFW regulates work (i.e., diversion or obstruction of the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; or deposition or disposal of material into any river, stream, or lake) within streambanks and other waters of the State under Section 1600 of California Fish and Game Code (CFGC). Additionally, CDFW also regulates the removal of riparian habitat associated with such waters of the State. Routine-maintenance-focused areas within the Watershed include rivers, streams, lakes, or other waters of the State defined under CFGC Section 1600. Additionally, this document presents and discusses other applicable regulations governing protected biological resources.

EBMUD's Mokelumne Watershed spans several land cover types within the Sierra Nevada Foothills region. Thirty-two plant, wildlife, and fish species with varying degrees of federal, state, and/or other protection have potential to occur within or adjacent to the Watershed and could be affected by routine maintenance activities.

Six federally protected species have potential to occur within portions of the Watershed where suitable habitat is present and could be affected by maintenance activities potentially (1) affecting the species habitat and/or (2) affecting the species themselves. These species include:

- Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) – Federally Threatened
- California Tiger Salamander (*Ambystoma californiense*) (Central Valley Distinct Population Segment [DPS]) – Federally and State Threatened
- California Red-legged Frog (*Rana draytonii*) – Federally Threatened and California Species of Special Concern
- Steelhead (*Oncorhynchus mykiss*) Central Valley DPS – Federally Threatened
- Ione manzanita (*Arctostaphylos myrtifolia*) – Federally Threatened and California Rare Plant Rank 1B.2
- Ione buckwheat (*Eriogonum apricum* var. *apricum*) – Federally and State Endangered, and California Rare Plant Rank 1B.1

Further, Critical Habitat for steelhead (Central Valley DPS) is designated within approximately 1.12 miles (35.68 acres) of a tributary to the Mokelumne River located within the Watershed. Maintenance within this location where primary constituent elements are present would require formal or informal consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) via Endangered Species Act (ESA) Section 7 (if a federal nexus is present)

or Section 10 (Habitat Conservation Plan) if it is determined that maintenance activities could result in "take" of the respective species.

Essential Fish Habitat (EFH) is designated for steelhead Central Valley DPS and Chinook salmon (Central Valley Fall/late-Fall ESU) within the same segment of the Mokelumne River within the Watershed. Maintenance activities that affect this River and potentially EFH would require consultation with the NMFS.

Eight state protected species have potential to occur within the Watershed where suitable habitat is present and could potentially be affected by maintenance activities. These species include:

- Boggs Lake hedge-hyssop (*Gratiola heterosepala*) – State Endangered
- Crotch Bumble Bee (*Bombus crotchii*) – State Candidate Endangered
- Foothill Yellow-legged Frog (*Rana boylii*) – State Endangered and California Species of Special Concern
- Golden Eagle (*Aquila chrysaetos*) – State Fully Protected
- Swainson's Hawk (*Buteo swainsoni*) – State Threatened
- American peregrine falcon (*Falco peregrinus anatum*) – State Fully Protected
- Bald Eagle (*Haliaeetus leucocephalus*) – State Endangered and Fully Protected
- Bank swallow (*Riparia riparia*) – State Threatened

If impacts to these species cannot be avoided, then a California Endangered Species Act (CESA) Incidental Take Permit (CFGC Section 2081) would be required before potential impacts resulting from maintenance activities could occur.

Eighteen California Environmental Quality Act (CEQA)-relevant species have potential to occur within the Watershed where suitable habitat is present and could potentially be affected by maintenance activities. These species include:

- Big-scale balsamroot (*Balsamorhiza macrolepis*) – CRPR 1B.2
- Hoover's calycadenia (*Calycadenia hooveri*) – CRPR 1B.3
- Parry's horkelia (*Horkelia parryi*) – CRPR 1B.2
- Patterson's navarretia (*Navarretia paradoxiclara*) – CRPR 1B.3
- Prairie wedge grass (*Sphenopholis obtusata*) – CRPR 2B.2
- Western Spadefoot (*Spea hammondii*) – California Species of Special Concern
- Western Pond Turtle (*Actinemys* [=*Emys*] *marmorata*) – California Species of Special Concern
- Tricolored Blackbird (*Agelaius tricolor*) – California Species of Special Concern
- Cooper's Hawk (*Accipiter cooperii*) – Migratory Bird Treaty Act
- Great Blue Heron (*Ardea herodias*) – Migratory Bird Treaty Act
- Burrowing Owl (*Athene cunicularia*) – California Species of Special Concern
- Prairie Falcon (*Falco mexicanus*) - Migratory Bird Treaty Act
- Yellow-breasted Chat (*Icteria virens*) – California Species of Special Concern
- Loggerhead Shrike (*Lanius ludovicianus*) – California Species of Special Concern
- Osprey (*Pandion haliaetus*) – Migratory Bird Treaty Act
- Townsend's Big-Eared Bat (*Corynorhinus townsendii*) – California Species of Special Concern and Western Bat Working Ground High Priority
- American Badger (*Taxidea taxus*) – California Species of Special Concern
- Chinook Salmon (*Oncorhynchus tshawytscha*) Central Valley Fall/Late Fall-run ESU – California Species of Special Concern

Numerous drainages (e.g., waters of the U.S.) and wetlands are located within the Mokelumne Watershed and maintenance activities at such locations also may be subject to U.S. Army Corps of

Engineers (USACE) and Regional Water Quality Control Board (RWQCB) jurisdictions and regulations. As such, maintenance activities affecting these features may require a Section 404 Permit from the USACE and a Section 401 Water Quality Certification from the RWQCB (or Waste Discharge Requirements [WDRs] for non-federal drainages and wetlands) depending on the nature of the specific impact within jurisdictional areas.

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1 Introduction

East Bay Municipal Utilities District (EBMUD) owns and manages 28,744 acres of land for water supply along the Mokelumne River and around the Pardee and Camanche Reservoirs in Amador, Calaveras, and San Joaquin Counties, California. EBMUD's Mokelumne Watershed (Watershed) supplies water from the Mokelumne River to EBMUD's service area within the East San Francisco Bay area (East Bay). The purpose of this document is to characterize existing biological conditions of the Watershed (**Figure 1**) to support the Mokelumne Watershed Routine Maintenance Project (Project), which involves the continuation of routine maintenance of the Watershed facilities, roads, and infrastructure at locations within the Watershed previously authorized under prior Lake and Streambed Alteration Agreements (LSAAs) by the California Department of Fish and Wildlife (CDFW). Given the expiration of prior LSAAs, the Project seeks a new LSAA permitting the continuation of routine maintenance activities critical to Watershed operations.

CDFW regulates work (i.e., diversion or obstruction of the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; or deposition or disposal of material into any river, stream, or lake) within streambanks and other waters of the State under Section 1600 of California Fish and Game Code (CFGC). Additionally, CDFW also regulates the removal of riparian habitat associated with such waters of the State. Routine maintenance areas within the Watershed include rivers, streams, lakes, or other waters of the State defined under CFGC Section 1600. Under the Project, routine maintenance activities are focused on the following five primary categories: (1) sediment and debris removal; (2) vegetation management; (3) facilities maintenance; (4) erosion prevention, control, repair, and protection; and (5) environmental stewardship. This document presents and discusses applicable regulations governing protected biological resources With the Project area.

1.1 Location and Study Area

EBMUD's Mokelumne Watershed is located within the Sierra Nevada foothills that includes the Camanche and Pardee reservoirs (totaling 9,034 acres) and portions of the surrounding hydrologic watershed within EBMUD-owned and maintained lands. The Watershed begins just west of State Route 49 and continues downstream along the Mokelumne River to a point just west of Camanche Dam. The Watershed includes portions of Amador, Calaveras, and San Joaquin counties (Figure 1)

1.1.1 Biological Resources Study Area

The study area for this biological resources assessment includes the approximately 28,744 acres of Watershed property plus multiple resource-specific buffers as described below.

- Special-status plant study area: 100-foot buffer
- Special-status wildlife study area: 500-foot buffer
- Special-status fish study area: 100-foot buffer
- Wetland and Waters of the U.S. study area: 250-foot buffer

1.2 Project Overview

The Project involves the continuation of routine maintenance activities of the Watershed facilities, roads, and infrastructure at locations within the Watershed previously authorized under prior LSAAs by CDFW. EBMUD has performed routine maintenance within the Mokelumne Watershed under an existing LSAA with CDFW Region 2 covering the entire approximately 28,744 acres. Agreement number 1600-2009-0232-R2 was originally signed in 2009, extended in 2015, and expired on April 20, 2020. Given the expiration of prior LSAAs, the Project seeks a new LSAA permitting the continuation of routine maintenance activities critical to Watershed operations.

1.2.1 Description of the Watershed and Infrastructure

Most of the Watershed's land is undeveloped open space, left vacant or leased for grazing livestock; however, within the Mokelumne Watershed boundary there are six recreation facilities (the Mokelumne River Day Use Area, Middle Bar Boat Take-out, Camanche South Shore Recreation Area, Camanche North Shore Recreation Area, Pardee Recreation Area, and the Camanche Hills Hunting Preserve) that provide public recreation including day use, hiking, overnight camping, boating, fishing, hunting and trap and sporting clay activities. There are also over 17 miles of managed trails (including an additional 44 miles trails along fire roads), approximately 35 miles of access roads, 14 miles of county roads, and 137 miles of unpaved fire roads within the Mokelumne Watershed.

EBMUD facilities and infrastructure within the Mokelumne Watershed include the Pardee Center (EBMUD's operations center), the Mokelumne Watershed Headquarters, electric generation and transmission facilities, and water transmission and treatment facilities. EBMUD facilities that may require routine maintenance in waterways include water treatment and distribution facilities, backwash ponds/watercourses, wastewater treatment/disposal facilities, wastewater ponds, spray fields, skimmer and evaporation ponds, dams, dikes and spillways, drainage systems and associated infrastructure (e.g., piezometers, measuring weirs, and canals), hydropower facilities, and the Mokelumne River Fish Hatchery.

The Mokelumne Watershed is managed for multiple beneficial uses. Public recreation is provided in the form of Watershed trails, recreation areas and facilities, including day use, hiking, overnight camping, boating, fishing, hunting and trap and sporting clay activities. A series of fire roads provide access for fuel management projects, invasive species management, grazing management, and access to various infrastructure facilities for routine and preventative maintenance and monitoring. The Watershed additionally includes water and wastewater infrastructure maintained to provide services to EBMUD and public use facilities within the Watershed boundary.

1.2.2 Existing Regulatory Approval

The Watershed is covered under a Federal Safe Harbor Agreement (TE213311-0) between the United States Fish and Wildlife Service (USFWS) and EBMUD. The purposes of this Agreement are (1) to promote the enhancement and management of habitat for California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) on EBMUD Watershed lands in San Joaquin, Amador and Calaveras counties; and (2) to provide certain regulatory assurances to EBMUD. This Agreement follows the USFWS's Safe Harbor Agreement policy (64 FR 32717) and regulations (64 FR 32706), both of which implement Section 10(a)(1)(A) of the Endangered Species Act (ESA). All actions required under the Federal Safe Harbor Agreement must also obtain California Fish and Game Code (CFGC) Section 1602 Lake and Stream Alteration Agreement (LSAA) coverage. As such, EBMUD's

approach to routine maintenance in the Watershed includes an environmental stewardship component involving special-status species habitat management and enhancement actions to benefit such species. This may involve restoration of native vegetation and habitat, invasive species removal, and introduction of native species, among other activities.

1.2.3 Project Activities

EBMUD performs routine maintenance activities to both maintain the health of the Mokelumne Watershed and the functional and structural integrity of its infrastructure. EBMUD's watershed stewardship and facilities maintenance approach is based on having a comprehensive understanding of site-specific functions and processes, and the natural and aquatic resources at the location where maintenance is required. Understanding these resources, their locations, and how they interact guides EBMUD on where, when and how routine maintenance activities should occur. As such, habitat and ground disturbance associated with maintenance activities is limited and small in scale.

EBMUD's routine maintenance includes the following categories of activities to maintain the functional and structural integrity of EBMUD-owned facilities and infrastructure:

- *Sediment and Debris Removal* - Removal of debris, sediment, vegetation, rubbish, downed trees, beaver dams, and other material that could obstruct the natural flow in reservoirs, ponds, channels, culverts, or obstruct use of roads, trails, utility lines, rights-of-way (ROWs), walkways or access to EBMUD's facilities.
- *Vegetation Management* - Control of aquatic and bankside weeds, grasses, woody vegetation, nuisance and invasive species in reservoirs, ponds, channels, banks, fence lines, roads, trails, walkways, utility lines, and ROW. Vegetation management also includes the manual and mechanical removal of vegetation within established fire breaks, shaded fuel breaks, and upland habitats. Vegetation management also includes habitat restoration and enhancement activities, including replanting, new planting, hydroseeding, hand broadcast seeding, mechanical seeding, and maintenance of plantings.
- *Facilities Maintenance* - Maintenance, repair and placement of culverts, drainage and erosion control structures (e.g., gates, barricades, bridges), fish barriers, boat ramps, trails, walkways, utility lines, ROW, and roads. Activities also include washing and painting of weirs, outlet structures, drains, bridges, pipeline crossings, and spring boxes, as well as occasional spring box repair and replacement consistent with wildlife-friendly designs.
- *Erosion Prevention, Control, Repair, and Protection* – Erosion prevention, control, repairs, stabilization of levees, streambanks, roads, trails, utility lines, ROW, and infrastructure.
- *Environmental Stewardship* – Removal of aquatic and bankside plant and animal species that are invasive (e.g., American bullfrog [*Lithobates catesbeianus*]) and noxious by means of physical capture, livestock, removal by hand, or mechanical treatments. Construction, repair, or enhancement of sensitive species habitat, such as ponds and debris piles, that will benefit native species. This may include planting native plant species to enhance the vegetation community in ponds, waterways, and upland habitat, increasing sensitive species numbers on EBMUD lands by habitat enhancement and/or augmentation of the number of individuals or reintroduction to improve local population resilience.

Timing of Work

Work within watercourses, culverts and/or banks (i.e., sediment and debris removal, culvert repair and replacement, or bank repairs) typically would be conducted between April 15 and October 15 when watercourses are their driest. All non-ground disturbing maintenance activities (e.g., targeted goat grazing, vegetation maintenance, and facilities maintenance) occurring outside of any creek or drainage also would typically take place between April 15 and October 15. Removal of debris necessary to prevent an imminent flooding threat may occur year-round.

Hand removal activities (i.e., pruning and vegetation removal) may be conducted year-round. Removal of large wood, such as downed or dead trees or branches within watercourses would generally be conducted during the dry season (June 1 to October 15).

1.3 Personnel

Reconnaissance-level surveys of representative Watershed areas were conducted by personnel detailed in *Section 4.1.2, Field Survey*. This document was prepared by Viktoria Kuehn, Horizon Water and Environment (Horizon) Biologist, and Eric Christensen, Horizon Senior Biologist, and reviewed by Alex Wolk, Horizon Project Manager, and Jeff Thomas, Horizon Principal-In-Charge.

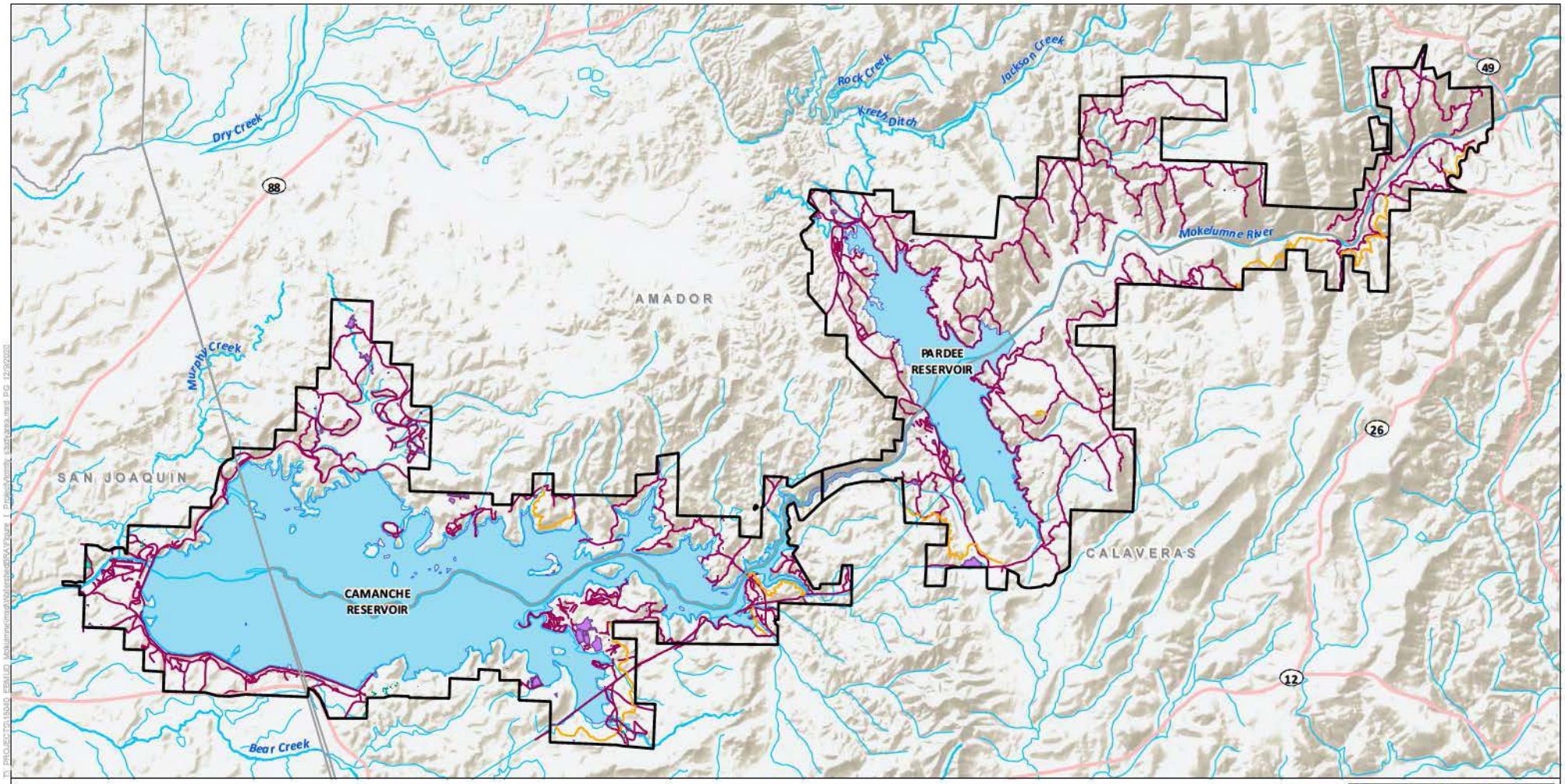

Figure 1
Project Vicinity and Study Area

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EBMUD Mokulemne Watershed
Biological Resources Assessment

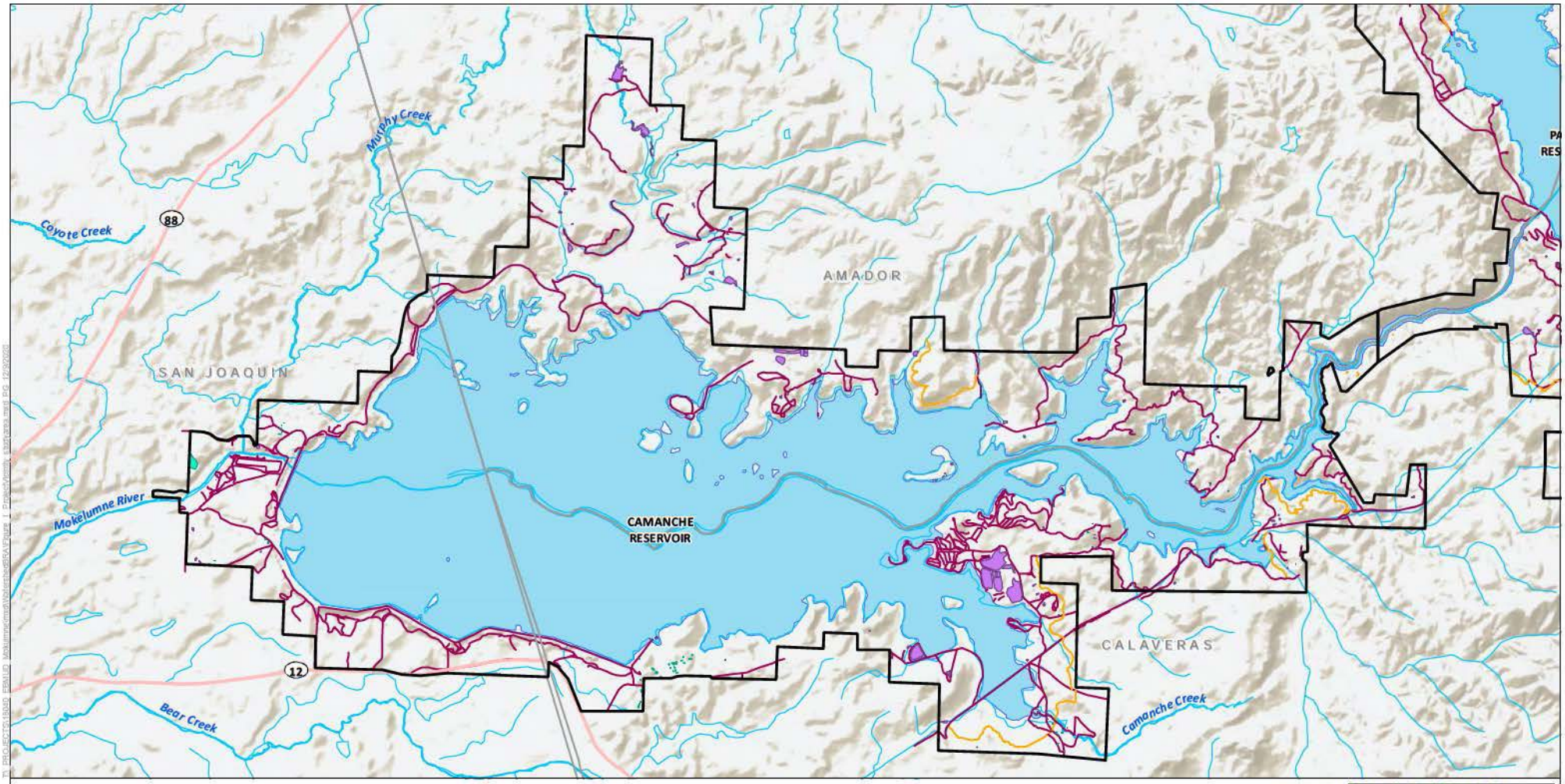
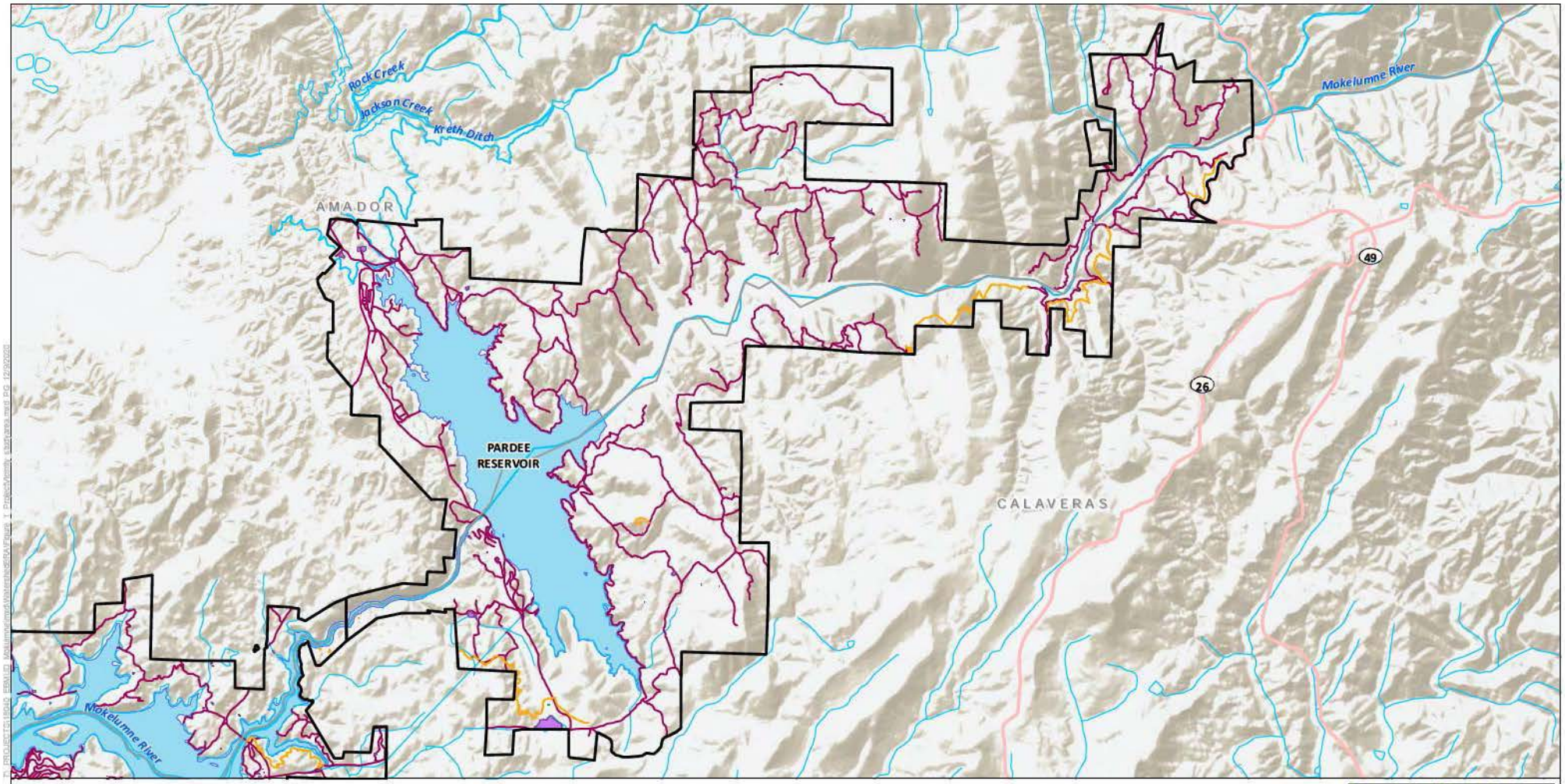


Figure 1
Project Vicinity and Study Area



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Prepared by:
Horizon

Prepared for:
EBMUD

Source: ESRI 2018, EBMUD 2020

Project Features

- EBMUD Mokelumne Watershed Boundary
- County Boundary
- Named Streams
- Unnamed Tributaries
- Vernal Pools
- District Ponds
- District Road
- District Trail

Figure 1
Project Vicinity and Study Area

EBMUD Mokulemne Watershed
Biological Resources Assessment

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2 Regulatory Setting

2.1 Federal Laws, Regulations, and Standards

This section summarizes federal, state, regional, and local regulations and plans related to biological resources, including wetlands, that could apply to the Mokelumne Watershed Routine Maintenance Project.

2.1.1 Endangered Species Act of 1973

The Endangered Species Act (ESA) (16 U.S. Code [USC] Section 1531 et seq.; 50 Code of Federal Regulations [CFR] Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a significant portion of their range, as well as the protection of habitats on which they depend. The USFWS and NMFS share responsibility for implementing the ESA. In general, USFWS manages land and freshwater species, whereas NMFS manages marine and anadromous species. The ESA and subsequent amendments provide guidance for projects that may affect the continued existence of federally listed species or adversely affect their designated critical habitat.

Section 4 (d) Incidental Take

Section 4(d) of the ESA broadly authorizes incidental take of a listed species provided certain conditions are satisfied. USFWS or NMFS may apply, through a Section 4(d) rule, take prohibitions for threatened species but exempt certain programs or activities if they satisfy the conditions specified by the rule. NMFS may apply a Section 4(d) rule at the time of listing or subsequently.

Section 4 (f) Recovery Plans

Section 4(f) of the ESA requires that recovery plans be prepared for listed species. A listed species is considered "recovered" when its status improves such that listing is no longer required. Recovery plans provide guidance to improve the status of a listed species, and inform the recovery process and implementation of the ESA overall.

Section 7 (Interagency Consultation and Biological Assessments)

Section 7 of the ESA (16 USC Section 1531 et seq.) outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Section 7(a)(1) directs the Secretary of the Interior (for species managed by USFWS) or the Secretary of Commerce (for species managed by NMFS) to review other programs administered by those departments and use such programs to further the purposes of the ESA. It also directs all other federal agencies to use their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of species listed pursuant to the ESA. Section 7(a)(2) states that each federal agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. In fulfilling these requirements, each agency must use the best scientific and commercial data available. This section of the ESA defines the consultation process, which is further developed in regulations promulgated by 50 CFR Section 402.

Section 9 (Prohibited Acts)

Section 9 of the ESA and its implementing regulations prohibit the take of any fish or wildlife species listed under the ESA as endangered or threatened, unless otherwise authorized by federal regulations. The term "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has interpreted the definition of harm to include habitat modification. Section 9 prohibits a number of specified activities with respect to endangered and threatened plants as well as adverse modifications to critical habitat.

Section 10 (Safe Harbor Agreements and Habitat Conservation Plans)

Sections 10(a)(1)(A) (Safe Harbor Agreements) and 10(a)(1)(B) (Habitat Conservation Plans) of the ESA provides processes by which nonfederal entities may obtain an incidental take permit from the USFWS or NMFS for otherwise lawful activities that incidentally may result in take of endangered or threatened species, subject to specific conditions.

As mentioned in Section 1.2.2, *Existing Regulatory Approval*, the Watershed is covered under a Federal Safe Harbor Agreement (TE213311-0) between the USFWS and EBMUD. The purposes of this Agreement are (1) to promote the enhancement and management of habitat for California red-legged frog, California tiger salamander, and valley elderberry longhorn beetle on EBMUD Watershed lands; and (2) to provide certain regulatory assurances to EBMUD. This Agreement follows the Service's USFWS's Safe Harbor Agreement policy (64 FR 32717) and regulations (64 FR 32706), both of which implement Section 10(a)(1)(A) of the Endangered Species Act (ESA). As such, EBMUD's approach to routine maintenance in the Watershed includes an environmental stewardship component involving special-status species habitat management and enhancement actions (e.g., restoration of native vegetation and habitat, invasive species removal, and introduction of native species) to benefit such species.

A habitat conservation plan (HCP) must accompany an application for an incidental take permit. The HCP associated with the permit ensures that the effects of the authorized incidental take are adequately minimized and mitigated.

2.1.2 Magnuson-Stevens Fishery Conservation and Management Act (Sustainable Fisheries Act)

The amended Magnuson-Stevens Fishery Conservation and Management Act of 1996, also known as the Sustainable Fisheries Act, provides for the conservation and management of all fish resources within the exclusive economic zone of the United States. It requires that all federal agencies consult with NMFS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat of commercially managed marine and anadromous fish species.

2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Sections 703–712; 50 CFR Subchapter B) makes it unlawful to pursue, hunt, take, capture, kill, or possess any migratory birds, or part, nests, or eggs of such migratory birds, that are listed in wildlife protection treaties between the United States and Canada, Mexico, Japan, and Russia. The MBTA applies to almost all avian species that are native to California. The MBTA prohibits the take of such species, including the removal of nests, eggs, and

feathers. It requires that all federal agencies consult with USFWS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect migratory birds.

The Migratory Bird Treaty Reform Act amends the MBTA so that nonnative birds or birds that have been introduced by humans to the United States or its territories are excluded from protection under the MBTA.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, directs each federal agency taking actions that have or may have adverse impacts on migratory bird populations to work with USFWS to develop a memorandum of understanding to promote the conservation of migratory bird populations.

2.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions (16 USC. Section 668). Under the Bald and Golden Eagle Protection Act, it is a violation to "take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest or egg, thereof…". Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

2.1.5 Clean Water Act (Sections 401 & 404)

The Clean Water Act (CWA) (33 USC Section 1251) establishes the basic structure for regulating discharges of pollutants (including dredged or fill material) into waters of the United States (U.S.), including wetlands, and for regulating quality standards for surface waters. The CWA provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

CWA Section 404 prohibits the discharge of dredged or fill material into waters of the U.S., including wetlands, without a permit from the USACE. CWA Section 401 requires that an applicant for a federal license or permit that allows activities with the potential to result in a discharge to waters of the U.S., including wetlands, obtain a Section 401 water quality certification.

2.2 State Agencies, Laws, and Programs

2.2.1 California Fish and Game Code

The California Fish and Game Code (CFGC) includes various statutes that protect biological resources, including the requirements for a notification of lake or streambed alteration, Native Plant Protection Act (NPPA) of 1977, the California Endangered Species Act (CESA), and multiple species-specific protection regulations.

Section 1600 et seq. (Lake and Streambed Alteration)

Section 1600 et seq. of the California Fish and Game Code establishes the Lake and Streambed Alteration Program to provide for protection and conservation of fish and wildlife resources with respect to any project that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake.

Under the program, an applicant must notify and enter into an agreement with CDFW before undertaking any activity that would substantially divert or obstruct the natural flow of any river, stream, or lake; or would substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or would deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

CDFW typically interprets its jurisdiction under Section 1600 to include the bed and bank of lakes and stream, as well as the adjacent floodplain and riparian vegetation, if present.

Sections 1900-1913 (California Native Plant Protection Act)

The California NPPA requires all State agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of this act prohibit the taking of listed plants from the wild and require notification, by the land owner undertaking a land use change action, of the CDFW at least 10 days in advance of that land use change on lands in California. This allows CDFW to salvage listed plant species that otherwise would be destroyed.

Sections 2050-2098 (California Endangered Species Act)

CESA (CFGC Sections 2050–2098) declares that it is the policy of the State that State agencies should not approve projects that would jeopardize the continued existence of a species listed under CESA as endangered or threatened or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if reasonable and prudent alternatives are available consistent with conserving the species or its habitat that would prevent jeopardy (CFGC Section 2053).

Section 2080 of the California Fish and Game Code prohibits the take of any species that is state-listed as endangered or threatened, or designated as a candidate for such listing. "Take" is defined by Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" an individual of a listed species. Under the CESA, the CDFW may issue an incidental take permit authorizing the take of listed and candidate species that is incidental to an otherwise lawful activity, subject to specified conditions.

CFGC Sections 2089.2-2089.26 allow CDFW to authorize incidental take of such protected species through a Safe Harbor Agreement, provided implementation of the Agreement is reasonably expected to offer a net conservation benefit to the species. Similar to ESA Safe Harbor Agreements, CESA Safe Harbor Agreements provide regulatory assurances to the landowner that allow them to manage their lands to benefit CESA-protected species without additional regulatory restrictions resulting from conservation efforts. CESA Safe Harbor Agreements are analogous to ESA Safe Harbor Agreements and CDFW has the authority to issue a consistency determination based on such a federal Agreement.

Sections 3511, 4700, 5050, and 5515 (Fully Protected Species)

CDFW has designated 37 fully protected species and prohibited the take or possession of these species at any time, and no licenses or permits may be issued for their take except for necessary scientific research or relocation of certain bird species for the protection of livestock.

Sections 3503, 3503.5, and 3513 (Nesting Bird Protections)

Section 3503 of the CFGC states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by code or any regulation made in accordance with the code. Section 3503.5 prohibits the take, possession, or needless destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls). Section 3513 prohibits the take or possession of any migratory nongame bird or part thereof, as designated in the MBTA. To avoid violation of the take provisions, projects are generally required to reduce or eliminate disturbances at active nesting territories during the nesting cycle.

2.2.2 Porter-Cologne Water Quality Control Act

The 1969 Porter–Cologne Water Quality Control Act (known as the Porter–Cologne Act) dovetails with the CWA. It established the State Water Resources Control Board (SWRCB) and divided the state into nine regions, each overseen by its own RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies; however, much of the SWRCB's daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 402 and 303[d]. In general, the SWRCB manages water rights and regulates statewide water quality, whereas RWQCBs focus on water quality within their respective regions.

The Porter–Cologne Act requires that the RWQCB develop water quality control plans (also known as Basin Plans) that designate beneficial uses of California's major surface-water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons that the waterbody is considered valuable). Water quality objectives reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by regulating waste discharges so that water quality objectives are met. Under the Porter–Cologne Act, Basin Plans must be updated every three years. Project activities that result in point-source discharges into state-regulated waters are subject to the RWQCB's Waste Discharge Requirements Program in order to ensure compliance with Basin Plan standards and water quality objectives.

2.2.3 California Environmental Quality Act

All "discretionary projects" within the state of California are required to comply with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15000 et seq.). "Discretionary" refers to situations when a governmental agency exercises its judgement to decide if and how to approve or execute a project.

CEQA's basic purposes are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways by which environmental damage can be avoided or significantly reduced.

- Prevent significant, avoidable damage to the environment by requiring implementation of feasible mitigation measures or project alternatives that would substantially lessen any significant effects that a project would have on the environment.
- Disclose to the public the reasons that a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

With certain strictly limited exceptions, CEQA requires that state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out projects. CEQA establishes both procedural and substantive requirements that agencies must satisfy to meet CEQA's objectives. For example, the agency with principal responsibility for approving or carrying out a project (the lead agency) must first assess whether a proposed project would result in significant environmental impacts. If there is substantial evidence that the project would result in significant environmental impacts that cannot be mitigated to a level of insignificance, CEQA requires that the agency prepare an environmental impact report that analyzes both the proposed project and a reasonable range of potentially feasible alternatives.

2.3 Local and Regional Laws and Plans

Within the Project area, numerous regional, county, and city ordinances and policies exist for the protection of biological resources. Examples include ordinances and local zoning that specify setbacks for wetlands, streams, and lakes and regulate the removal of trees. General plans in Amador, Calaveras, and San Joaquin counties include multiple conservation goals covering vegetation and wildlife resources within their respective jurisdictions. Amador, Calaveras, and San Joaquin counties also regulate the removal of protected trees within their respective jurisdictions. The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan includes programs to maintain water quality, biodiversity (including multiple special-status species), livestock grazing, agricultural operations, fire and fuel management, and recreation.

EBMUD is not subject to building and land use zoning ordinances for projects involving the transmission of water (Government Code Section 53091); however, EBMUD strives to consider and work with local jurisdictions (e.g., tree ordinances) and neighboring communities during project planning to conform to local environmental protection policies, where feasible, and not contrary to its public purpose and responsibilities.

3 Study Area Description

3.1 Environmental Setting

The Project study area traverses numerous land use and land cover types, throughout which unique topographic, climatic, hydrologic, and soils conditions are present. The following sub-sections describe these characteristics within the Watershed region.

3.1.1 Location

The Sierra Nevada Mountains form the majority of the spine of California's landscape, extending approximately 400 miles from north to south. The Sierra Nevada Mountains merge with the southern Cascades near Mount Lassen. The Sierra Nevada Range extends south to the Mojave Desert, where it curves south to link with the Tehachapi Mountains. The Sierra Nevada Foothills comprise low to high rolling hills within the transition zone between the Central Valley and Sierra Nevada Mountains. Within the study area, the Sierra Nevada Foothills are bounded on the west by the Central Valley immediately west of the census-designated place of Wallace; on the north by the Lake Amador, the Dry Creek watershed, and unincorporated community of Scottsville; on the east by the census-designated place of Mokelumne Hill and California State Route 49, and on the south by the census-designated place of Wallace and the unincorporated communities of Lake Camanche Ranches, South Camanche Shore, Campo Seco, and Paloma.

3.1.2 Topography and Elevation

The Sierra Nevada Foothills abut the eastern boundary of the Central Valley and support numerous streams and drainages that generally flow west. The Sierra Nevada Foothills gradually to abruptly increase in elevation in an eastern trajectory, away from the Central Valley. The approximate elevation range of the study area, within the Sierra Nevada Foothills, varies from 100 feet above mean sea level (amsl) below the Camanche Reservoir Dam to 1,300 feet amsl along State Route 49 next to Mokelumne Hill.

3.1.3 Climate and Hydrology

The Sierra Nevada Foothills have short hot, dry summers and foggy, rainy winters. Annual rainfall averages 20–40 inches, with the most rainfall occurring in the eastern, higher elevation portions due to the Sierra Nevada Mountain Range being on the western side causing an orographic effect in this region. Average temperatures range from 55 to 64°F and the growing season lasts 200 to 300 days.

The north, middle, and south fork of the Mokelumne River headwaters feed the Mokelumne River and originate in the Sierra Nevada mountains about 30 miles south of Lake Tahoe. Further downstream, at about 600 feet elevation the Mokelumne River enters the Pardee Reservoir, then continues downstream and enters the Camanche Reservoir. The Mokelumne River exits the Camanche Reservoir at the Dam outlet at an elevation of 135 feet in the Sierra Nevada Foothills.

3.1.4 Soils

Eight soil complexes occur within the Watershed and their locations are shown on **Figure 2**. The Peters-Pentz (s836) soil unit exhibits very slow permeability and moderately well drained to somewhat poorly drained. These qualities, combined with local concave relief, are commonly associated with wetlands and streams. The Rock outcrop-Mokelumne variant-Mokelumne (s842) and Rock outcrop-Henneke-Delpiedra (s838) soil units are volcanic-derived soils of varying chemical composition with rapid runoff, which can support special-status plant species adapted to utilize such difficult physical conditions. Rindge-Gazwell-Egbert (s852), and Peltier-Egbert (s866) soil units are poorly drained and occur in the Delta. Finrod-Cogna-Archerdale (s857) and San Joaquin-Rocklin-Redding-Montpellier-Cometa (s876) soil units have hardpans that are cemented to varying degrees and, where hardpan cementation is more complete, these soils typically support wetlands and streams.

The following soil complexes occur within the Mokelumne Watershed:

- Red Bluff-Perkins-Pardee (s843);
- Rock outcrop-Mokelumne variant-Mokelumne (s842);
- Rock outcrop-Henneke-Delpiedra (s838);
- Ryer-Rossmoor-Columbia (s820);
- Peters-Pentz (s836);
- San Joaquin-Rocklin-Redding-Montpellier-Cometa (s876);
- Sierra-Rock outcrop-Auberry-Ahwahnee (s841); and
- Whiterock-Rock outcrop-Auburn (s818).

3.1.5 Land Use

Agriculture, rangeland, and associated low density rural residential structures are the dominant land uses in the Watershed surrounding the Camanche and Pardee reservoirs. Throughout the remaining study area, anthropogenic land uses in the Watershed primarily include recreational and transportation infrastructure (e.g., campgrounds, marinas, highways, roads). The majority of undeveloped land cover within the Watershed primarily consists of grassland, woodland/forest or chaparral.

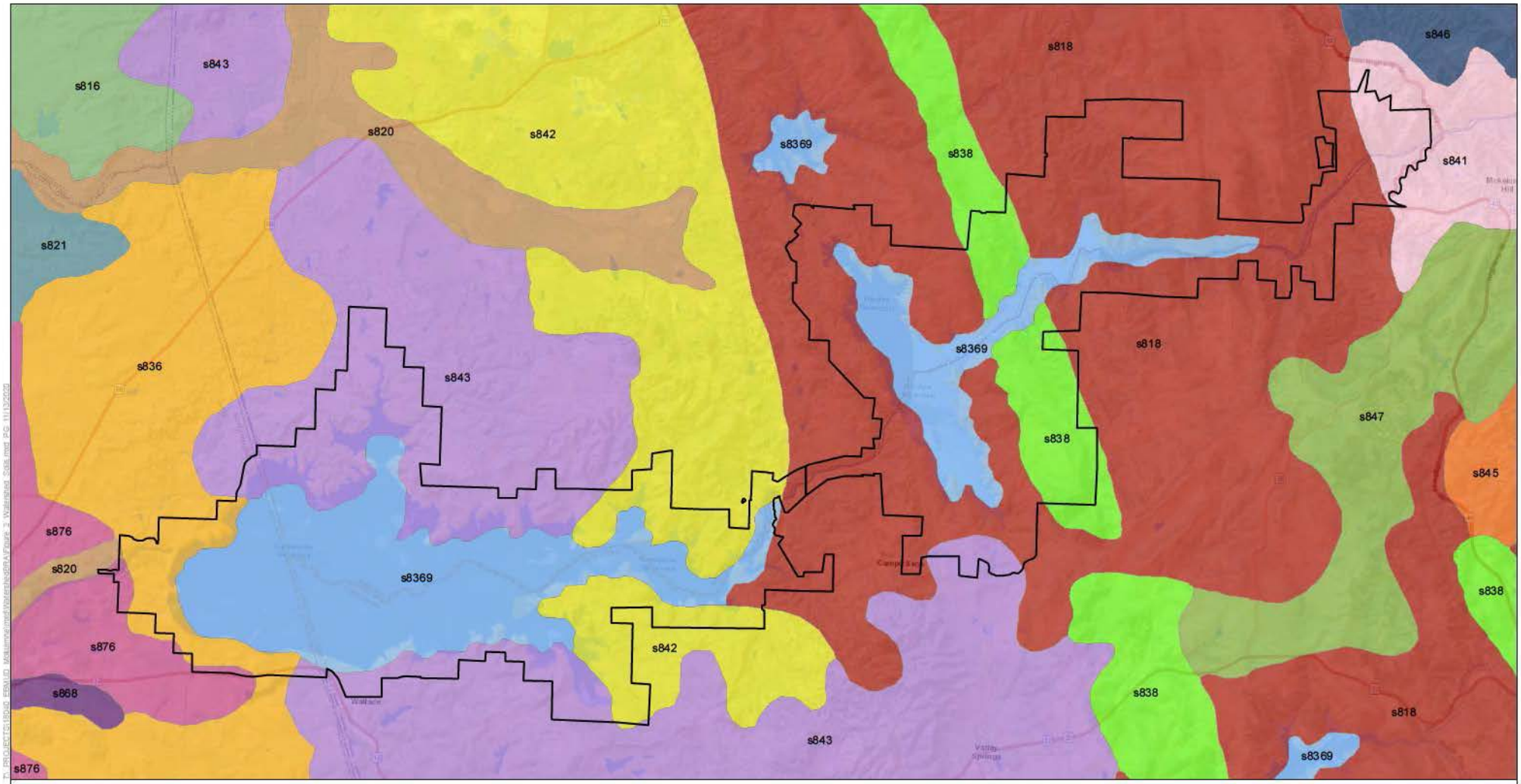

Figure 2
Soil Types within the Proposed Project

EBMUD Mokelumne Watershed Biological Resources Assessment

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4 Existing Biological Resources

4.1 Inventory Methods

Baseline biological resources in the study area were evaluated by reviewing pertinent literature and conducting a field survey to supplement background information with representative site-specific investigations. The methods of each, literary review and the field survey, are described below.

4.1.1 Literature Reviewed

Biological resource information in the study area was evaluated by reviewing the following data sources on special-status species, watersheds, water bodies, water quality, floodplain mapping, jurisdictional wetlands and waters of the U.S., and vegetation communities:

- USFWS list of federally endangered and threatened species that may occur in the proposed Project, and/or may be affected by the proposed Project[1] (Appendix D);
- USFWS's Critical Habitat Portal[2];
- National Wetland Inventory (NWI) results[3]
- NOAA Essential Fish Habitat mapper[4];
- NMFS California Species List[5];
- CDFW California Natural Diversity Database (CNDDB) queries for the U.S. Geological Survey (USGS) 7.5-minute quadrangles encompassing the study area, which are: Clements, Wallace, Ione, Valley Springs, Jackson, and Mokelumne Hill[6] (Appendix D);
- CNPS's Inventory of Rare and Endangered Plants of California queries for the USGS 7.5-minute quadrangles within the study area[7] (Appendix D);

[1] U.S. Fish and Wildlife Service. 2020. List of Federally Endangered and Threatened Species that may occur in the Proposed Project, and/or may be affected by the proposed Project. Information for Planning and Conservation ECOS. Available: https://ecos.fws.gov/ipac/. Accessed: December 22, 2020.
[2] U.S. Fish and Wildlife Service. 2019. Critical Habitat Data. Available: https://www.fws.gov/sacramento/es/Critical-Habitat/Data/. Accessed: March 6, 2019.
[3] U.S. Fish and Wildlife Service. 2019. National Wetland Inventory. Available: https://www.fws.gov/wetlands/. Accessed: March 6, 2019.
[4] National Ocean and Atmospheric Administration. 2019. Essential Fish Habitat Mapper. National Marine Fisheries Service, U.S. Department of Commerce. Available: https://www.habitat.noaa.gov/protection/efh/efhmapper/. Accessed: March 6, 2019.
[5] National Marine Fisheries Service. 2019. California Species List. National Oceanic and Atmospheric Administration, U.S. Department of Commerce. Available: https://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html. Accessed: March 6, 2019.
[6] California Department of Fish and Wildlife. 2020. California Natural Diversity Database. RareFind 5. Accessed: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed: December 22, 2020.
[7] California Native Plant Society. 2020. Inventory of Rare and Endangered Plants of California queries for the USGS 7.5-minute Quadrangles within the Study Area. Available: http://www.rareplants.cnps.org/advanced.html. Accessed: December 22, 2020.

- eBird records for the study area[8];
- EBMUD documents and plans relevant to the Mokelumne Watershed:
    - EBMUD Mokelumne Watershed Master Plan Final Program Environmental Impact Report (2008);
    - *Lower Mokelumne River Upstream Fish Migration Monitoring Conducted at Woodbridge Irrigation District Dam August 2014 through July 2015* (Del Real, C. and Saldate, M. 2015);
- EBMUD biological observation records;
- Aerial photography[9]; and
- USGS topographic maps[10]

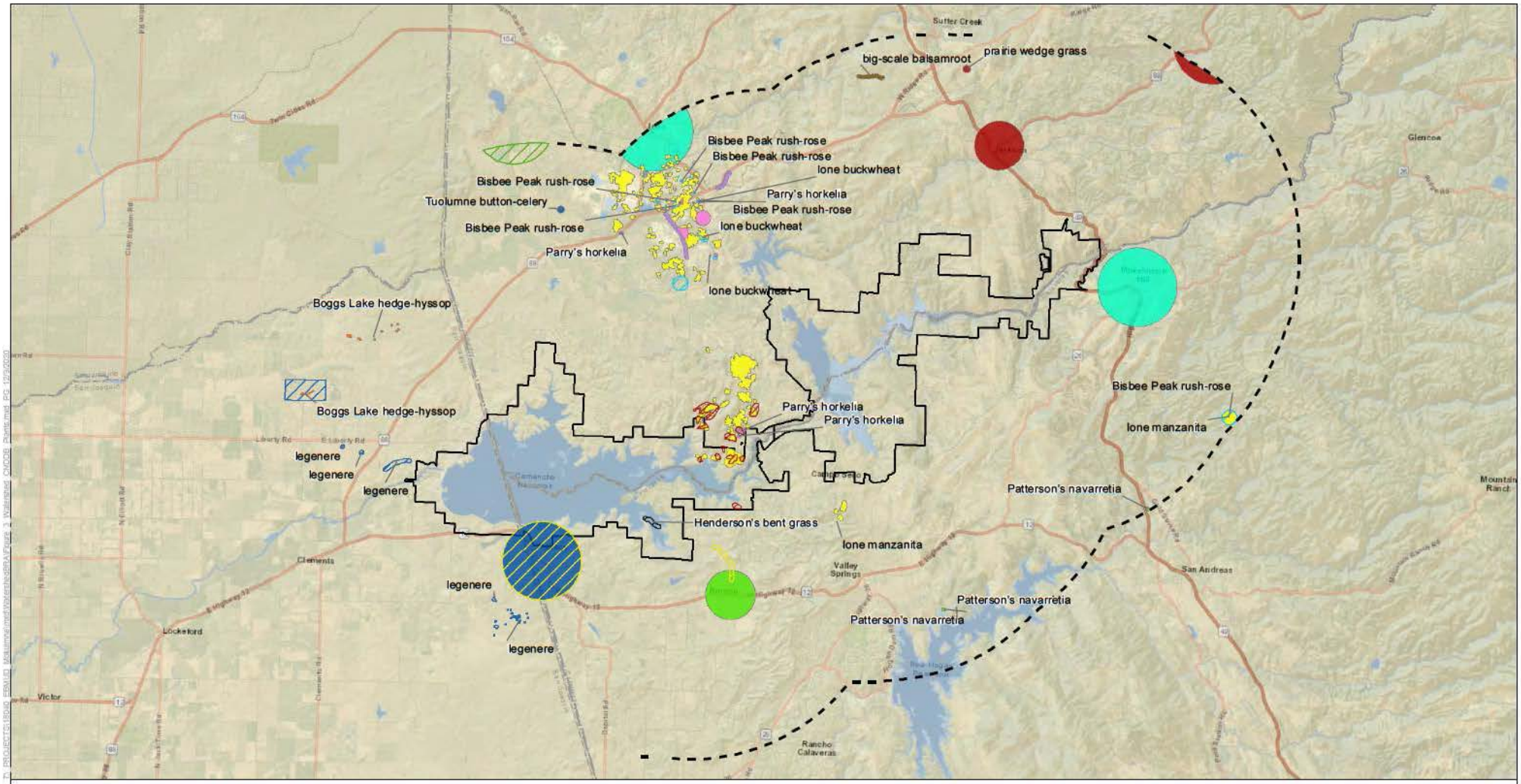
Please note that footnotes are defined at their first occurrence in this document and may be referred to in subsequent text where applicable. Results from the USFWS, CDFW's CNDDB, and CNPS database queries are provided in Appendix D.

4.1.2 Field Survey

Horizon Senior Biologist Eric Christensen conducted a biological reconnaissance survey of representative Watershed locations with EBMUD biological staff on December 19, 2018 and December 14 and 15, 2020. The survey effort consisted of a visual assessment of site conditions to indicate representative conditions in the greater study area. Maps of baseline biological resources, including a regional aerial photographic overview of the study area and detailed aerial photography, were used in the survey. Soil complexes throughout the Watershed (Figure 2), CNDDB special-status plant occurrence records within five miles of the Watershed (Figure 3), CNDDB special-status wildlife (including fish) occurrence records within five miles of the Watershed (Figure 4), and Critical Habitat and CNDDB Listed Habitat (Figure 5) were created based on the literature review and the data included used to inform the survey effort.

Surveys were conducted in the field on-foot to ensure total search coverage of representative portions of the Watershed. Natural and anthropogenic features, land cover types, and the presences of common and special-status species were visually surveyed. Visual aids, such as binoculars, were used to better assess survey areas and wildlife species when appropriate. Field data were collected as photographs, notes, and mark-ups on aerial photographs, and geospatial data were collected on an iPad with ArcGIS Collector. Collector data were downloaded and geo-rectified in ArcGIS Version 10.6.1.

[8] Cornell Lab of Ornithology. 2019. eBird Species Database. Available: https://ebird.org/map. Accessed: March 6, 2019.
[9] Google. 2020. Aerial Photography. Google Earth Pro, Vers. 7.3.2.5491. Mountain View, California.
[10] ESRI. 2019. Topographic Map Database. Sacramento, Jackson, Valley Springs, Lodi, California.



N

0 2 4 Miles

Prepared by: Horizon

Prepared for: EBMUD

Source: ESRI 2018, CNDDB 2020, EBMUD 2020

Project Features

- EBMUD Mokelumne Watershed Boundary
- 5-mile Buffer
- County Boundary

Special-Status Plant Species

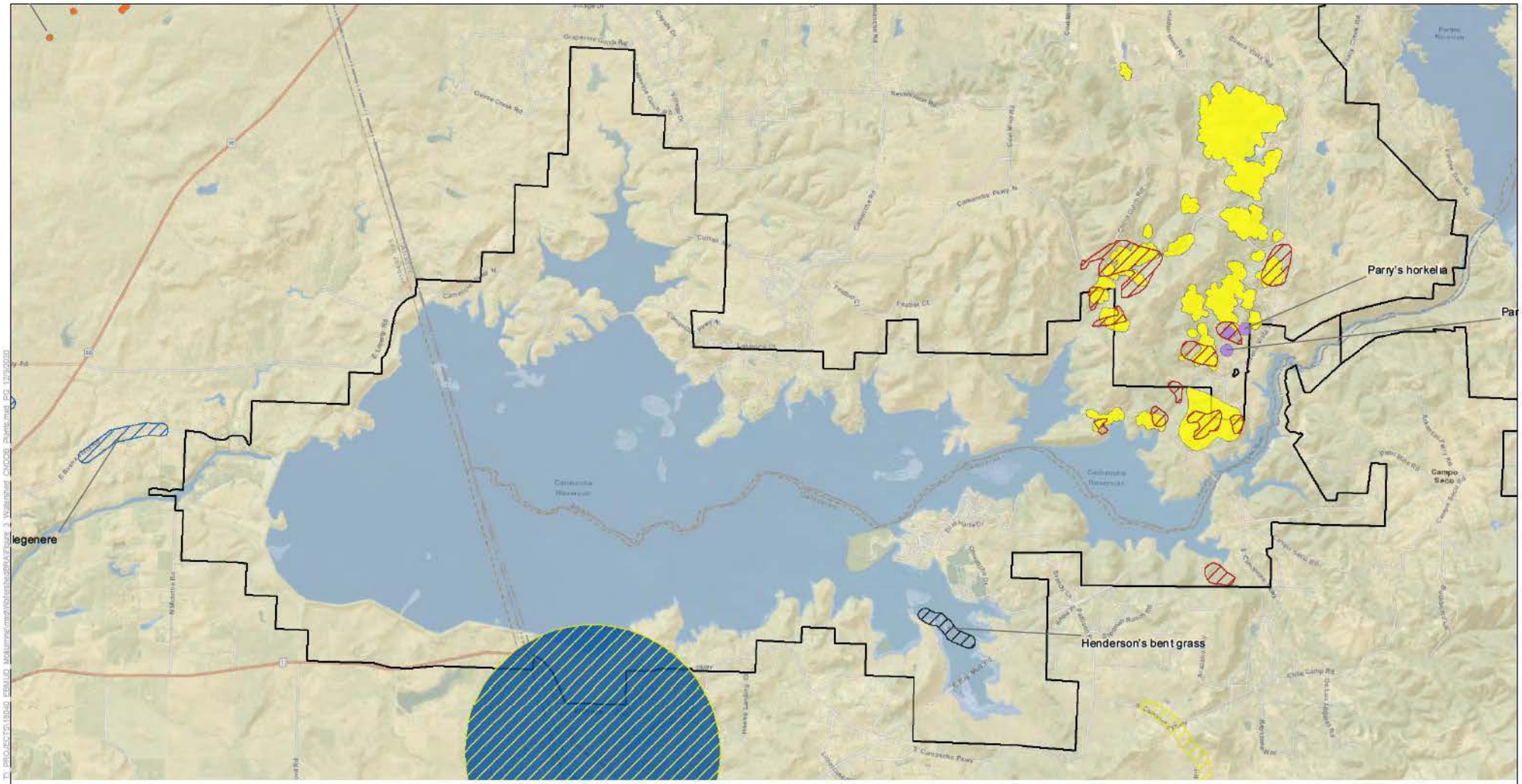
- Bisbee Peak rush-rose
- Boggs Lake hedge-hyssop
- Henderson's bent grass
- Hoover's calycadenia
- lone buckwheat
- lone manzanita
- Parry's horkelia
- Patterson's navarretia
- Stanislaus monkeyflower
- Tuolumne button-celery
- big-scale balsamroot
- legenere
- pincushion navarretia
- prairie wedge grass

EBMUD Records

- lone manzanita

Figure 3
CNDDB Occurrences of Special-status Plants within 5 miles of the Proposed Project

EBMUD Mokelumne Watershed Biological Resources Assessment



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0 0.6 1.2
Miles

Project Features

- EBMUD Mokelumne Watershed Boundary
- 5-mile Buffer
- County Boundary

Special-Status Plant Species

- Boggs Lake hedge-hyssop
- Henderson's bent grass
- Hoover's calycadenia
- Ione manzanita
- Parry's horkelia
- Tuolumne button-celery
- legenere

EBMUD Records

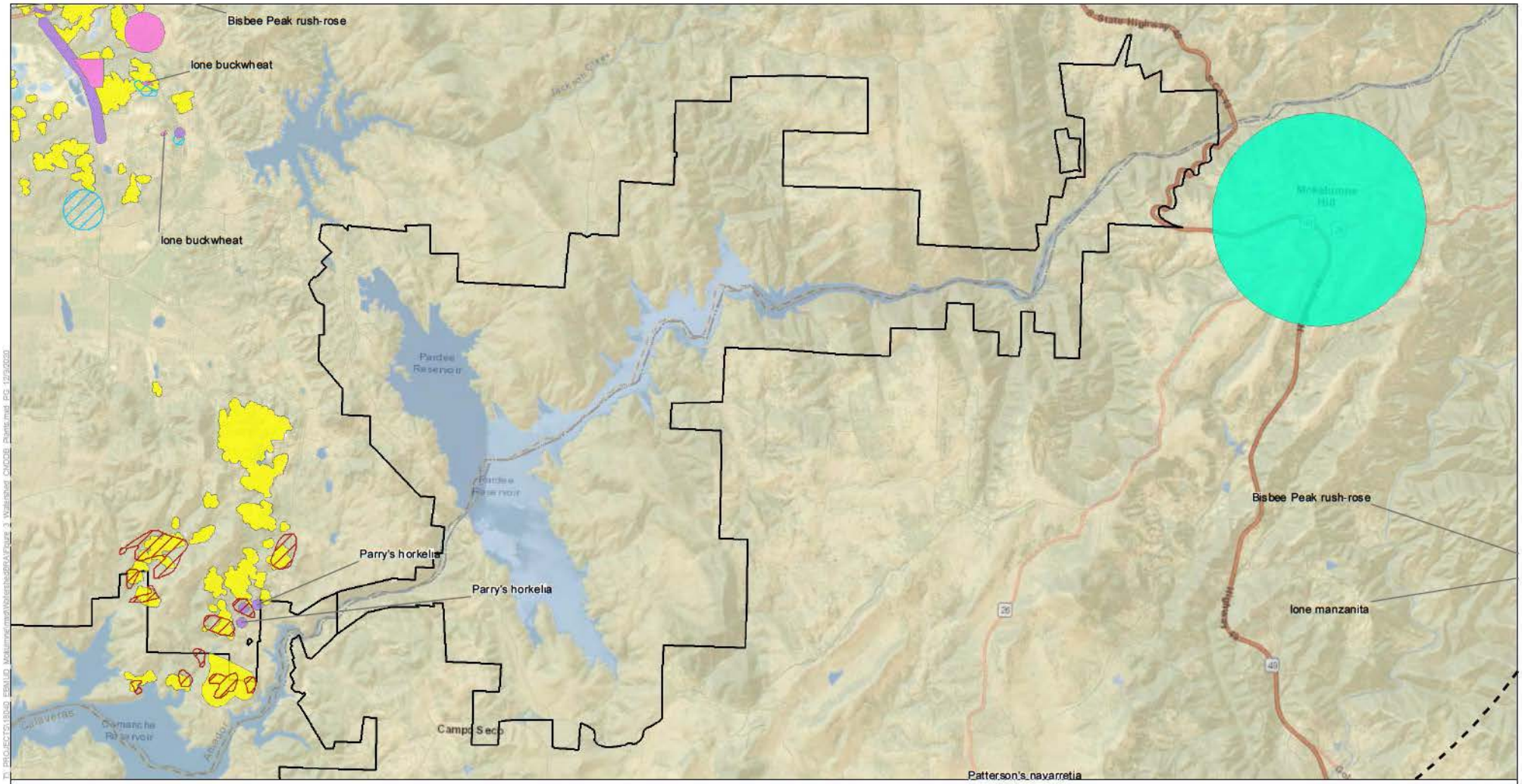
- Ione manzanita

Figure 3
CNDDB Occurrences of Special-status Plants within 5 miles of the Proposed Project

Prepared by:
Horizon Water and Environment

Prepared for:
EBMUD

Source: ESRI 2018, CNDDB 2020, EBMUD 2020



N

0 0.75 1.5
Miles

Prepared by:
Horizon Water and Environment

Prepared for:
EBMUD

Source: ESRI 2018, CNDDB 2020, EBMUD 2020

Project Features

- EBMUD Mokelumne Watershed Boundary
- 5-mile Buffer
- County Boundary

Special-Status Plant Species

- Bisbee Peak rush-rose
- lone buckwheat
- lone manzanita
- Parry's horkelia
- Stanislaus monkeyflower

EBMUD Records

- lone manzanita

Figure 3
CNDDB Occurrences of Special-status Plants within 5 miles of the Proposed Project

EBMUD Mokelumne Watershed Biological Resources Assessment

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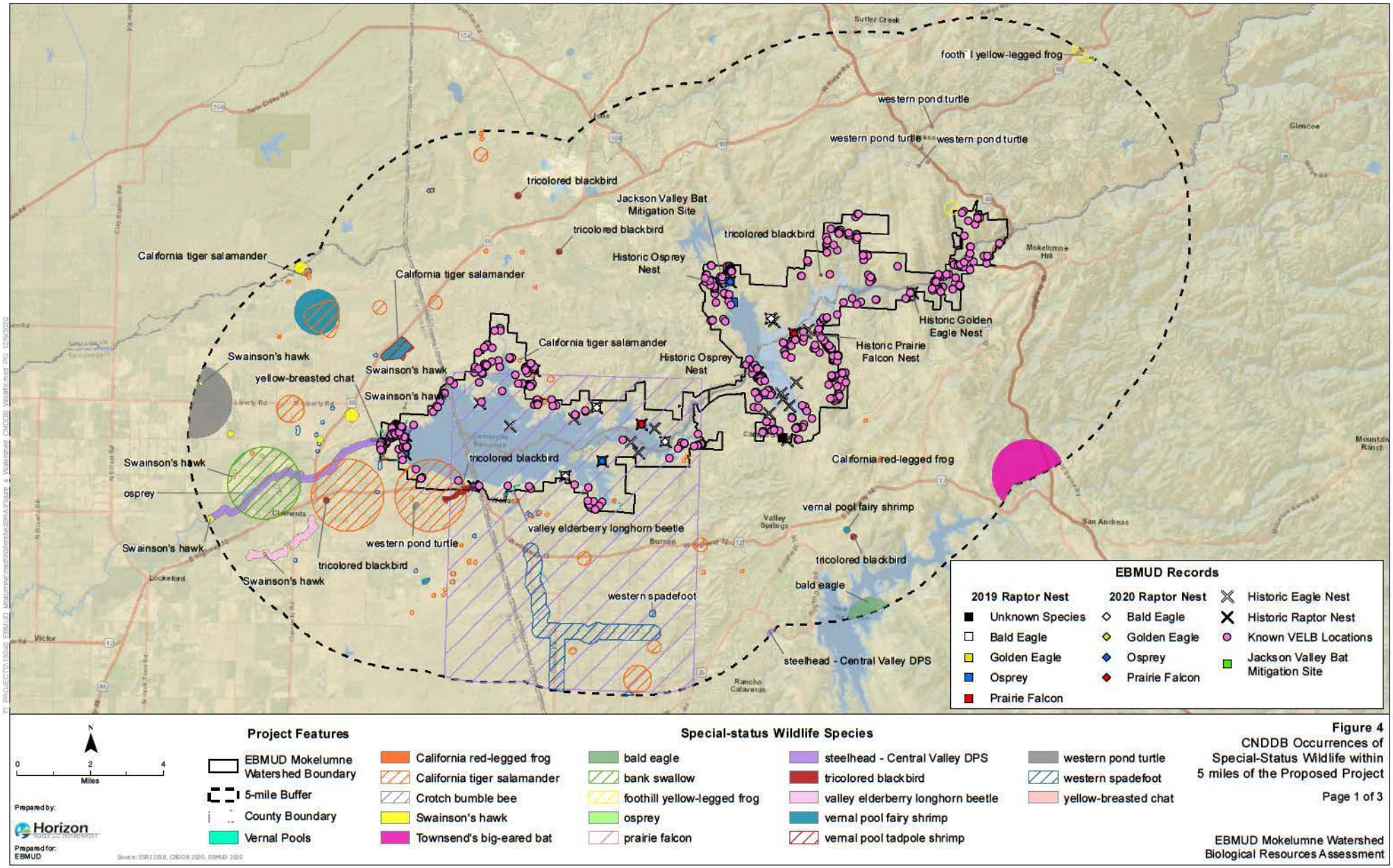

Figure 4
CNDDB Occurrences of Special-Status Wildlife within 5 miles of the Proposed Project

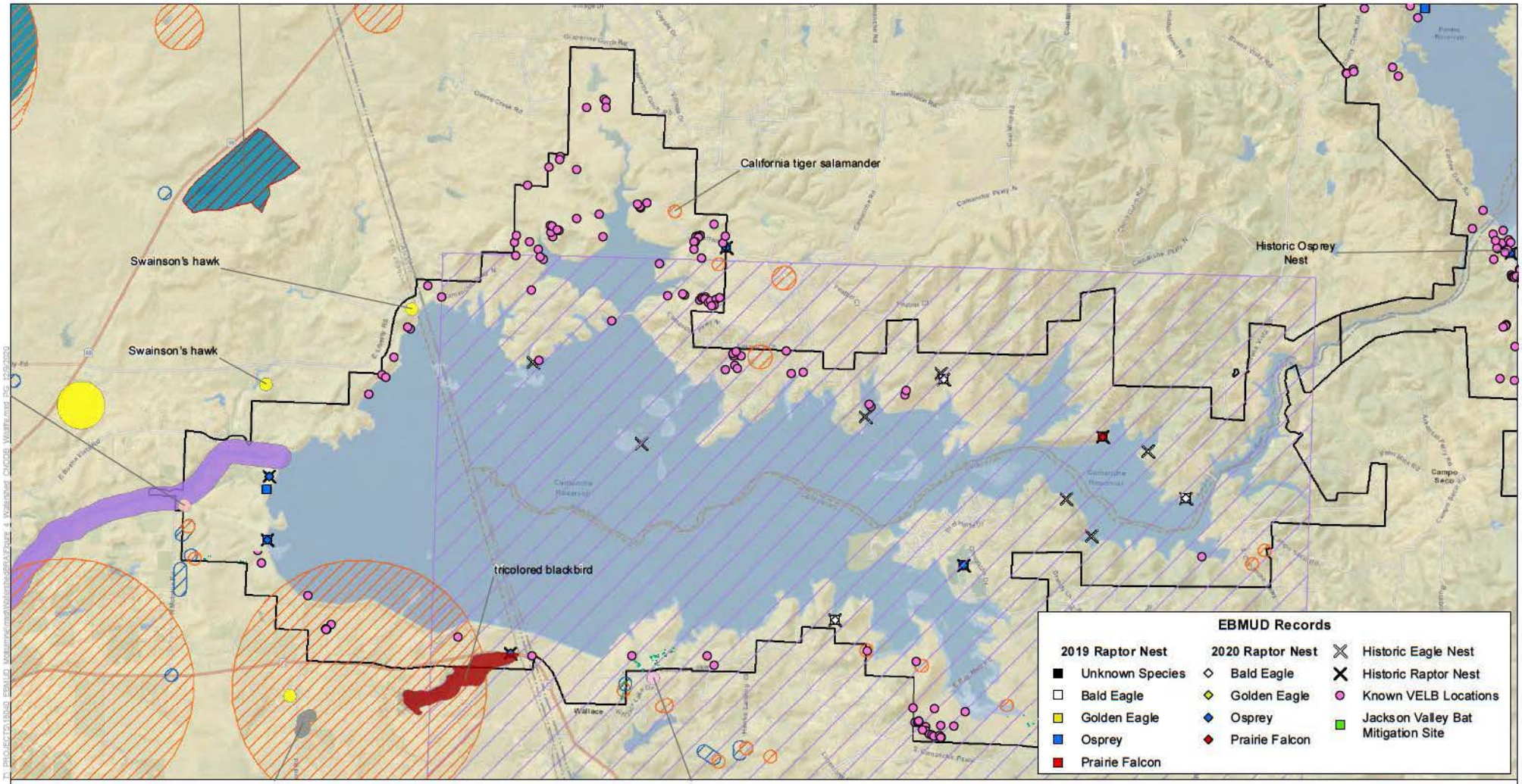

Figure 4
CNDDB Occurrences of Special-Status Wildlife within 5 miles of the Proposed Project

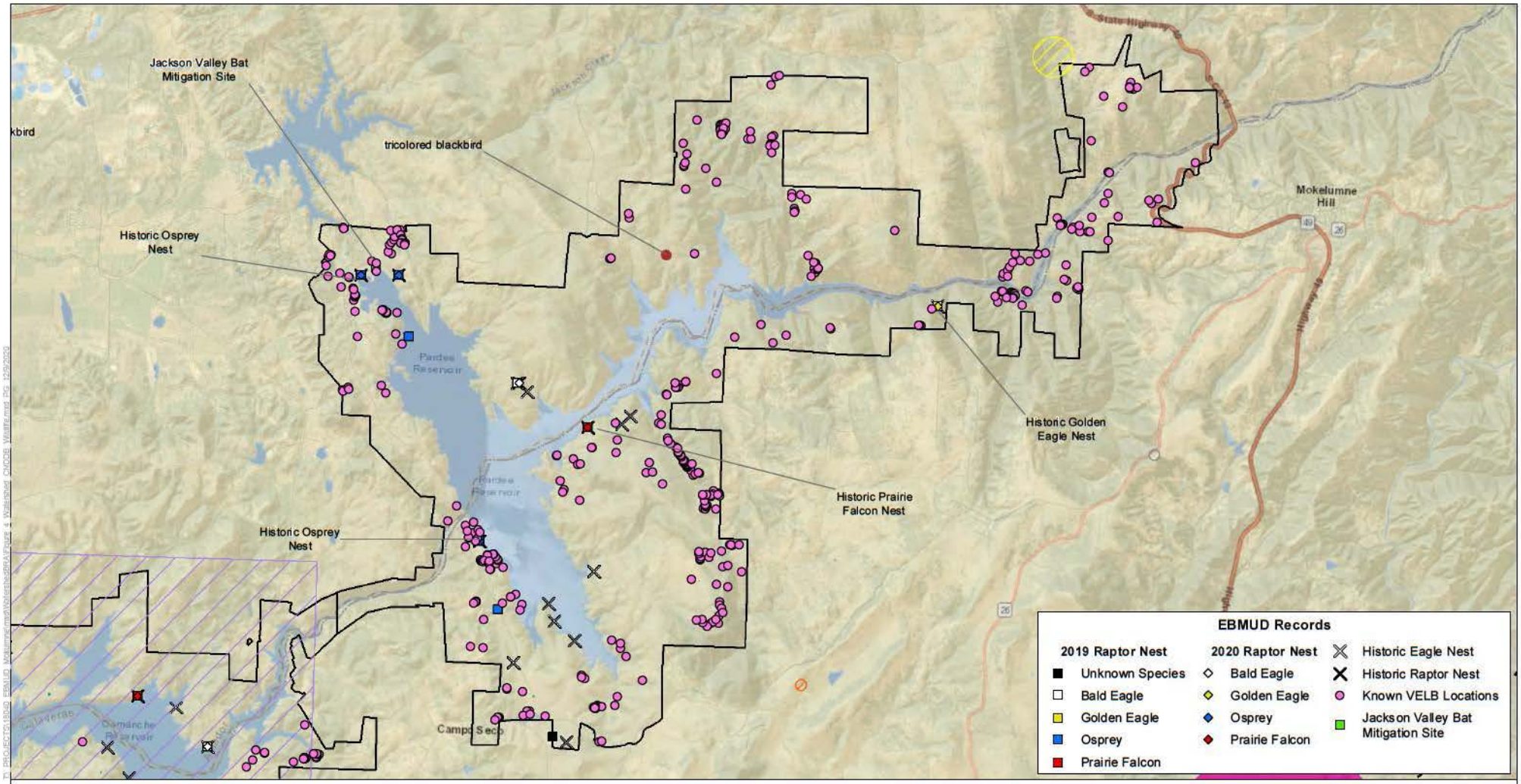

Figure 4
CNDDB Occurrences of Special-Status Wildlife within 5 miles of the Proposed Project

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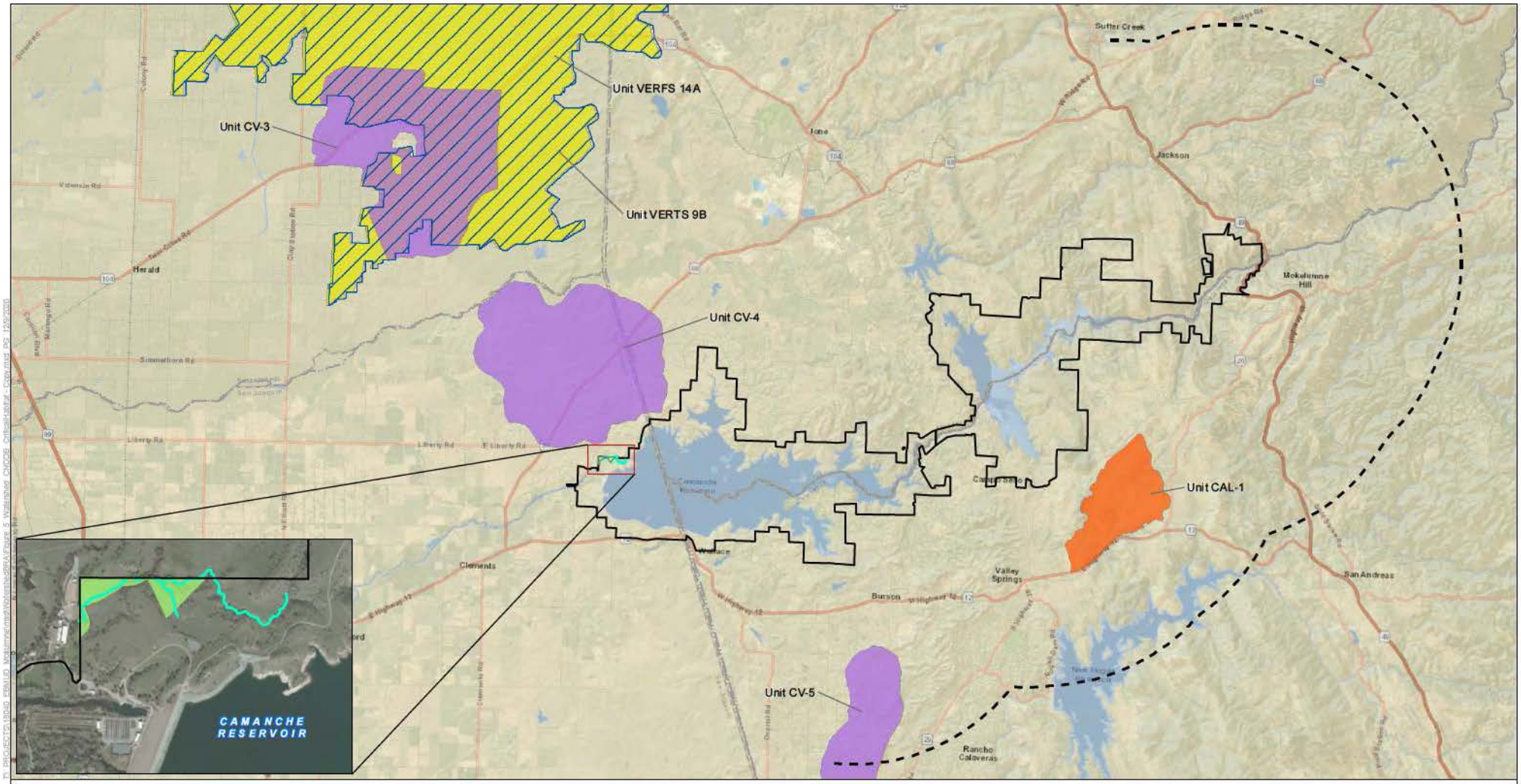

Figure 5
Critical Habitat of Federally-listed Species within 5 miles of the Proposed Project

EBMUD Mokelumne Watershed
Biological Resources Assessment

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4.2 Land Cover Types

Land cover was characterized based on aerial photography and ground-truthed during the survey effort at representative sites surveyed within the Watershed. Much of the upland portions of the Watershed is primarily blue oak-foothill pine woodland, chaparral, live oak woodland, and California annual grassland, with valley foothill riparian vegetation occurring along streams and water bodies, and ruderal land cover occurring alongside developed areas or roadsides. Eight primary land cover types, including wetland, aquatic, blue oak-foothill pine woodland, chaparral, valley foothill riparian, grassland, ruderal, and developed, occur within the Watershed and throughout the greater study area. The characteristics of each land cover type, including vegetative and wildlife associations, is described below.

4.2.1 Wetlands

Freshwater Marsh

Freshwater marsh occurs in several locations within the Watershed. Freshwater marsh most frequently occurs in association with aquatic channels in perennial riverine channels and along the edges of lacustrine (e.g., lakes, ponds, reservoirs) features in the Watershed. Dominant vegetation species include cattail (*Typha* spp.), hardstem bulrush (*Schoenoplectus acutus*), California bulrush (*S. californicus*), Chairmaker's bulrush (*S. americanus*), willow shrubs (*Salix* spp.), California mugwort (*Artemisia douglasiana*), and rabbitsfoot grass (*Polypogon monspeliensis*). Taller species grow in water depths between one to three feet and shorter species grow from one foot deep to above the water line. Small fish typically use this marsh type as refugia from larger predators, and several bird species, including great egret (*Ardea alba*), forage within freshwater marsh. Marshes along perennial streams can provide habitat for western pond turtle (*Actinemys marmorata*), California red-legged frog (*Rana draytonii*), non-native American bullfrog (*Lithobates catesbeianus*), Sierran treefrog (*Pseudacris sierra* [formerly *Hyla regilla*]), and foothill yellow-legged frog (*Rana boylii*). California tiger salamander (*Ambystoma californiense*) and western spadefoot (*Spea hammondii*) can occur within seasonally inundated marshes and, if predators (e.g., fish, bullfrogs) are absent, perennial marshes. CDFW refers to this community as "hardstem and California bulrush marshes" and has given it a rarity rank of G5S3. This alliance and all associations within it are rare and it is a sensitive natural community where undisturbed[11].

Seasonal Wetlands

Seasonal wetlands are located in several locations within topographic depressions within the Watershed. Seasonal wetlands in the study area are freshwater wetlands that are seasonally inundated or their soil saturated during the wet season (i.e., winter and spring). These features are typically charged by direct rainfall and adjacent uplands runoff, and seasonal wetlands dry completely during early spring to summer. Dominant plant species typically associated with seasonal wetlands include Greene's popcornflower (*Plagiobothrys greenei*), smooth-rayed goldfields (*Lasthenia glaberrima*), cowbag clover (*Trifolium depauperatum*), Fitch's spikeweed (*Centromadia fitchii*), peppergrass (*Lepidium nitidum*), and Oregon timwort (*Cicendia quadrangularis*). Seasonal wetlands do not support vernal pool branchiopods (e.g., fairy shrimp), because they do not possess

[11] California Department of Fish and Wildlife. 2018. Natural Communities. Available: https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Accessed: May 15, 2019.

a long enough hydroperiod (i.e., inundation duration). Several shorebird, duck, and other water fowl species forage in seasonal wetlands, as these wetlands offer resting and feeding opportunities during migrations along the Pacific flyway. Sierran treefrogs breed and forage in seasonal wetlands.

4.2.2 Aquatic (Reservoirs, Streams, Ponds, Sloughs)

Lacustrine

Lacustrine (i.e., lake) occurs in a large portion of the Watershed. Lacustrine is the dominant cover type in the Camanche and Pardee reservoirs. Lacustrine features are flooded with standing water exceeding two meters (6.6 feet) at low water and include ponds within the study area.

Floating and/or submerged vegetation is often found in lacustrine features. Duckweeds (*Lemna* spp.) and mosquito fern (*Azolla* spp.) may be found floating on the water surface, and rooted plants with floating leaves, such as smartweed (*Persicaria* sp.) may also be found. Submerged plants include algae and pondweeds (*Potamogeton* spp.).

Reservoirs and ponds provide habitat for a variety of wildlife species. Common resident birds that occur in these features include western grebe (*Aechmophorus occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), Canada goose (*Branta canadensis*), and mallard (*Anas platyrhynchos*). Many species of wintering ducks, such as the common merganser (*Mergus merganser*), northern shoveler (*Anas clypeata*), lesser scaup (*Aythya affinis*), and bufflehead (*Bucephala clangula*) typically occur in lacustrine features. Amphibian species that may be found in lacustrine features include the Sierran chorus frog, American bullfrog, Sierra newt (*Taricha sierrae*), and California toad (*Anaxyrus boreas halophilus*).

Riverine

Riverine features occur in several locations within the Watershed. Riverine features in the study area include perennial streams, intermittent streams, and ephemeral drainages. The characteristics of riverine features vary considerably. These channels provide perennial aquatic habitat for fish and wildlife, migratory corridors, and often support associated riparian habitat on riverbanks. Perennial riverine features consist of portions of the Mokelumne River[12]. Other streams draining into the reservoirs are intermittent or ephemeral, these include Carson Creek, Kreth Ditch, Murphy Creek, Rabbit Creek, Camanche Creek. Many smaller streams and drainages experience periods of low flow (i.e., intermittent streams) or no surface flow during summer and fall (i.e., ephemeral drainages).

Cattail, bulrush, and knotgrass (*Paspalum distichum*) are common in low-gradient portions of earthen channels commonly found in the Watershed. Giant horsetail (*Equisetum arvense*), perennial pepperweed (*Lepidium latifolium*), tall flatsedge (*Cyperus eragrostis*), curly dock (*Rumex crispus*), and cocklebur (*Xanthium strumarium*) are also often present.

Common, widespread bird species that use streams in the study area include black-crowned night heron (*Nycticorax nycticorax*), green heron (*Butorides virescens*), great egret, mallard, and other waterfowl. Some species of amphibians use streams for breeding, particularly American bullfrogs, which are not native to California. Native amphibians and reptiles that may be present in and around streams in the study area include Sierran treefrog, California toad, and Sierra newt, as well as the non-native red-eared slider (*Trachemys scripta elegans*).

[12] U.S. Fish and Wildlife Service. 2018. National Wetland Inventory Wetlands Mapper.

Special-status species with the potential to occur in some streams and drainages in the study area include California red-legged frog, foothill yellow-legged frog, western spadefoot, western pond turtle, and (below Camanche Dam) steelhead (*Oncorhynchus mykiss*).

4.2.3 Woodland

Blue Oak Woodland

Blue oak woodland occurs in many mid-elevation upland locations within the Watershed. It is one of the dominant vegetation communities on slopes surrounding the eastern extent up the Camanche Reservoir, and is also scattered throughout the hills at higher elevations surrounding Pardee Reservoir. Blue oak woodland communities include blue oak (*Quercus douglasii*) as the dominant or codominant tree in the canopy[13]. Some species associated with blue oak woodland include California buckeye, foothill pine (*Pinus sabiniana*), valley oak (*Quercus lobata*), and interior live oak (*Q. wislizeni*)[5]. Many of the wildlife species found in interior live oak and valley oak woodland, with some regional differences, are also found in blue oak woodland.

Blue oak woodland supports a diverse assemblage of wildlife. Amphibians associated with this land cover include, arboreal salamander (*Aneides lugubris*), and California slender salamander (*Batrachoseps attenuatus*). Typical bird species include Nuttall's woodpecker (*Picoides nuttallii*), acorn woodpecker, western scrub-jay, Steller's jay (*Cyanocitta stelleri*), Hutton's vireo (*Vireo huttoni*), oak titmouse (*Baeolophus inornatus*), violet-green swallow (*Tachycineta thalassina*), orange-crowned warbler (*Vermivora celata*), bushtit (*Psaltriparus minimus*), and dark-eyed junco (*Junco hyemalis*). Raptors, including red-shouldered hawk (*Buteo lineatus*) and Cooper's hawk (*Accipiter cooperii*) may also occur. Amphibians such as Sierra newt may be found in this land cover, particularly near streams. Small mammals common to oak woodlands include California mouse (*Peromyscus californicus*) and the non-native eastern fox squirrel (*Sciurus niger*). Larger mammals typically found in this land cover include bobcat (*Lynx rufus*), coyote (*Canis latrans*), and California mule deer (*Odocoileus hemionus californicus*).

Blue Oak-Foothill Pine Woodland

Blue oak-foothill pine is found within several mid- to higher-elevation uplands within the Watershed. This vegetation community is located on hills along the Mokelumne River upstream of Camanche Reservoir and is dominant at higher elevations along the eastern extent of Pardee Reservoir. This land cover type represents a codominant mix of blue oak and foothill pine trees. The tree canopy of this land cover type is relatively open. Associate species in blue oak-foothill pine woodland are similar to species found in blue oak woodland and include ponderosa pine (*Pinus ponderosa*), foothill pine, douglas fir (*Pseudotsuga menziesii*), canyon live oak (*Quercus chrysolepis*), and interior live oak in the overstory[14]. Shrubs commonly found in these sites include wedgeleaf ceanothus (*Ceanothus cuneatus*), whiteleaf manzanita (*Arctostaphylos viscida*), and poison oak (*Toxicodendron diversilobum*).

Many of the wildlife species found in blue oak woodland, with some regional differences, are also found in blue oak woodland. Due to the presence of more pine species, disseminators of acorns and consumers of acorns reside here. These include birds such as western scrub-jay (*Aphelocoma*

[13] Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation, 2nd Edition. California Native Plant Society Press. Sacramento, California.
[14] US Forest Service. 2008. CalVEG Vegetation Descriptions: Northern Ecological Providence Cone 3. California.

californica), acorn woodpecker (*Melanerpes formicivorus*), mountain quail (*Oreortyx pictus*); and mammals such as Western gray squirrel (*Sciurus griseus*), California mule deer and black bear (*Ursus americanus*). Amphibians and reptiles that utilize montane hardwood include California slender salamander, western fence lizard (*Sceloporus occidentalis*), and California mountain kingsnake (*Lampropeltis zonata*)[15].

Interior Live Oak Woodland

Interior live oak forest is found in several low- to mid-elevation upland portions of the Watershed. This vegetation community is located on hillslopes along the eastern half of the Camanche Reservoir and scattered in small clusters along the Pardee Reservoir. This land cover type is dominated by interior live oak trees that form various degrees of canopy cover ranging from open to nearly entire. Other associate tree species observed in this land cover type include blue oak, valley oak, foothill pine, California bay, and California buckeye. The understory typically consists of shrubs and/or California annual grassland species when the canopy is relatively open. Other species found in this land cover type include coyote brush (*Baccharis pilularis*), California blackberry (*Rubus ursinus*), poison oak, California sagebrush (*Artemisia californica*), goldback fern (*Pentagramma triangularis*), and California wood fern (*Dryopteris arguta*). Many of the wildlife species found in other oak woodlands, with some regional differences, are also found in interior live oak woodland.

Ponderosa Pine Woodland

A relatively small area of approximately 1.7 acres of ponderosa pine woodland is located within the high elevation upland portion of the eastern extent of the Watershed, immediately adjacent to Highway 49. Ponderosa pine woodland is the dominant species in this community, which includes other typical codominant species such as incense cedar (*Calocedrus decurrens*), douglas fir, and interior live oak. The herbaceous layer and wildlife supported are similar to the surrounding blue oak-foothill pine woodland. CDFW refers to this community as "ponderosa pine forest" and has given it a rarity rank of G5S4. This alliance and all associations within it are rare and it is a sensitive natural community where undisturbed[11].

4.2.4 Chaparral

Mixed Chaparral

Mixed chaparral occurs along mid to high elevation, xeric slopes within the Watershed. Mixed chaparral is located north of the eastern portion of Camanche Reservoir through the easternmost extent of the maintenance area. The mixed chaparral vegetation community often has a mixture of *Ceanothus* species as a dominant feature with a mixture of other chaparral shrubs such as silktassel (*Garrya* sp.), manzanitas (*Arctostaphylos* sp.), and hoary coffeeberry (*Rhamnus tomentella*). A variety of wildlife species use this shrub-dominated habitat. Deer are strongly associated with chaparral communities; however, rabbits, and birds often within this land cover.

Chamise-Redshank Chaparral

Chamise-redshank chaparral is located along mid- to high-elevation, xeric slopes and ridges throughout the Watershed. This vegetation community is found along the Mokelumne River

[15] CA Department of Fish and Wildlife. California Wildlife Habitat Relationship Systems: Montane Hardwood.

upstream of the Camanche Reservoir to the easternmost extent of the maintenance area. Chamise (*Adenostoma fasciculatum*) is a dominant shrub; other associated species include whiteleaf manzanita, California buckwheat (*Erigonum fasciculatum*) and squirreltail (*Elymus elymoides*)[12]. Canyon live oak, gray pine, and ponderosa pine often appear in proximity to this vegetation community, as is seen within the Watershed. Wildlife species found in this habitat type are also found in mixed chaparral. CDFW refers to this community as "redshank chaparral" and has given it a rarity rank of G4S4. This alliance and all associations within it are rare and it is a sensitive natural community where undisturbed [11].

Ione Manzanita Chaparral (= Ione Chaparral)

Ione manzanita chaparral (Figure 5) occurs in small patches between Camanche and Pardee reservoirs north of the Mokelumne River within the Watershed. It also occurs outside of the Watershed south and north of the region between the reservoirs, and southeast of Pardee Reservoir. Ione manzanita chaparral is similar to chamise-redshank chaparral species composition and structure, but it is dominated by Ione manzanita. Approximately 94 acres of Ione manzanita chaparral is located within the Watershed. CDFW refers to this community as "Ione manzanita chaparral" and has given it a rarity rank of G1S1. This alliance and all associations within it are rare and it is a sensitive natural community where undisturbed[11].

4.2.5 California Annual Grassland

California annual grassland is a common land cover type in the Watershed. This land cover is dominant throughout the hillslopes of the Camanche Reservoir, and becomes codominant with woodland and chaparral vegetation communities at higher elevations in the eastern extent of the maintenance area. Dominant vegetation species in this land cover generally include ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), wild oats (*Avena* spp.), Italian rye (*Festuca perennis*), and barley (*Hordeum murinum*). Associated herbaceous species includes forbs such as prickly lettuce (*Lactucca serriola*), Italian thistle (*Carduus pycnocephalus*), bull thistle (*Cirsium vulgare*), bristly ox-tongue (*Helminthotheca echioides*), shortpod mustard (*Hirschfeldia incana*), yellow star thistle (*Centaurea solstitialis*), and stinkwort (*Dittrichia graveolens*).

A variety of wildlife species use annual grasslands for breeding and/or foraging. Reptiles that breed in annual grassland include western fence lizard and Valley garter snake (*Thamnophis sirtalis fitchi*)[16]. Mammals typical of this habitat include California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), and coyote[6]. Annual grasslands provide foraging habitat for raptors, including barn owl (*Tyto alba*), great horned owl (*Bubo virginanus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). Special-status species typically associated with grasslands include California tiger salamander if near a seasonal wetland, and burrowing owl (*Athene cunicularia*).

[16] Kie, J.G. 1988. Urban. In A Guide to Wildlife Habitats of California. 1988. Mayer, K.E. and W.F. Laudenslayer, eds. State of California, Resources Agency, Department of Fish and Game Sacramento, CA. Updated by CWHR staff, April 2005.

4.2.6 Ruderal

Ruderal vegetation is found in multiple upland locations within the Watershed and is often associated with past disturbances (e.g., existing road-cuts, residential development). This land cover is found near developed areas, along Highway 49 and other roads, and near the Camanche Reservoir Dam. This vegetation type is characterized by early colonizing species of disturbed and degraded areas. Community composition includes non-native annual grasses such as barley, ripgut brome, and red brome (*Bromus madritensis* ssp. *rubens*). Other species present within this community type include non-native, often invasive thistle species such as spiny sow's thistle (*Sonchus asper*), milk thistle (*Silybum marianum*), star thistle, and Italian thistle. EBMUD actively manages ruderal vegetation to reduce noxious species where they occur.

Due to sparse vegetative cover and frequent disturbance, ruderal habitats provide limited value to wildlife. Species such as mourning dove (*Zenaida macroura*) and killdeer (*Charadrius vociferus*) forage and nest in this community type.

4.2.7 Developed (includes landscaped areas)

Developed areas are found at limited locations within the Watershed. The primary developed areas include the western margins of the Pardee and Camanche Reservoirs, where dams, small towns, recreational trails, access roads, camp grounds exist. Developed cover includes paved and unpaved roads, trails, buildings, electric transmission infrastructure, median strips, lawns, yards, and landscaped parks. This cover type consists of a mosaic of different vegetation types[17]. Species composition and vegetative cover, where vegetated, in this habitat varies. A variety of bird species may use this habitat, including mourning dove, Anna's hummingbird (*Calypte anna*), American robin (*Turdus migratorius*), western scrub jay, northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), wrentits (*Chamaea fasciata*), bushtits, and oak titmouse[7]. Common wildlife in these areas includes raccoon (*Procyon lotor*), opossum (Didelphis virginiana), and striped skunk[7]. Mule deer may also be found in this habitat in rural settings. Burrowing owl and other raptors forage over areas of low vegetation, such as landscaped areas and mowed lawns.

4.3 Potential Jurisdictional Features

4.3.1 Wetlands and other Waters of the U.S./Waters of the State

Wetlands and other waters of the U.S./waters of the State generally include most features described above under the "aquatic" and "wetland" land cover types. The USACE uses the term *waters of the United States* as broad term that refers to areas subject to federal regulation under CWA Section 404 that includes wetlands and non-wetland (other waters) features. The information presented in this analysis reflects preliminary research and field reconnaissance efforts, and it does not represent the results of a jurisdiction determination verified by USACE. Wetlands that exhibit hydric soils, wetland hydrology, and dominance of hydrophytic vegetation were identified within the study area and include freshwater marsh and seasonal wetland.

Inland non-wetland waters of the U.S. are perennial or seasonal water features that include lakes, rivers, streams, drainages, ponds, and other surface water features. These features exhibit an

[17] McBride, J.R and C. Reid. 1988. Urban. In A Guide to Wildlife Habitats of California. 1988. Mayer, K.E. and W.F. Laudenslayer, eds. State of California, Resources Agency, Department of Fish and Game Sacramento, CA.

Ordinary High Water Mark but lack one or two of the three wetland parameters required for a feature to be considered a wetland (33 C.F.R. 328.4). Non-wetland waters of the U.S. in the study area include the Mokelumne River, Pardee Reservoir, Camanche Reservoir, Carson Creek, Kreth Ditch, Murphy Creek, Rabbit Creek, Camanche Creek, unnamed ephemeral streams along gulches and other minor drainages (Figure 1).

4.3.2 Streams and Riparian Habitat Regulated under California Fish and Game Code

CFGC Section 89.1 defines waters of the state as "any surface water or groundwater, including saline waters, within the boundaries of the state." Activities that substantially change or use any material from the bed, channel, or bank of any lake, river, or stream; divert or obstruct the natural flow of any lake river, or stream; or deposit debris, waste, or other materials that could pass into any lake, river, or stream require the project proponent to enter into a Lake or Streambed Alteration Agreement with CDFW under Section 1602 of the CFG Code.

4.3.3 Sensitive Natural Communities and other California Department of Fish and Wildlife-Designated Sensitive Habitat

Special-status or sensitive natural communities are biotic communities that are limited in distribution either statewide or within a region or county. CDFW's Vegetation Classification and Mapping Program (VegCAMP) maps and classifies the vegetation of California and determines the rarity of limited vegetation types. Vegetation types with a state rarity ranking of S1 through S3 in CDFW's List of Vegetation Alliances and Associations (Natural Communities List)[16] are considered to be highly imperiled, and impacts on high-quality occurrences of these vegetation types are typically considered significant under CEQA.

Sensitive natural communities within the study area include riparian, wetland, and woodland plant communities. Riparian woodland communities immediately adjacent to riverine features are considered sensitive because of widespread habitat loss and their habitat value to a diverse community of plant and wildlife species[6]. Wetlands represent a sensitive community due to their limited distribution and importance to special-status plant and wildlife species. Freshwater marsh (hardstem and California bulrush marshes), ponderosa pine woodland (ponderosa pine forest), chamise-redshank chaparral (redshank chaparral), and Ione manzanita chaparral are defined as *sensitive* in the Natural Communities List.

4.4 Special-Status Species

4.4.1 Plants

Seventeen special-status plant species were identified by the background data review as potentially occurring within the Watershed. Eight of these special-status plant species were determined to potentially occur within in the Watershed based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices. The other eight plant species are not expected to occur or have no potential to occur either due to the lack of suitable habitat, the Watershed is outside of the species range, ongoing maintenance practices preclude species presence, or no extant occurrence records are known from the region (Appendix B). Special-status plant species with potential to occur within the Watershed are described below.

Ione manzanita (*Arctostaphylos myrtifolia*) – Federally Threatened, California Rare Plant Rank (CRPR) 1B.2

Ione manzanita is a shrub in the Ericaceae family with small bell-shaped white flowers. It is found in acidic sandy or clay soils (specifically Ione clay) in chaparral and woodland land cover in the Sierra Nevada foothills limited to Amador and Calaveras counties. It typically has 50 to 80 percent cover and blooms November to March. Suitable habitat (chaparral and woodland on Ione clay) is present along the eastern portion of Camanche Reservoir and area between Camanche and Pardee Reservoirs. There are five CNDDB occurrence records within five miles of the Watershed. Six of these records are from 1999 or earlier, but these CNDDB records are presumed extant[6]. Maintenance activities affecting suitable habitat within the Watershed have potential to impact this species if present.

Big-scale balsamroot (*Balsamorhiza macrolepis*) – CRPR 1B.2

Big-scale balsamroot is a perennial herbaceous species in the sunflower family with golden-yellow flowers. It is found on hillslopes in valley grassland and foothill woodland communities from central to northern California typically below 4,590 feet amsl. Suitable chaparral, grassland, and woodland habitat is present within the Watershed adjacent to Pardee Reservoir and further east. There is one CNDDB occurrence record within five miles of the Watershed, but the record is located outside of the maintenance area[6]. Maintenance activities affecting suitable habitat within the Watershed have potential to impact this species if present.

Hoover's calycadenia (*Calycadenia hooveri*) – CRPR 1B.3

Hoover's calycadenia is an annual herbaceous species in the sunflower family. This species is found in cismontane woodland and foothill grassland on exposed, rocky barren soil. There are two CNDDB occurrence records within five miles of the Watershed. Marginal habitat exists in grasslands within the Watershed. Maintenance activities affecting suitable habitat have potential to impact this species if present.

Ione buckwheat (*Eriogonum apricum var. apricum*) – Federally and State Endangered, CRPR 1B.1

Ione buckwheat is a perennial herbaceous species in the Polygonaceae family with clusters of small white-pink flowers. It is found on Ione clay soils in chaparral openings in Sacramento, San Joaquin and Amador Counties from 260 to 670 feet amsl. There are five CNDDB occurrence records within five miles of the Watershed, four of which are presumed extant. Suitable chaparral habitat is located on hills along the northeastern extent of the Camanche Reservoir[6]. Maintenance activities affecting suitable habitat within the Watershed have potential to impact this species if present.

Boggs Lake hedge-hyssop (*Gratiola heterosepala*) –State Endangered, CRPR 1B.2

Boggs Lake hedge-hyssop is an annual herbaceous species in the Plantaginaceae family. This species is found in clay soils on lake margins in the Sierra Nevada foothills. There are three presumed extant CNDDB occurrences within five miles of the maintenance area. Clay soils in marshes along lake margins occur throughout the maintenance area around the Camanche and Pardee reservoirs and associated streams. Maintenance activities affecting suitable habitat within the Watersheds have potential to impact this species if present.

Parry's horkelia (*Horkelia parryi*) – CRPR 1B.2

Parry's horkelia is a perennial herbaceous species in the Rosaceae family white flowers in groups of five to ten with yellow centers. It is found in open chaparral and foothill woodland habitat Sierra Nevada foothill region typically from 260 to 2,950 feet amsl. There are seven CNDDB occurrence records within five miles of the Watershed. Chaparral habitat is located on hills along the northeastern extent of the Camanche Reservoir[6]. Maintenance activities affecting suitable habitat within the Watershed have potential to impact this species if present.

Patterson's navarretia (*Navarretia paradoxiclara*) – CRPR 1B.3

Patterson's navarretia is an annual herbaceous species in the Polemoniaceae family. It is found in meadows and seeps in serpentinite openings in the Sierra Nevada Foothills. There are four CNDDB occurrences within five miles of the Watershed. Marginal habitat, vernally mesic openings, occurs within limited portions of the Watershed. Maintenance activities in this habitat have the potential to impact the species if present.

Prairie wedge grass (*Sphenopholis obtusata*) – CRPR 2B.2

Prairie wedge grass is a perennial grass species in the Poaceae family with a compact erect ascending inflorescence, and a flat, jagged-tipped leaf blade. It is found in foothill woodland and wetland-riparian meadows in the north-central to southern California region typically from 780 to 9,420 feet amsl, and is potentially located elsewhere outside of California. There are three CNDDB occurrence records within five miles of the Watershed. These are located at higher elevations north of the Pardee Reservoir. Maintenance activities within suitable habitat have potential to impact this species if present.

4.4.2 Wildlife

Thirty-two special-status wildlife species were identified by the background data review as potentially occurring within the greater region of the Watershed. Of these species, 24 special-status wildlife species were determined to potentially occur within the Watershed based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices. The other eight wildlife species are not expected to occur or have no potential to occur due to the lack of suitable habitat, the Watershed is outside of the species range, ongoing maintenance practices preclude species presence, and/or no extant occurrence records are known from the region (Appendix B). Special-status wildlife species with potential to occur within the Watershed are discussed by taxon group (i.e., invertebrate, amphibian, reptile, bird, mammal) below. Special-status fish species are discussed separately in *Section 4.4.3*.

Invertebrates

Seven special-status invertebrate species were identified by the background data review as potentially occurring within the greater region of the Watershed. Two of these species were determined to potentially occur within the Watershed based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices.

Crotch Bumble Bee (*Bombus crotchii*) – State Candidate Endangered

Crotch bumble bee nests in subterranean rodent burrows, and occasionally in brush piles and cavities in trees. This species is highly susceptible to insecticides and indirectly to herbicides[18]. Crotch bumble bee requires abundant wildflowers as nectar sources. There is one CNDDB occurrence record of the species within five miles of the Watershed, near Highway 26[6]. Suitable habitat for Crotch bumble bee is present in rodent burrow complexes within grasslands with nearby fields of wildflowers, away from the application of herbicides and insecticides.

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) – Federally Threatened

Valley elderberry longhorn beetle (VELB) is completely dependent upon its host plant, blue elderberry, which is commonly found in riparian forests and adjacent uplands in the Central Valley and adjacent foothills[19]. Adult VELBs feed on elderberry foliage and are present from March through early June, during which the adults mate. Females lay their eggs in bark crevices or at the junction of stem/trunk or leaf petiole/stem. After hatching, the larva burrows into the stem to feed and develop into pupa and adult. After transforming into an adult, it chews an exit hole and emerges. The life cycle of VELB ranges from 1 to 2 years[20]. Five CNDDB occurrence records of the species occur within the study area from San Joaquin County[6], and EBMUD has identified approximately 806 elderberry shrubs within the Watershed[23].

Amphibians

Five special-status amphibian species were identified by the background data review as potentially occurring within the greater region of the maintenance area. Four species were determined to be present or potentially occur within the Watershed based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices.

California Tiger Salamander (*Ambystoma californiense*) (Central Valley Distinct Population Segment [DPS]) – Federally and State Threatened

California tiger salamander ranges from Yolo County to Tulare County and San Luis Obispo County in the respective Central Valley and Coast Range [both considered the Central Valley Distinct Population Segment (DPS)]. Two other DPS of the species also occur in Sonoma and Santa Barbara Counties. California tiger salamander spends most of the year underground within Botta's pocket gopher or California ground squirrel burrows, typically in grasslands. During the late fall to winter, adults migrate to vernal pools, ephemeral stock ponds, and other suitable aquatic habitat to breed and deposit eggs. As the pools and ponds begin to dry, adults and hatched metamorphs migrate back to the rodent burrows in the surrounding uplands. Proximity to vernal pools is generally the limiting habitat factor; therefore, the species has potential to occur within grasslands and other natural (i.e., undeveloped) upland land cover that support rodent burrows within 1.3 miles of suitable aquatic

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[18] A Petition to the State of California Fish and Game Commission to List: The Crotch bumble bee (*Bombus crotchii*), Franklin's bumble bee (*Bombus franklini*), Suckley cuckoo bumble bee (*Bombus suckleyi*), and western bumble bee (*Bombus occidentalis occidentalis*) as Endangered under the California Endangered Species Act. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=161902. Accessed: December 23, 2020.

[19] U.S. Fish and Wildlife Service. 1999. Conservation Guidelines for the Valley Elderberry Longhorn Beetle. Sacramento Fish and Wildlife Office: Sacramento, CA. Revised July 9.

[20] Barr, C. 1991. The Distribution, Habitat, and Status of the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). Sacramento, CA.

breeding habitat. Suitable freshwater marsh habitat is located within the Watershed. Vernal pools are not located within the Watershed, but they do occur in relatively close proximity.

There are 47 records of this species within five miles of the Watershed located in San Joaquin, Amador and Calaveras counties[6]. This species has been observed at multiple locations by EBMUD biological staff in Calaveras and Amador counties adjacent (north, south, and west) to the Camanche Reservoir and further downstream in San Joaquin County south of the Mokelumne River[21]. Suitable habitat occurs within grasslands and other undeveloped upland land cover with ground squirrels or gophers within 1.3 miles of suitable aquatic habitat in the Watershed.

Foothill Yellow-legged Frog (*Rana boylii*) – State Endangered and California Species of Special Concern

Foothill yellow-legged frog inhabits permanent freshwater streams and rivers in lowlands and foothills in the Coast Ranges from the Oregon border south to Ventura County, and in the northern Sierra Nevada Foothills south to Tulare County. Disjunct populations are located in northern Sutter County and eastern Los Angeles County. This species is a highly aquatic frog that rarely strays from its aquatic habitat, which is frequently bordered by dense riparian shrub and/or emergent vegetation. Foothill yellow-legged frog typically breeds in early spring and lays eggs from mid-April to early July, which hatch in five to 37 days depending on water temperature. Resulting tadpoles metamorphose in three to four months, usually in July through October, and typically migrate upstream from their hatching site.

There are two records of this species within five miles upstream of the Watershed, both of which are extirpated, located in Calaveras County[6]. Suitable habitat occurs within perennial streams and rivers, as well as neighboring riparian vegetation and emergent marsh vegetation in the Watershed.

California Red-legged Frog (*Rana draytonii*) – Federally Threatened and California Species of Special Concern

California red-legged frog inhabits freshwater ponds, streams, other aquatic habitats, and immediately adjacent upland land cover. This species has potential to occur within stock ponds, streams, and riparian habitat; as wells as migrate through all undeveloped types of land cover within 1.7 miles of suitable aquatic habitat. The presence of bullfrogs and mosquito fish (*Gambusia affinis*) in aquatic habitat seriously reduces but does not preclude the potential for California red-legged frog to occur in the Watershed.

There is one record of this species within five miles southeast of the Watershed located south of Pardee Reservoir in Calaveras county[6]. Suitable habitat occurs within perennial and intermittent ponds, streams, and rivers, as well as neighboring emergent marshes and adjacent vegetation in the Watershed.

Western Spadefoot (*Spea hammondii*) – California Species of Special Concern

Western spadefoot is a small toad that lives underground during the dry season and inhabits seasonal wetlands, and ephemeral drainages during the rainy season. This species occurs throughout much of the Central Valley, from Shasta County to Kern County, and along Central and Southern California Coast. This species has potential to occur within freshwater marshes, ephemeral drainages, and nearby undeveloped upland areas in the western half of the Watershed.

[21] EBMUD. 2018. Special-status Species Observation GIS Data. Lodi, CA.

There are 17 records of this species within five miles of the Watershed (south and west of Camanche Reservoir) located in San Joaquin and Calaveras counties[6]. This species has been observed by EBMUD biological staff in Calaveras County near Camanche Reservoir, in Amador County near the eastern extent of Pardee Reservoir, and in San Joaquin County south of the Mokelumne River[22]. Suitable habitat occurs within seasonal wetland, and ephemeral drainages, as well as neighboring grasslands with rodent burrows in the Watershed.

Reptiles

Two special-status reptile species were identified by the background data review as potentially occurring within the greater region of the maintenance area. One species were determined to be present or potentially occur within maintenance area based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices.

Western Pond Turtle (*Actinemys* [=*Emys*] *marmorata*) – California Species of Special Concern

Western pond turtle is an olive-drab turtle that inhabits a wide variety of water bodies, including ponds, marshes, rivers, streams, and irrigation canals. This species can tolerate full-strength sea water for a short period of time, but normally is found in freshwater. Western pond turtle females migrate away from their water bodies into surrounding uplands, where they construct underground nests and lay eggs from April to August.

There are six records of this species within five miles of the Watershed, one of which is extirpated, located in San Joaquin and Amador counties[6]. This species has been observed by EBMUD biological staff in Calaveras and Amador counties near the Watershed in the region surrounding the Camanche and Pardee reservoirs[23]. Suitable habitat occurs within the Watershed at ponds, marshes, rivers, stream, and irrigation ditches, as well as adjacent uplands.

Birds

Thirteen special-status bird species were identified by the background data review as potentially occurring within the greater region of the maintenance area. Twelve species were determined to be present or potentially occur within maintenance area based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices.

Tricolored Blackbird (*Agelaius tricolor*) – California Species of Special Concern

Tricolored blackbird is a permanent resident of the Central Valley but breeds in a couple scattered coastal locations from Marin County to San Diego. This species nests colonially, with a minimum size of 50 pairs, in dense marsh vegetation such as cattails and bulrush. There are 6 records of this species within five miles of the Watershed located in San Joaquin County[6]. This species has been observed by EBMUD biological staff within the Watershed in Calaveras County near Camanche Reservoir and Amador County near Pardee Reservoir[20]. This species could occur in the Watershed within or immediately adjacent to marshes and wetlands with emergent vegetation.

[22] Hunter, C. Supplemental species observation information via Word comments by C. Hunter and emailed from C. Potter to J. Thomas. October 11, 2019.
[23] Jones, J. Personal communication with E. Christensen. Dec. 18, 2018; and Dec. 15, 2020.

Cooper's Hawk (*Accipiter cooperii*) – Migratory Bird Treaty Act

Cooper's hawk is found throughout California, except high altitudes in the Sierra Nevada. This species winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range. Cooper's hawk inhabits a wide variety of habitats from riparian woodlands, foothill pine-oak woodlands, and mixed coniferous forest. No species records are known within five miles of the Watershed[6]. Cooper's hawk has potential to nest in the Watershed within or near forests and woodlands.

Golden Eagle (*Aquila chrysaetos*) – Fully Protected

Golden eagle is a large raptor that forages over a variety of open habitats, including grasslands, chaparral, and oak woodlands. This species nests on cliffs, escarpments, or tall trees on ridges or overlooking open areas. No species records are known within five miles of the Watershed[6], but this species has been observed by EBMUD biological staff on several occasions. A historic nest site has been documented by EBMUD biological staff near the south shore of Pardee Reservoir, and recent nesting has been documented by EBMUD biological staff on cliffs near the eastern portion of the Watershed[23]. Golden eagle is expected to continue to nest in the eastern portion of the Watershed within suitable cliffs.

Great Blue Heron (*Ardea herodias*) – Migratory Bird Treaty Act

Great blue heron is found in many freshwater and calm intertidal habitats throughout the state, and nests primarily in or near suitable habitat except high elevations in the Sierra Nevada and Cascade Ranges. No species records are known within five miles of the Watershed[6]. Great blue heron has potential to nest within the trees near freshwater and brackish waterbodies, as well as along reservoirs in the Watershed area.

Burrowing Owl (*Athene cunicularia*) – California Species of Special Concern

Burrowing owl is a small owl that lives in burrows created by ground squirrels and pocket gophers. This species forages over grassland, open areas, and low vegetation for small mammals, insects, and lizards and is most active at dawn and dusk. Burrowing owl ranges throughout lowland portions of California, but is absent from the southern coastal areas of the state. There are no occurrence records within the five miles of the Watershed in San Joaquin County[6]; however, this species has been observed only in winter by EBMUD staff within the Watershed by the Camanche and Pardee Reservoirs and south of the Watershed in the Sierra Nevada Foothills[22]. Therefore, this species is considered present within the Watershed and has potential to occur at maintenance sites with grassland and rodent burrows in the Watershed.

Swainson's Hawk (*Buteo swainsoni*) – State Threatened

Swainson's hawk forage in grasslands, grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Vineyards, orchards, rice, and cotton crops are generally unsuitable for foraging because of vegetation density[24]. The majority of Swainson's hawk winter in South America, although some winter in the United States. Swainson's hawk arrives in California in early March to establish nesting territories and breed[25]. They usually nest in large, mature trees. Most nest sites (87%) in the

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[24] California Department of Fish and Game. 1993. 5-Year Status Review: Swainson's hawk (*Buteo swainsoni*). Sacramento, CA.

[25] California Department of Fish and Game. 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California. Sacramento, CA.

Central Valley are found in riparian habitats[26], primarily because more trees exist in such habitat. Swainson's hawk also nest in mature roadside trees and in isolated trees in agricultural fields and pastures. This species breeds and nests from March through August[8].

There are 13 records of this species within five miles of the Watershed located in San Joaquin County[6]. This species has been primarily observed in the western portion of the Watershed near the Mokelumne River and Camanche Reservoir[6]. This species could nest in or immediately adjacent to tree groves and riparian woodland near marshes, sloughs, ponds, lakes, and reservoirs in the Watershed.

Prairie Falcon (*Falco mexicanus*) – Migratory Bird Treaty Act

Prairie falcon is a large falcon that forages primarily for small birds and mammals over open habitats, including open hills around farmland, near lakes and reservoirs, plains, prairies and deserts. This species nests on a ledge of a cliff or dirt bank and rarely in trees. The range of prairie falcon encompasses all of the arid west from Southern Canada through Mexico. One species record occurs within five miles of the Watershed in the vicinity of Camanche Reservoir in Calaveras[6]. This species has been observed by EBMUD biological staff in the Watershed in the region surrounding Camanche and Pardee reservoirs[21, 23]. EBMUD biological staff observed evidence of nesting by this species at two locations in the Watershed[21]. This species is expected to continue to nest at these locations and could nest elsewhere within the Watershed.

American Peregrine Falcon (*Falco peregrinus anatum)* – State Fully Protected

American peregrine falcon is a large falcon that forages on both large and small birds and occasionally mammals over open habitats, including open hills, cliffs, and often near water. The range of this species includes the northwest coast of North America and in some temperate regions and migrate as far as South America. This species nests on cliff ledges, hollow tree snags, and on ledges of buildings, bridges and other structures. No CNDDB occurrence records occur within five miles of the Watershed[6], but EBMUD observation records of the species foraging in winter are known from north end of Pardee Reservoir. This species has not been observed nesting within the Watershed. The species is known to occur (observed by EBMUD biological staff) within the Watershed[20, 23]. Suitable foraging habitat (open areas) occurs throughout the Watershed and ostensibly suitable nesting substrate is present within the eastern portion of the Watershed.

Bald Eagle (*Haliaeetus leucocephalus*) – State Endangered and Fully Protected

Bald eagle is a relatively large sea eagle that forages for prey, typically fish, over open marine and freshwater along coasts, lakes, and reservoirs. Within California this species primarily breeds in the northern portion of California near the Cascades Range, but past observations of nesting pairs are at Los Vaqueros, San Pablo, and Briones reservoirs are documented. One CNDDB occurrence record is known from New Hogan Reservoir within five miles of the Watershed[6]. This species was observed on December 15, 2020 by Horizon biological staff at the south shore of the Camanche Reservoir, and at other times by EBMUD biological staff in Calaveras and Amador counties within the Watershed in the region surrounding Camanche and Pardee reservoirs[21]. EBMUD biological staff have documented up to five nests belonging to bald eagles and these species regularly nest near both reservoirs[21]. Suitable

[26] Estep, J. A. 1989. In prep. Biology, movements and habitat relationships of the Swainson's Hawk in the Central Valley of California, 1986-87. Report for the California Department of Fish and Game, Nongame Bird and Mammal Section.

foraging habitat is present within Camanche and Pardee reservoirs, and suitable nesting substrate is present within the Watershed.

Yellow-breasted Chat (*Icteria virens*) – California Species of Special Concern

Yellow-breasted chat is a warbler that primarily preys upon insects and breeds throughout most of California, except for the northern Sierra Nevada and Cascades ranges. This species inhabits and nests within riparian scrub thickets of willow and brush tangles near water. One CNDDB occurrence record is known from the Mokelumne River within five miles of the Watershed[6]. Suitable nesting substrate (riparian thickets) occur in the Watershed.

Loggerhead Shrike (*Lanius ludovicianus*) – California Species of Special Concern

Loggerhead shrikes occur in open habitats with scattered trees, shrubs, posts, fences, utility lines, or other types of perches. Nests are built in trees or shrubs with dense foliage and are usually hidden well. Loggerhead shrikes search for prey from perches and frequently impale their prey on thorns, sharp twigs, or barbed-wire. The nesting period for loggerhead shrikes is March through June[27]. No species occurrence records occur within five miles of the Watershed[6]. This species was observed by EBMUD biological staff in two locations within the Watershed[22]. Suitable nesting trees and shrubs occur in the Watershed.

Osprey (*Pandion haliaetus*) – Migratory Bird Treaty Act

Osprey is a large raptor that forages for fish over marine areas, lakes, ponds, and reservoirs. It nests in large trees, power poles, cliffs, and other structures near water. No CNDDB occurrence records are known to occur within five miles of the maintenance area[6], but EBMUD biological staff have observed the species in Calaveras, Amador, and San Joaquin counties within the Watershed in the region surrounding Camanche and Pardee reservoirs[21]. Osprey have been observed by EBMUD biological staff regularly nesting near both reservoirs and up to nine nests have been observed annually[21]. This species is expected to continue to nest at these locations and could nest elsewhere within the Watershed.

Bank Swallow (*Riparia riparia*) – State Threatened

Bank swallow is a small compact swallow that forages over in open lowland areas such as fields, marches, and ponds. Breeding habitat is restricted to northeastern California and portions of the Sacramento Valley. This species inhabits banks and bluffs along rivers and lakes in large colonies and forges on insects. One occurrence record of the species occurs within five miles of the Watershed in San Joaquin County[6]. This occurrence is located along the Mokelumne River downstream of the Camanche Reservoir Dam. Suitable habitat occurs adjacent to the reservoirs and in river banks in the Watershed.

Mammals

Two special-status mammal species were identified by the background data review as potentially occurring within the greater region of the maintenance area. Both species were determined to be present or potentially occur within maintenance area based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices.

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[27] Zeiner, D. C., W. F. Laudenslayer, Jr., and K. E. Mayer (eds.). 1990. California's Wildlife. Volume II: Birds. California Statewide Wildlife Habitat Relationships System. Sacramento, CA: California Department of Fish and Game.

Townsend's Big-Eared Bat (*Corynorhinus townsendii*) – California Species of Special Concern and Western Bat Working Ground High Priority

Townsend's big-eared bat occurs throughout California in a wide variety of habitats ranging from sea level to 10,800 feet amsl from Del Norte County to Santa Barbara County. This species is typically associated with coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Species distribution is also strongly correlated with availability of caves or cave-like roosting habitat. Townsend's big-eared bats have been observed utilizing buildings, bridges, rock crevices, and hollow trees as roost sites[28]. Trees isolated from human development within the Watershed provide suitable roosting habitat. Lacustrine, woodland, and marsh areas, and to some extent the adjacent open (grassland and ruderal) cover, provide foraging habitat. There is one CNDDB occurrence record within five miles southeast of the Watershed[6].

American Badger (*Taxidea taxus*) – California Species of Special Concern

American badgers occur in a wide variety of open, arid habitats but are most commonly associated with grasslands, savannas, mountain meadows, and open areas of desert scrub[29]. In California, American badgers occur throughout the state except in humid coastal forests of northwestern California in Del Norte and Humboldt Counties[30]. The primary factor that determines whether habitat is suitable for American badger is the presence of a sufficient prey-base, typically consisting of California ground squirrel and/or pocket gopher. No CNDDB occurrences have been recorded within five miles of the Watershed[6]. Suitable habitat is present in portions of the Watershed that lack dense vegetation and tree cover.

4.4.3 Fish

Three special-status fish species were identified by the background data review as potentially occurring within the greater region of the Watershed. Two of these special-status fish species were determined to potentially occur within Watershed based on land cover, aerial photography, current representative site conditions, and ongoing maintenance practices. The other fish species is not expected to occur or have no potential to occur because the Watershed is located outside of the species' range (Appendix C). Special-status fish species with potential to occur within the Watershed are discussed below.

Steelhead (*Oncorhynchus mykiss*) Central Valley DPS – Federally Threatened

The Central Valley DPS includes all naturally spawned populations in the Sacramento and San Joaquin rivers and their tributaries, including the San Francisco Bay/Sacramento-San Joaquin Delta. Steelhead require cool, clear freshwater streams with portions of gravel substrate for spawning that connect to the Pacific Ocean to allow migration. CNDDB occurrences were documented in the Mokelumne River system, below Camanche reservoir[6]. This species is defined as "[n]aturally spawned anadromous *O. mykiss* … originating below natural and manmade impassable barriers from

[28] Western Bat Working Group. 2018. Western Bat Species. Available: http://wbwg.org/western-bat-species/. Accessed: December 14, 2018.
[29] Stephenson, J.R.; Calcarone, G.M. 1999. Southern California mountains and foothills assessment: Habitat and species conservation issues. General Technical Report GTR-PSW-172. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture.
[30] Williams, D. F. 1986. Mammalian species of concern in California. California Department of Fish and Game Report 86-1. California Department of Fish and Game, Sacramento, CA.

the Sacramento and San Joaquin River and their tributaries"[31]; therefore, the species does not occur within the Camanche or Pardee reservoirs. Suitable habitat exists in the Mokelumne River immediately downstream of the Camanche Reservoir outfall and nearby tributary. Approximately 1.12 miles of the Mokelumne River and an associated tributary in the western portion of the Watershed is Critical Habitat for the species[32].

Chinook Salmon (*Oncorhynchus tshawytscha*) Central Valley Fall/Late Fall-run ESU – California Species of Special Concern

The Central Valley fall/late full (fall-run) Chinook salmon ESU occur in the Sacramento and San Joaquin River basins and their tributaries east of Carquinez Strait, California. Central Valley fall-run Chinook salmon historically spawned in all major tributaries, as well as the mainstem of the Sacramento and San Joaquin Rivers. Fall-run Chinook salmon have been documented in the Mokelumne River and associated tributary[33]. No CNDDB occurrence records of the fall-run species occur within five miles of the Watershed[6]. The species occurs within the Watershed in the Mokelumne River and its tributary immediately below the Camanche Reservoir Dam, which is an impassible barrier for the species. Maintenance activities within the Mokelumne River or its tributary could affect this species.

4.5 Critical Habitat

The Mokelumne River and adjacent tributary downstream of the Camanche Reservoir Dam is listed as Critical Habitat for the Central Valley DPS steelhead. Maintenance activities in this portion of the Watershed may affect steelhead or associated Critical Habitat. Maintenance at such locations would require formal or informal consultation with the USFWS via ESA Section 7 or Section 10 if it is determined that maintenance activities could result in "take" of the respective species. No other Critical Habitat is designated within the Watershed.

4.6 Essential Fish Habitat

Approximately 35.68 acres of Essential Fish Habitat (EFH) is designated for steelhead Central Valley DPS and Chinook salmon within the Mokelumne River and adjacent tributary upstream to the Camanche Reservoir Dam. Maintenance actions that affect these drainages could impact EFH for both species and are expected to require consultation with NMFS.

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[31] U.S. Department of Commerce. 2013. 78 Code of Federal Regulations 38270: Endangered and Threatened Species; Proposed Rule to Revise the Code of Federal Regulations for Species Under the Jurisdiction of the National Marine Fisheries Service. National Oceanic and Atmospheric Administration. June 26. Accessed: March 1, 2019. Available: https://www.westcoast.fisheries.noaa.gov/publications/frn/2013/fr38270.pdf

[32] U.S. Department of Commerce. 2005. 70 Code of Federal Regulations 52488: Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionary Significant Units of Pacific Salmon and Steelhead in California; Final Rule. National Oceanic and Atmospheric Administration. Sept. 2. Accessed: March 1, 2019. Available: https://www.westcoast.fisheries.noaa.gov/publications/frn/2005/70fr52488.pdf

[33] Del Real, C. and Saldate., M. 2015. Lower Mokelumne River Upstream Fish Migration Monitoring Conducted at Woodbridge Irrigation District Dam. East Bay Municipal Utility District. August. Lodi, CA.

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5 Summary and Conclusions

The Mokelumne Watershed spans several land cover types in the Sierra Nevada Foothills. Thirty-two species with varying degrees of federal, state, and/or other protection have potential to occur within the Watershed and could be affected by maintenance activities.

5.1 Special-Status Species

Six federally protected species have potential to occur within suitable habitat in the Watershed and could be affected by maintenance activities potentially (1) affecting the species habitat and/or (2) affecting the species themselves. Further, the western extent of the Watershed is located within Critical Habitat for Central Valley DPS steelhead. Critical Habitat within the Watershed is largely expected to lack the primary constituent elements for their respective species, but areas that possess primary constituent elements would require formal or informal consultation with USFWS and/or NMFS via ESA Section 7 (if a federal nexus is present) or Section 10 (Habitat Conservation Plan) if it is determined that maintenance activities could result in "take" of the respective species. Approximately 35.68 acres of EFH is designated for steelhead Central Valley DPS and Chinook salmon within the Mokelumne River upstream to the Calaveras dam. Maintenance actions that affect these drainages could impact EFH, which would require consultation with the NMFS.

Eight state protected species have potential to occur within suitable habitat in the Watershed and could potentially be affected by maintenance activities. If impacts to these species cannot be avoided, then a CESA Incidental Take Permit (CFGC Section 2081) would be required before potential impacts resulting from maintenance activities could occur.

The implementation of best management practices and avoidance measures would eliminate the potential for take of listed species in most if not all cases.

Eighteen CEQA-relevant species have potential to occur within suitable habitat in the Watershed and could potentially be affected by maintenance activities. The CEQA process would require avoidance and minimization measures to the extent feasible, and potentially additional mitigation measures to reduce the impact significance level.

5.2 Federal and State Waters and Wetlands

Numerous drainages (e.g., waters of the U.S.) and wetlands within the Mokelumne Watershed are expected to be subject to USACE and, RWQCB jurisdiction. As such, maintenance activities affecting these features may require a Section 404 Permit from the USACE and a Section 401 Water Quality Certification from the RWQCB (or WDRs for non-federal drainages and wetlands) depending on the nature of the specific impact within jurisdictional areas.

CDFW regulates work (i.e., diversion or obstruction of the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; or deposition or disposal of material into any river, stream, or lake) within streambanks and other waters of the State under CFGC Section 1600. Additionally, CDFW also regulates the removal of riparian habitat associated with such waters of the State. EBMUD conducts maintenance activities under the provisions of a prior LSAA.

Appendix A
Special-Status Plant Species

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Appendix A. Special-Status Plant Species

Sci. Name Common Name	Status (Fed/State/ CRPR)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Arctostaphylos myrtifolia Ione manzanita	FT/-/1B.2	Known from records in Amador, Calaveras, and Sacramento counties.	Chaparral, cismontane woodland. On Ione clay with chaparral associates. Often comprises 50-80% cover. 75-560 meters (m.) above mean sea level (amsl). Blooms November-March.	**Possible**. Suitable habitat (chaparral and woodland on Ione clay) is present along the eastern portion of Camanche Reservoir and area between Camanche and Pardee reservoirs. There are 5 CNDDB occurrence records within 5 miles of the Watershed. Additionally, multiple EBMUD observations within the Watershed that are presumed extant.
Balsamorhiza macrolepis Big-scale balsamroot	-/-/1B.2	Known from records in Alameda, Amador, Butte, Colusa, El Dorado, Lake, Modoc, Mariposa, Napa, Nevada, Placer, Plumas, Santa Clara, Shasta, Sierra, Solano, Sonoma, Sutter, Tehama, and Tuolumne counties.	Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 35-1,465 m. amsl. Blooms March-June.	**Possible**. Suitable chaparral, grassland, and woodland habitat is present within the Watershed. There is 1 CNDDB occurrence record within 5 miles of the Watershed.
Brodiaea rosea Indian Valley brodiaea	-/SE, 1B.1	Known from records in Shasta, Trinity, Tehama, Glenn, Colusa, Lake, Sacramento, Placer and Yuba counties.	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland. Serpentine gravelly creek bottoms, and in meadows and swales. 340-1,195 m. amsl. Blooms May-June.	**Not expected.** There are no CNDDB occurrence records within 5 miles of the Watershed. No known records have been documented along the Sierra Nevada foothills.
Calycadenia hooveri Hoover's calycadenia	-/-/1B.3	Known from records in Calaveras, Madera, Merced, Mariposa, Stanislaus, and Tuolumne counties.	Cismontane woodland, valley and foothill grassland. On exposed, rocky, barren soil. 60-260 m. amsl. Blooms July-September.	**Possible**. Marginal habitat (mowed grassland) occurs within the Watershed in the Sierra Nevada foothills. There are 2 CNDDB occurrence records within 5 miles of the Watershed.

Sci. Name Common Name	Status (Fed/State/ CRPR)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Castilleja campestris var. *succulenta* succulent owl's-clover	FT/SE, 1B.2	Known from records in Solano, Stanislaus, Merced, Madera and Fresno counties.	Vernal pools. Moist places, often in acidic soils. 20-705 m. amsl. Blooms April-May.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There are no CNDDB occurrence records within 5 miles of the Watershed. No known records have been documented along the Sierra Nevada foothills as far north as the Watershed.
Downingia pusilla dwarf downingia	-/-/2B.2	Known from records in Tehama,	Vernal pools and mesic areas in valley and foothill grasslands. 1-445 m. amsl. Blooms March-May.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There are no CNDDB occurrence records within 5 miles of the Watershed. No known records have been documented along the Sierra Nevada foothills as far north as the Watershed.
Eriogonum apricum var. *apricum* Ione buckwheat	FE/SE, 1B.1	Known from records in Sacramento, San Joaquin, and Amador Counties.	Chaparral (openings, Ione soil). 60-145 m. amsl. Blooms July-October.	**Possible.** There are 5 CNDDB occurrence records within 5 miles of the Watershed, 4 of which are presumed extant. Chaparral habitat is located on hills along the northeastern extent of the Camanche Reservoir.
Eryngium jepsonii Jepson's coyote-thistle	-/-/1B.2	Known from records in Alameda, Amador, Calaveras, Contra Costa, Fresno, Napa, Placer, San Joaquin, San Mateo, Solano, Stanislaus, Tuolumne, and Yolo counties.	Vernal pools, valley and foothill grassland. Clay. 3-305 m. amsl. Blooms April-August.	**Not expected.** Marginal habitat (mowed grassland with clay soil) occurs west of the Watershed, but the Watershed is above the elevational range of the species. There are no CNDDB occurrence records within 5 miles of the Watershed.

Sci. Name Common Name	Status (Fed/State/ CRPR)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Eryngium pinnatisectum Tuolumne button-celery	-/1B.2	Known from records in Lassen, Butte, Yuba, Placer, Sacramento, San Joaquin, Amador, Calaveras, Tuolumne, Mariposa and Madera, and Fresno counties.	Vernal pools within foothill woodland and yellow pine forest. 70-915 m. amsl. Blooms May-August.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. Yellow pine forest is absent from the Watershed, as this vegetation community occurs at higher elevations. There are 2 CNDDB occurrence record within 5 miles of the Watershed in the Dry Creek watershed north of Camanche Reservoir and south of the Watershed, but neither record occurs within the Watershed.
Erythranthe marmorata Stanislaus monkeyflower	-/1B.1	Known from records in Sacramento, San Joaquin, Amador, Calaveras, Mono and Fresno counties.	Yellow pine forest. 100-900 m. amsl. Blooms March-May.	**Not Expected.** No yellow pine forest habitat is present within the Watershed, as this vegetation community occurs above the elevational range of the Watershed. There are 2 CNDDB occurrence records within 5 miles north and east of the Watershed, but both are located significant distances (>3 miles) outside of the Watershed.
Gratiola heterosepala Boggs Lake hedge-hyssop	-/SE, 1B.2	Known from records in Modoc, Siskiyou, Shasta, Lassen, Tehama, Placer, Sacramento, Lake, Solano, Amador, Stanislaus, Madera, and Fresno counties.	Marshes and swamps (freshwater), vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 4-2,410 m. amsl. Blooms April to August.	**Possible.** There are 3 CNDDB occurrence record within 5 miles of the Watershed. All occurrences are from 1990, but are presumed extant. Species occurrences are located in vernal pools west of and at lower elevations than the Watershed, but could potentially occur along marshes and lake margins in the Watershed.

Sci. Name Common Name	Status (Fed/State/ CRPR)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Horkelia parryi Parry's horkelia	-/1B.2	Known from records in Sacramento, El Dorado, Amador, Calaveras, San Joaquin, Tuolumne, and Mariposa counties.	Chaparral, Cismontane woodland. 80-1,070 m. amsl. Blooms April-September.	**Possible.** Suitable chaparral habitat is located on hills along the northeastern extent of Camanche Reservoir. There are 7 CNDDB occurrence records within 5 miles of the Watershed, only one of which is within 3 miles of the Watershed.
Legenere limosa legenere	-/-/1B.1	Known from records in Alameda, Calaveras, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, Shasta, San Joaquin, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties.	Vernal pools below 880 m. amsl. Blooms April-June.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There are 6 CNDDB occurrence records within 5 miles of the Watershed, but these occurrences are associated with vernal poos west of and outside the Watershed at lower elevations than the Watershed.
Navarretia myersii ssp. *myersii* pincushion navarretia	-/1B.1	Known from records in San Francisco, San Mateo, Alameda, Amador, Calaveras, Merced and Tuolumne counties.	Vernal pools. 20-330 m. amsl. Blooms April-May.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There is 1 CNDDB occurrence record within 5 miles north of the Watershed, over 4 miles north.
Navarretia paradoxiclara Patterson's navarretia	-/-/1B.3	Known from records in Alameda, Placer, Sacramento, San Joaquin, Amador, Calaveras, and Tuolumne counties.	Meadows and seeps. Serpentinite, openings, vernally mesic, often drainages. 150-435 m. amsl. Blooms May-June (July).	**Possible**. Marginal habitat (vernally mesic openings) occurs within limited portions of the Watershed in the Sierra Nevada foothills. There are 4 CNDDB occurrence records within 5 miles but south of the Watershed.

Sci. Name Common Name	Status (Fed/State/ CRPR)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Orcuttia viscida Sacramento Orcutt grass	FE/SE, 1B.1	Occurs in the Central Valley in Solano, Sacramento, San Joaquin and Amador Counties.	Vernal pools. 15-85 m. amsl. Blooms April-July.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There are no CNDDB occurrence records within 5 miles of the Watershed.
Sphenopholis obtusata prairie wedge grass	-/2B.2	Known from records in Amador, Calaveras, Stanislaus, Mono, Fresno, Inyo, Tulare, San Bernardino, and San Diego counties.	Cismontane woodland, meadows and seeps. 300-2,000 m. amsl. Blooms April-July.	**Possible**. Suitable cismontane woodland, meadow, and seep habitat is present within the Watershed. There are 3 CNDDB occurrence records within 5 miles of the Watershed. These are located at significantly higher elevations north of the Pardee watershed.

"Potential to Occur" Categories Definitions

Possible = record is known from within 5 miles of the Watershed or was observed in the maintenance program area, and suitable habitat is present in the maintenance program area.

Not expected = record known from within 5 miles of the Watershed but only marginal habitat exists in the maintenance program area, but the occurrence is outside of the maintenance program area.

None = Watershed is outside of species' range, record is possibly or presumed extirpated, or no marginal habitat is present in the maintenance program area.

Status Legend

Federal
FE = Federally endangered
FT = Federally threatened
FPE = Federally proposed endangered
FPT = Federally proposed threatened
FC = Federal candidate for listing as threatened or endangered

State
SR = State rare
SE = State endangered
ST = State threatened

CRPR (California Rare Plant Rank)
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

Other:
CNDDB = California Natural Diversity Database

Appendix B
Special-Status Wildlife Species

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Appendix B. Special-Status Wildlife Species

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Invertebrates				
Banksula rudolphi Rudolph's cave harvestman	-/- (locally significant)	California Central Valley known locally only from Chrome Cave, Pardee Reservoir in Amador County.	Chrome Cave, a small limestone cave surrounded by serpentine. This species would be unable to survive outside of cave environments. Found on the undersides of rocks in the upper Cave.	**Present.** There is 1 CNDDB occurrence record of the species from Chrome Cave within the Watershed, north of Pardee Reservoir. Chrome Cave is located within the Watershed but no maintenance activities would affect the Cave or occur inside the Cave. Therefore, the species is not discussed further.
Bombus crotchii Crotch bumble bee	-/SC	Currently the southern 2/3 of California including the Central Valley to the Coast and adjacent Sierra Nevada foothills.	Nests in rodent burrows and occasionally brush piles. Requires wildflowers for nectar sources. Sensitive to herbicides and pesticides.	**Possible.** The Watershed is within the species' current range and there is one CNDDB occurrence record within 5 miles of the Watershed, near Highway 26. Suitable nesting habitat and nectar sources are present within the Watershed.
Branchinecta conservatio Conservancy fairy shrimp	FE/-	California Central Valley from Butte and Tehama counties south to Merced and Stanislaus counties.	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	**Not expected.** The Watershed is outside of the species' known range and no CNDDB occurrence records occur within 5 miles of the Watershed.
Branchinecta lynchi vernal pool fairy shrimp	FT/-	California Central Valley and southern Coast Range in Santa Barbara County. Isolated populations in Riverside County.	Vernal pools, but also found in sandstone rock outcrop pools.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There are 4 CNDDB occurrence records within 5 miles of the Watershed, but no occurrence records are known from within the Watershed.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Desmocerus californicus dimorphus Valley elderberry longhorn beetle	FT/-	California Central Valley and adjacent low foothills.	Occurs only in the California Central Valley in association with blue elderberry (*Sambucus nigra ssp. caerulea*) shrubs with stems 1 inch or greater basal diameter below 3,000 feet above mean sea level.	**Present.** Suitable elderberry shrubs occur within the Watershed and occur within the species' range. There are 5 CNDDB occurrence records within 5 miles of the Watershed, and approximately 806 elderberry shrubs have been documented by EBMUD biological staff within the Watershed.
Lepidurus packardi Vernal pool tadpole shrimp	FE/-	California Central Valley from Shasta County to Merced County, with isolated populations in Fresno, Alameda, and Tulare counties.	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	**Not expected.** Suitable vernal pool habitat is absent from the Watershed where maintenance activities would occur. There is 1 CNDDB occurrence record within 5 miles of the Watershed.
Stygobromus gradyi Grady's Cave amphipod	-/- (locally significant)	Known only from Central California. Known only from springs and caves in the Mother Lode karst region.	A stygobite located in 5 caves within Amador and Tuolumne Counties including Fern Frond, Lulu Bell, and Masonic Caves within freshwater pools.	**Present.** The cave system the species is located outside of the Watershed but within 5 miles. No maintenance activities would affect the cave system or occur inside this or other caves. There is 1 CNDDB occurrence record within 5 miles northeast of the Watershed. Therefore, the species is not discussed further.
Amphibians				
Ambystoma californiense California tiger salamander	FT/ST	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet amsl, and from Sonoma County south to Santa Barbara County along coast.	Need underground refuges, especially ground squirrel burrows & vernal pools or other seasonal water sources for breeding.	**Present.** The species is known to occur within grassland and oak woodland near vernal pools, ponds, and seasonal wetlands (observed by EBMUD biological staff) in the western to central portion of the Watershed. There are 47 CNDDB occurrence records within 5 miles of the Watershed and EBMUD biological staff have observed several individuals on numerous occasions.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Rana boylii Foothill yellow-legged frog	-/SE, SSC	Coast and coastal mountain ranges from Oregon border south to Ventura County, Sierra Nevada foothills south to Tulare County. Disjunct populations in eastern Los Angeles County and northern Sutter County.	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	**Possible.** Suitable habitat (freshwater streams) is present within the Watershed. There are 2 CNDDB occurrences within 5 miles northeast and upstream of the Watershed, but the most recent occurrence record dates from 1950s.
Rana draytonii California red-legged frog	FT/SSC	Coast and coastal mountain ranges from Mendocino County to San Diego County, and in the Sierra Nevada Mountains from Butte County south to Stanislaus County.	Streams, freshwater pools, and ponds with emergent vegetation.	**Possible.** Suitable habitat (freshwater streams and ponds) is present within Watershed. There is 1 CNDDB occurrence record within 5 miles south of the Watershed.
Spea hammondii Western spadefoot	-/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.	Occurs primarily in grassland habitats, but can be found in oak woodlands. Vernal pools, seasonal wetlands, and shallow streams are essential for breeding and egg-laying.	**Present.** Species known to occur in suitable grassland and oak woodland near marshes, seasonal wetlands, and shallow stream habitat within the western (south of the Mokelumne River) and central portions of the Watershed (observed by EBMUD biological staff). There are 17 CNDDB occurrence records within 5 miles of the Watershed.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Taricha torosa Coast Range newt	-/SSC	Coastal drainages within the Coast Mountain Range from central Humboldt County, Mendocino, Marin, San Francisco, San Mateo, Contra Costa, Alameda, and Santa Clara counties. Coastal portions of Monterey, San Luis Obispo, southern Santa Barbara, southern Ventura, southwestern and central Los Angeles, and Orange counties. Small patches in southwest San Bernardino, west Riverside, and northwest and central San Diego counties. Also, southern portion of the Sierra Nevada Mounties in Tulare and Kern counties.	County to San Diego County. Lives in terrestrial habitats & will migrate over 1 km to breed in ponds, reservoirs & slow-moving streams.	**None.** The Watershed is outside of the species' range.
Reptiles				
Actinemys (=*Emys*) *marmorata* Western pond turtle	-/SSC	Oregon border of Del Norte and Siskiyou Counties south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of the Sierra Nevada Mountains.	Found in ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation. Needs basking sites.	**Present.** Species known to occur in suitable aquatic and upland habitat (observed by EBMUD biological staff) in the Watershed. There are 6 CNDDB occurrence records known from within 5 miles of the Watershed.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Thamnophis gigas Giant garter snake	FT/ST	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno.	Marshes, streams, wetlands, and riparian scrub, and agricultural wetlands, and rice fields. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. Habitat consists of (1) adequate water during the snake's active season, (2) emergent herbaceous wetland vegetation for escape and foraging habitat, (3) grassy banks and openings in waterside vegetation for basking, and (4) higher elevation upland habitat for cover and refuge from flooding (USFWS 2012e).	**None.** The Watershed is outside of the species' range.
Birds				
Agelaius tricolor Tricolored blackbird	-/SSC	Year-round in California primarily along the Coast from Marin County south to Baja California, and throughout Central Valley and adjacent Coast Range.	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. Nests in dense thickets of cattails (*Typha* spp.), bulrush (*Schoenoplectus* spp.), willow (*Salix* spp.), blackberry (*Rubus* spp.), wild rose (*Rosa californica*), and other tall vegetation near fresh water.	**Present.** Species has been observed (by EBMUD biological staff) in suitable freshwater marsh habitat within the Watershed. Suitable habitat (freshwater marsh). There are 6 CNDDB occurrence records of the species within 5 miles of the Watershed.
Accipiter cooperii Cooper's hawk	-/- (MBTA)	Year-round resident of California. Breeds throughout the state.	Woodland, primarily open, interrupted or marginal quality. Primarily nests in live oak and riparian deciduous woodland, often in canyon bottoms on river floodplains.	**Possible.** Suitable woodland habitat occurs in the forested portions of the Watershed. No CNDDB occurrence records occur within 5 miles of the Watershed.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Aquila chrysaetos golden eagle	-/FP	Year-round resident throughout much of California except in Central Valley and deserts, where they are visitors during winter.	Forages over open habitats (grasslands, grazed fields) and nests in isolated locations, typically cliff ledges, tall trees on ridges, and electronic transmission towers.	**Possible.** Suitable foraging habitat occurs in the open portions of the Watershed, and nesting habitat occurs in the far eastern portion of the Watershed. No CNDDB occurrence records occur within 5 miles of the Watershed, but EBMUD documents a historic nest location southeast of Pardee Reservoir. Routine maintenance activities are not expected to occur in or near suitable nesting habitat.
Ardea herodias Great blue heron	-/- (MBTA)	Year-round resident throughout Central Valley, San Francisco Bay, from Marin County to Yolo County, the Salton Sea, and Colorado River. Nonbreeding resident elsewhere in California.	Freshwater, brackish, and marine wetlands, as well forage in flooded agricultural fields. Nests in colonies in trees located adjacent to waterbodies, rivers, estuaries, and marshes.	**Possible.** Suitable nesting habitat (trees near aquatic foraging habitat) occurs within the Watershed. No CNDDB occurrence records occur within 5 miles of the Watershed.
Athene cunicularia Burrowing owl	-/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel (*Spermophilus beecheyi*).	**Present.** Species known to occur (observed by EBMUD biological staff) in suitable habitat (treeless grassland with burrows) in the western to central portions of the Watershed. There are no CNDDB occurrence records within 5 miles of the Watershed. However, 7 EBMUD observation records of the species are known from the 5-mile-Watershed buffer.
Buteo regalis Ferruginous hawk	-/- (MBTA)	Winter visitor of California, except for North Coast and Sierra Nevada. Breeds in northeastern California east of Cascades, along Nevada border.	Nest on cliffs, rock outcrops, and tree groves. Forage in grasslands, sagebrush, saltbush-greasewood shrublands, edges of pinyon-juniper forests.	**None.** This species does not breed within the regions where the Watershed is located.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Buteo swainsoni Swainson's hawk	-/ST	Lower Sacramento and San Joaquin valleys, Klamath Basin, and Butte Valley. Recent breeding in Santa Clara County and expected elsewhere in greater San Francisco Bay Area.	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Possible.** Suitable nesting habitat (riparian woodland and tree groves) and foraging habitat (grassland and agricultural fields) exists within the western portion of the Watershed. There are 13 CNDDB occurrence records within 5 miles of the Watershed.
Falco mexicanus Prairie falcon	-/- (MBTA)	Permanent resident in the south Coast, Transverse, Peninsular, and northern Cascade ranges; southern deserts; Inyo-White Mountains; foothills surrounding the Central Valley; and in the Sierra Nevada Mountains in Modoc, Lassen, and Plumas Counties. Winters in the Central Valley, in Marin County, and along the Coast from Santa Barbara County to San Diego County.	Nests on cliffs or escarpments, typically overlooking dry, open terrain or uplands.	**Present.** Suitable nesting substrate (cliffs or escarpments) is present within the eastern portion of the Watershed. One CNDDB occurrence record occurs within 5 miles of the Watershed. The species has been observed and two nest locations documented by EBMUD biological staff in the Watershed.
Falco peregrinus anatum American peregrine falcon	-/SFP	Year-round throughout most of California, except for northern Sierra Nevada, Central Valley, and interior Southern California.	Forages near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open, elevated site (cliffs, tall isolated trees, high bridges, and power transmission towers).	**Present.** Species known to occur (observed by EBMUD biological staff) in suitable foraging habitat (open areas) throughout the Watershed, and suitable nesting substrate is present within the eastern portion of the Watershed. No CNDDB occurrence records occur within 5 miles of the Watershed, and one EBMUD observation record of the species is known from north end of Pardee Reservoir.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Haliaeetus leucocephalus Bald eagle	FD/SE, SFP	Resident throughout most of California. Within California, breeds in northern portion of state near Cascades and adjacent plains, SF Bay area, and Sierra Nevada Mountains.	Occurs mainly along coasts, rivers, and lakes; nests in tall trees or in cliffs, usually within 1 mile of water. Nests in large, old-growth, or trees with open branches, especially ponderosa pine. Roosts communally in winter. Feeds mostly on fish.	**Present.** Suitable foraging habitat is present within Camanche and Pardee reservoirs, and suitable nesting substrate is present within the Watershed. One CNDDB occurrence record is known from New Hogan Reservoir within 5 miles of the Watershed. The species has been observed (by both EBMUD and Horizon biological staff) and regularly nests in at least 5 locations near the reservoirs as documented by EBMUD biological staff.
Icteria virens Yellow-breasted chat	-/SSC	Breeds throughout California, except for northern Sierra Nevada and Cascades.	Inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	**Possible.** Suitable habitat (riparian thickets) exists in the Watershed. One CNDDB occurrence record is known from the Mokelumne River within 5 miles of the Watershed.
Lanius ludovicianus Loggerhead shrike	-/SSC	Year-round resident throughout California, except for North Coast, northern Sierra Nevada and Cascades.	Broken woodlands, savannah, pinyon-juniper, Joshua tree, riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Possible.** Suitable foraging habitat (open areas) and nesting substrate (trees and shrubs) are present in the Watershed. No CNDDB occurrence records are known from within 5 miles of the Watershed, but 2 EBMUD observation records occur within 5 miles of the Watershed.
Pandion halietus Osprey	-/- (MBTA)	Year-round resident of the northern half of California, except for high altitudes of the northern half of the Sierra Nevada Mountains and Modoc Plateau where it occurs during breeding season. Found in the San Joaquin Valley, neighboring Central Coast, South Coast, and along the Colorado River in winter.	Nests in large trees, power poles, or other structures near or over perennial waterbodies (lakes and ponds) that support fish.	**Present.** Suitable foraging habitat (reservoirs) and nesting habitat (large trees) near and over water present within the Watershed maintenance areas. No CNDDB occurrence records are known from within 5 miles of the Watershed, but the species has been observed, with at least 9 nests seen annually, by EBMUD biological staff.

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Riparia riparia Bank swallow	-/ST	Migrates throughout all of California. Year-round resident on the San Mateo Peninsula, Sacramento River, and northern Sierra Nevada to plains east of the Cascades.	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, or ocean to dig nesting hole.	**Possible**. Suitable habitat (vertical sandy river banks) is present in the western portion of the Watershed along the Mokelumne River. One CNDDB occurrence record is located within 5 miles of the Watershed.
Mammals				
Corynorhinus townsendii Townsend's big-eared bat	-/SSC, WBWG: High Priority	Coastal regions from Del Norte County south to Santa Barbara County.	Found throughout California in a wide variety of habitats, including woodlands, forests, chaparral, scrubs, and grasslands. Most common in mesic sites. Roosts on open surfaces in caves, abandoned mines, and buildings. Also uses bridges, rock crevices and hollow trees as roost sites. Roosting sites are limiting. This species is extremely sensitive to human disturbance.	**Possible.** Trees isolated from human development within the Watershed provide suitable roosting habitat. Lacustrine, riparian, and marsh areas, and to some extent the adjacent open (grassland and ruderal) cover, provide foraging habitat. There is 1 CNDDB occurrence record within 5 miles of the Watershed.
Taxidea taxus American badger	-/SSC	Majority of northern, western, and central United States south to Baja California.	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	**Possible.** Suitable habitat is present in portions of the Watershed that lack dense vegetation and tree cover in Central Valley, and Sierra Nevada foothills. No CNDDB occurrence has been recorded within 5 miles of the Watershed.

"Potential to Occur" Categories Definitions

Possible = record is known from within 5 miles of the Watershed or was observed in the maintenance program area, and suitable habitat is present in the maintenance program area.

Not expected = record known from within 5 miles of the Watershed but only marginal habitat exists in the maintenance program area, but the occurrence is outside of the maintenance program area.

None = Watershed is outside of species' range, record is possibly or presumed extirpated, or no marginal habitat present in the maintenance program area.

Status Legend

Federal

FE = Federally endangered
FT = Federally threatened
FPE = Federally proposed endangered
FPT = Federally proposed threatened
FC = Federal candidate for listing as threatened or endangered
FD = Federally delisted

Other:

CNDDB = California Natural Diversity Database

State

SR = State rare
SE = State endangered
ST = State threatened
FP = fully protected
SSC = species of special concern
SC = State candidate

WBWG (Western Bat Working Group) Priority

(available: http://wbwg.org/matrices/species-matrix/)
High = species "considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. Species is imperiled or are at high risk of imperilment."
Moderate = species warrants "evaluation, more research, and conservation actions of both the specie and possible threats. The lack of meaningful information is a major obstacle in adequately assessing species' status and should be considered a threat."

Appendix C
Special-Status Fish Species

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Appendix C. Special-Status Fish Species

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Fish				
Hypomesus transpacificus Delta smelt	FT/SE, SSC	San Francisco Bay to Sacramento-San Joaquin Delta.	Freshwater streams to tidally influenced sloughs and channels.	**None.** The Watershed is outside of the species' range.
Oncorhynchus mykiss Steelhead - Central Valley DPS (population 11)	FT/-	Sacramento and San Joaquin river systems and tributaries, excluding San Francisco and San Pablo bays. Also, excludes individuals from the Coleman National Fish Hatchery and Feather River Hatchery programs.	Require clean, cold water with near DO saturation levels over loose silt-free gravel beds with water temperatures between 15 and 24° C for spawning.	**Present.** Species documented in the Mokelumne River system, below Camanche Reservoir. This species is defined as "[n]aturally spawned anadromous *O. mykiss* ... originating below natural and manmade impassable barriers from the Sacramento and San Joaquin River and their tributaries"[1]; therefore, the species does not occur within the Camanche or Pardee reservoirs. Suitable habitat exists in the Mokelumne River immediately downstream of the Camanche Reservoir outlet and nearby tributary. Approximately 1.12 miles (35.68 acres) of a tributary to the Mokelumne River in the western portion of the Watershed is identified as Critical Habitat for the species[2].

[1] U.S. Department of Commerce. 2013. 78 Code of Federal Regulations 38270: Endangered and Threatened Species; Proposed Rule to Revise the Code of Federal Regulations for Species Under the Jurisdiction of the National Marine Fisheries Service. National Oceanic and Atmospheric Administration. June 26. Accessed: March 1, 2019. Available: https://www.westcoast.fisheries.noaa.gov/publications/frn/2013/fr38270.pdf

[2] U.S. Department of Commerce. 2005. 70 Code of Federal Regulations 52488: Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionary Significant Units of Pacific Salmon and Steelhead in California; Final Rule. National Oceanic and Atmospheric Administration. Sept. 2. Accessed: March 1, 2019. Available: https://www.westcoast.fisheries.noaa.gov/publications/frn/2005/70fr52488.pdf

Sci. Name Common Name	Status (Fed/State)	Range	Habitat	Potential to Occur in Maintenance Program Area and Rationale
Oncorhynchus tshawytscha Chinook Salmon - California coast ESU (population 17); Central Valley spring-run ESU (population 6); Sacramento River winter-run ESU (population 7) Central Valley fall/late fall-run ESU (population 13)	FT/-; FT/ST; FE/SE -/SSC	Coastal rivers and streams south of the Klamath River to and including the Russian River; Populations spawning in the Sacramento and San Joaquin Rivers and their tributaries.; Sacramento River below Keswick Dam, but does not spawn in tributary streams. Sacramento and San Joaquin Rivers and their tributaries.	(all ESUs) Require clean, cold water over loose silt-free gravel beds with water temperatures between 5 and 19° C for spawning.	**None.** The Watershed is outside of the California coast ESU range. **None.** This species is defined as "[n]aturally spawned spring-run Chinook salmon originating from the Sacramento River and its tributaries", including the Feather River Hatchery Spring-run Chinook Program[1]. Naturally spawned spring-run ESU salmon are extirpated from the San Joaquin River system; therefore, the Watershed is outside of the species' range. Stray individuals from populations in the Sacramento River may occasionally occur in the San Joaquin River drainages[3]. **None.** The Watershed is outside of the Sacramento River winter-run ESU range. **Present.** Central Valley fall/late fall-run ESU salmon are known to occur within the Mokelumne River and associated tributary, but the Camanche Reservoir Dam represents an impassible barrier to the species. Therefore, the species occurs within the Watershed within the Mokelumne River and its tributary.

[3] Lindley et. *al.* 2004. Population Structure of Threatened and Endangered Chinook Salmon ESUs in California's Central Valley Basin (NOAA-TM-NMFS-SWFSC-360). U.S. Department of Commerce: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southwest Fisheries Science Center. April.

"Potential to Occur" Categories Definitions

Possible = record is known from within 5 miles of the Watershed or was observed in the maintenance program area, and suitable habitat is present in the maintenance program area.

Not expected = record known from within 5 miles of the Watershed but only marginal habitat exists in the maintenance program area, but the occurrence is outside of the maintenance program area.

None = Watershed is outside of species' range, record is possibly or presumed extirpated, or no marginal habitat present in the maintenance program area.

Status Legend

Federal		*State*	
FE =	Federally endangered	SR =	State rare
FT =	Federally threatened	SE =	State endangered
FPE =	Federally proposed endangered	ST =	State threatened
FPT =	Federally proposed threatened	FP =	fully protected
FC =	Federal candidate for listing as threatened or endangered	SSC =	species of special concern
FD =	Federally delisted	SC =	State candidate

Note: DO = dissolved oxygen; DPS = Distinct Population Segment; ESU = Evolutionarily Significant Unit; Delta = Sacramento-San Joaquin River Delta; °C = degrees Celsius.

Appendix D
USFWS, CNDDB, & CNPS Species Lists

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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:
Consultation Code: 08ESMF00-2019-SLI-2130
Event Code: 08ESMF00-2021-E-01731
Project Name: EBMUD Mokelumne Watershed

December 22, 2020

Subject: Updated 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

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). 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.

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

Project Summary

Consultation Code: 08ESMF00-2019-SLI-2130

Event Code: 08ESMF00-2021-E-01731

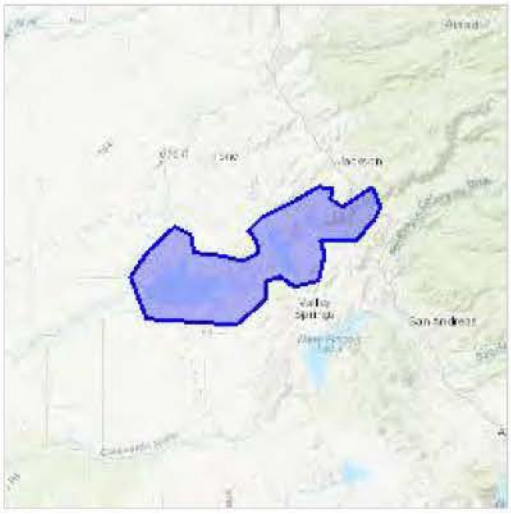
Project Name: EBMUD Mokelumne Watershed

Project Type: WATER SUPPLY / DELIVERY

Project Description: Operations and maintenance of water supply infrastructure.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.25661482800547N120.97405044385263W



Counties: Amador, CA | Calaveras, CA | San Joaquin, CA

Endangered Species Act Species

There is a total of 12 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[1], 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.

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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.

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

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

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover *Castilleja campestris ssp. succulenta* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8095	Threatened
Ione (incl. Irish Hill) Buckwheat *Eriogonum apricum (incl. var. prostratum)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8301	Endangered
Ione Manzanita *Arctostaphylos myrtifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1806	Threatened
Sacramento Orcutt Grass *Orcuttia viscida* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5507	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Tiger Salamander *Ambystoma californiense* https://ecos.fws.gov/ecp/species/2076#crithab	Final

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Mokelumne Hill (3812036) OR Jackson (3812037) OR Ione (3812038) OR Clements (3812121) OR Goose Creek (3812131) OR Wallace (3812028) OR Valley Springs (3812027))

Print Close

CNDDB 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	955	9	None	Threatened	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
Agrostis hendersonii	Henderson's bent grass	Monocots	PMPOA040K0	26	1	None	None	G2Q	S2	3.2	null	Valley & foothill grassland, Vernal pool, Wetland
Ambystoma californiense	California tiger salamander	Amphibians	AAAAA01180	1306	63	Threatened	Threatened	G2G3	S2S3	null	CDFW_WL-Watch List, IUCN_VU-Vulnerable	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Aquila chrysaetos	golden eagle	Birds	ABNKC22010	323	1	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland
Arctostaphylos myrtifolia	Ione manzanita	Dicots	PDERI04240	11	6	Threatened	None	G1	S1	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Cismontane woodland, Ione formation
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2011	3	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Balsamorhiza macrolepis	big-scale balsamroot	Dicots	PDAST11061	51	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland

Banksula rudolphi	Rudolph's cave harvestman	Arachnids	ILARA14080	1	1	None	None	G1	S1	null	null	Limestone
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	369	1	None	Candidate Endangered	G3G4	S1S2	null	null	null
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	791	15	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland, Vernal pool, Wetland
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2535	15	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
Calycadenia hooveri	Hoover's calycadenia	Dicots	PDAST1P040	37	2	None	None	G2	S2	1B.3	null	Cismontane woodland, Valley & foothill grassland
Crocanthemum suffrutescens	Bisbee Peak rush-rose	Dicots	PDCIS020F0	31	8	None	None	G2?Q	S2?	3.2	null	Chaparral, Ione formation, Ultramafic
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Insects	IICOL48011	271	7	Threatened	None	G3T2	S3	null	null	Riparian scrub
Downingia pusilla	dwarf downingia	Dicots	PDCAM060C0	132	1	None	None	GU	S2	2B.2	null	Valley & foothill grassland, Vernal pool, Wetland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1398	7	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	523	2	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
Eriogonum apricum var. apricum	Ione buckwheat	Dicots	PDPGN080F1	6	5	Endangered	Endangered	G2T1	S1	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Ione formation
Eryngium pinnatisectum	Tuolumne button-celery	Dicots	PDAPI0Z0P0	30	2	None	None	G2	S2	1B.2	null	Cismontane woodland, Lower montane coniferous forest, Vernal pool, Wetland
Erythranthe marmorata	Stanislaus monkeyflower	Dicots	PDPHR01130	10	2	None	None	G2?	S2?	1B.1	null	Cismontane woodland, Lower montane coniferous forest

Falco mexicanus	prairie falcon	Birds	ABNKD06090	455	1	None	None	G5	S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Gratiola heterosepala	Boggs Lake hedge-hyssop	Dicots	PDSCR0R060	99	3	None	Endangered	G2	S2	1B.2	BLM_S-Sensitive	Freshwater marsh, Marsh & swamp, Vernal pool, Wetland
Haliaeetus leucocephalus	bald eagle	Birds	ABNKC10010	329	2	Delisted	Endangered	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest, Oldgrowth
Horkelia parryi	Parry's horkelia	Dicots	PDROS0W0C0	44	7	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Ione formation
Hydroporus leechi	Leech's skyline diving beetle	Insects	IICOL55040	13	1	None	None	G1?	S1?	null	null	Aquatic
Icteria virens	yellow-breasted chat	Birds	ABPBX24010	100	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Riparian forest, Riparian scrub, Riparian woodland
Ione Chaparral	Ione Chaparral	Scrub	CTT37D00CA	12	7	None	None	G1	S1.1	null	null	Chaparral
Legenere limosa	legenere	Dicots	PDCAM0C010	83	8	None	None	G2	S2	1B.1	BLM_S-Sensitive, SB_UCBG-UC Botanical Garden at Berkeley	Vernal pool, Wetland
Lepidurus packardi	vernal pool tadpole shrimp	Crustaceans	ICBRA10010	324	6	Endangered	None	G4	S3S4	null	IUCN_EN-Endangered	Valley & foothill grassland, Vernal pool, Wetland
Linderiella occidentalis	California linderiella	Crustaceans	ICBRA06010	508	5	None	None	G2G3	S2S3	null	IUCN_NT-Near Threatened	Vernal pool
Navarretia myersii ssp. myersii	pincushion navarretia	Dicots	PDPLM0C0X1	16	4	None	None	G2T2	S2	1B.1	null	Vernal pool, Wetland
Navarretia paradoxiclara	Patterson's navarretia	Dicots	PDPLM0C150	11	3	None	None	G2	S2	1B.3	BLM_S-Sensitive	Meadow & seep, Ultramafic
Northern Hardpan Vernal Pool	Northern Hardpan Vernal Pool	Herbaceous	CTT44110CA	126	6	None	None	G3	S3.1	null	null	Vernal pool, Wetland
Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	Fish	AFCHA0209K	31	2	Threatened	None	G5T2Q	S2	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters
Orcuttia viscida	Sacramento Orcutt grass	Monocots	PMPOA4G070	12	1	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Vernal pool, Wetland
Pandion haliaetus	osprey	Birds	ABNKC01010	504	1	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2468	1	None	Endangered	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
Rana draytonii	California red-legged frog	Amphibians	AAABH01022	1577	1	Threatened	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable	Aquatic, Artificial flowing waters, Artificial standing waters, Freshwater marsh, Marsh & swamp, Riparian forest, Riparian scrub, Riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Riparia riparia	bank swallow	Birds	ABPAU08010	298	1	None	Threatened	G5	S2	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Riparian scrub, Riparian woodland
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1409	25	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Sphenopholis obtusata	prairie wedge grass	Monocots	PMPOA5T030	19	2	None	None	G5	S2	2B.2	null	Cismontane woodland, Meadow & seep, Wetland

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

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

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B], Found in Quads 3812036, 3812037, 3812038, 3812121, 3812131 3812028 and 3812027;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Arctostaphylos myrtifolia	Ione manzanita	Ericaceae	perennial evergreen shrub	Nov-Mar	1B.2	S1	G1
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S2	G2
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eriogonum apricum var. apricum	Ione buckwheat	Polygonaceae	perennial herb	Jul-Oct	1B.1	S1	G2T1
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual / perennial herb	May-Aug	1B.2	S2	G2
Erythranthe marmorata	Stanislaus monkeyflower	Phrymaceae	annual herb	Mar-May	1B.1	SX	GXQ
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.2	S2	G2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	1B.1	S2	G2T2
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	1B.3	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul(Sep)	1B.1	S1	G1
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	2B.2	S2	G5

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California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 22 December 2020].

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