

Biological Resources Evaluation for the Reading Island Boat Ramp Project



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Sacramento River Forum

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Summary

This report summarizes the habitats, wildlife and plants encountered during biological evaluations for the Reading Island Boat Ramp Project and provides recommendations for avoidance and mitigation measures to reduce project impacts to biological resources. Information in this report was supported by several field investigations conducted by Rob Irwin (Biologist – Sacramento River Forum) and Aurelia Gonzalez (Project Manager – Sacramento River Forum). Biological surveys were conducted on October 7 and November 4, 2022 and April 24, 2023.

Project Location and Description

The proposed Project is located in Tehama County, at River Mile 274, within the Redding Island River Access and Group Campground. The center of the project is at longitude-122.19665486 and latitude 40.39059192 in decimal degrees. A 49.47-acre Survey Area was established to evaluate biological resources within the project vicinity. This Survey Area is shown in Figure 1 and Figure 2.

Table 1. Survey Area Location Summary

Survey Area Size	49.47 acres
Survey Area Center Coordinates (NAD 83)	Latitude: 40.390002° N Longitude: -122.196738° W
Survey Area Center Coordinates (UTM)	UTM: 10N 568174.8766 4471354.7714
Public Land Survey System (PLSS)	Sections 3, 4, 9, and 10 of Township 29 North, Range 03 West MDB&M
USGS 7.5-Min Quadrangle Name	Balls Ferry, California

Vegetation and Habitat

The Survey Area is located on an island which is bordered by Anderson Creek on the west and the Sacramento River on east. The southern portion of the Survey Area is located at the confluence with Anderson Creek and the Sacramento River. The western boundary of the Survey Area encompasses a series of low terraces along Anderson Creek with deeper soils supporting riparian forest and woodlands. The interior of the island ranges from xeric areas with thin soils supporting grassland to valley oak woodland and savanna. The eastern boundary is along the Sacramento River which supports a thin band of riparian forest and scrub. The vegetation types within the Survey Area are displayed in Figure 3.

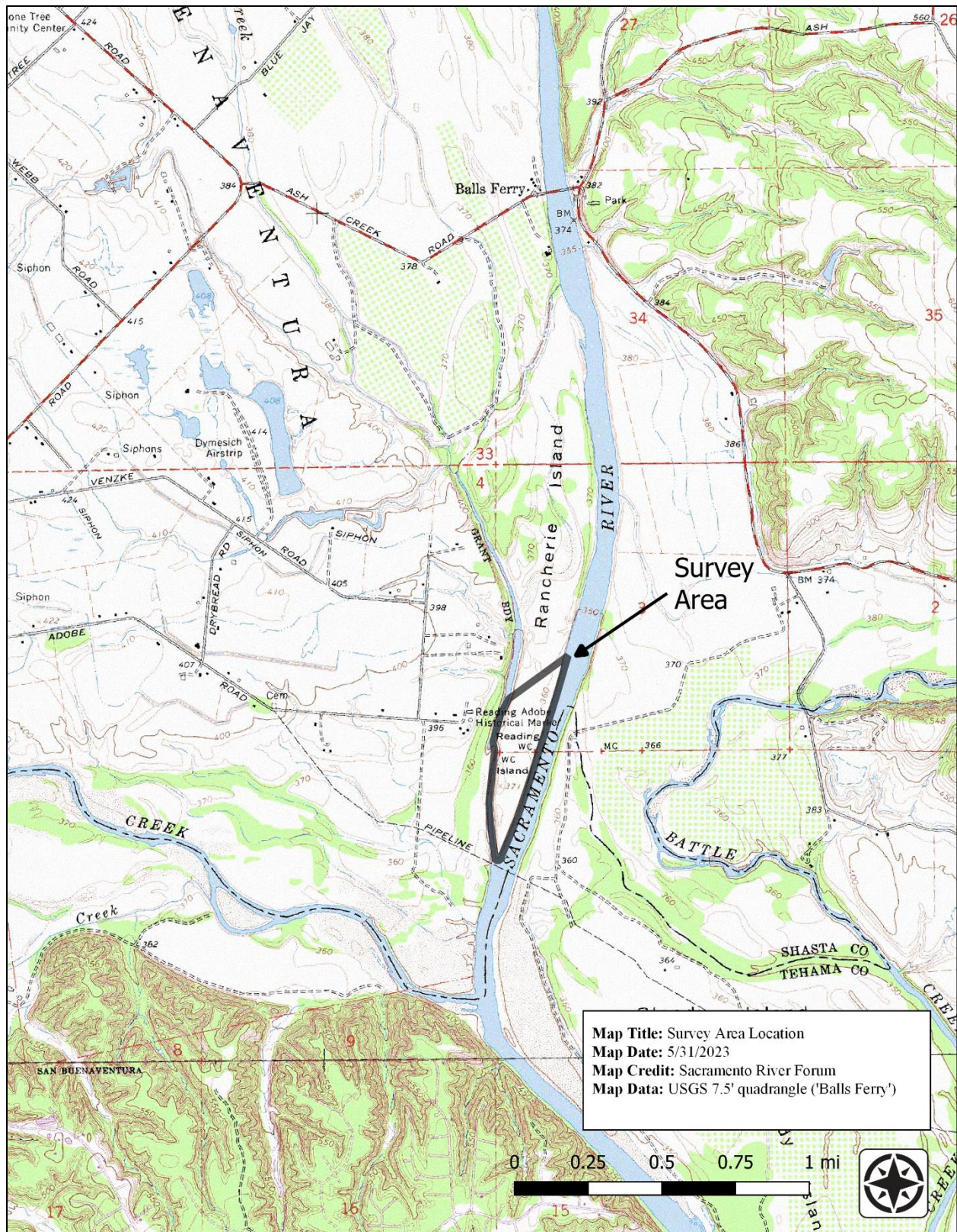


Figure 1. Survey Area Location Map

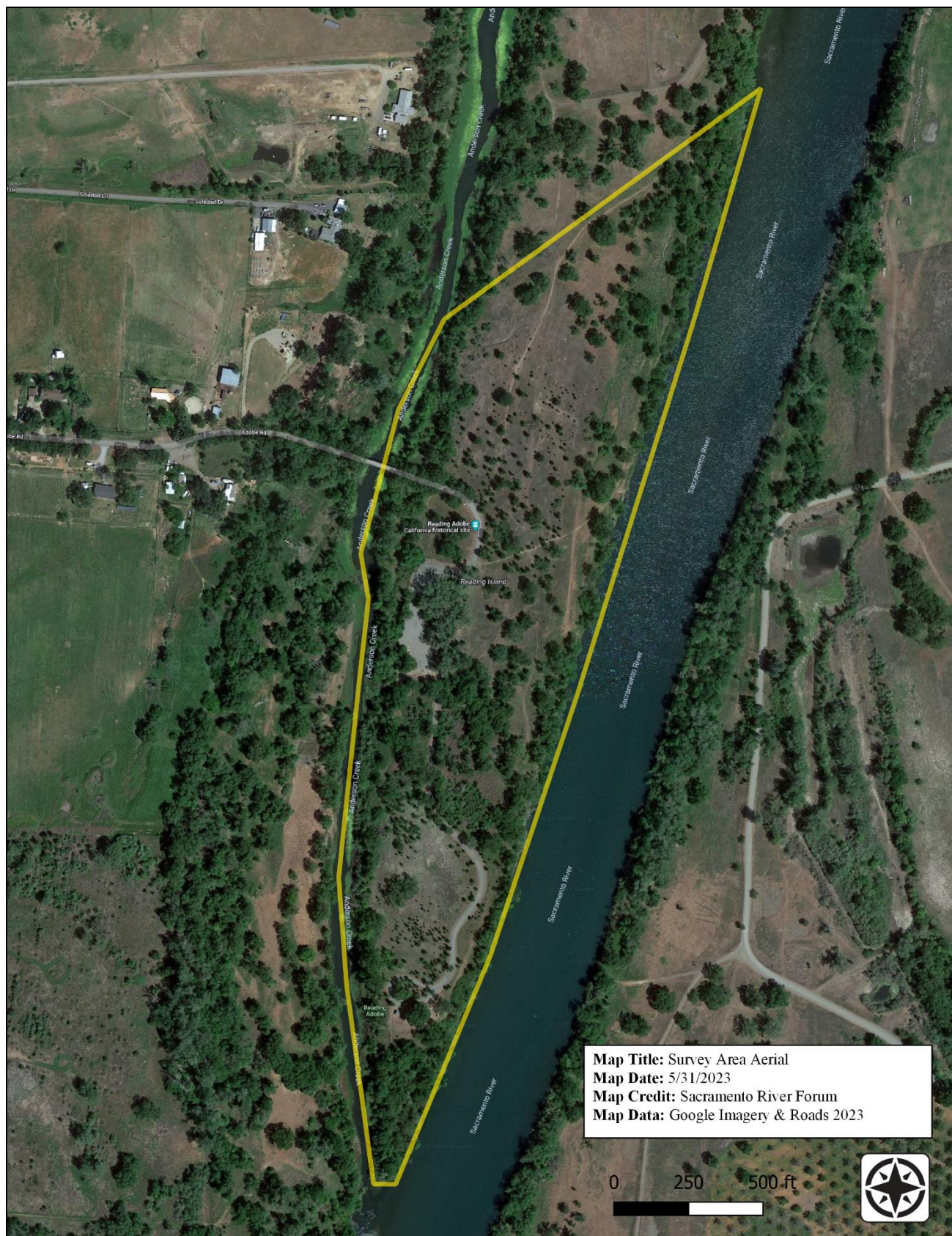
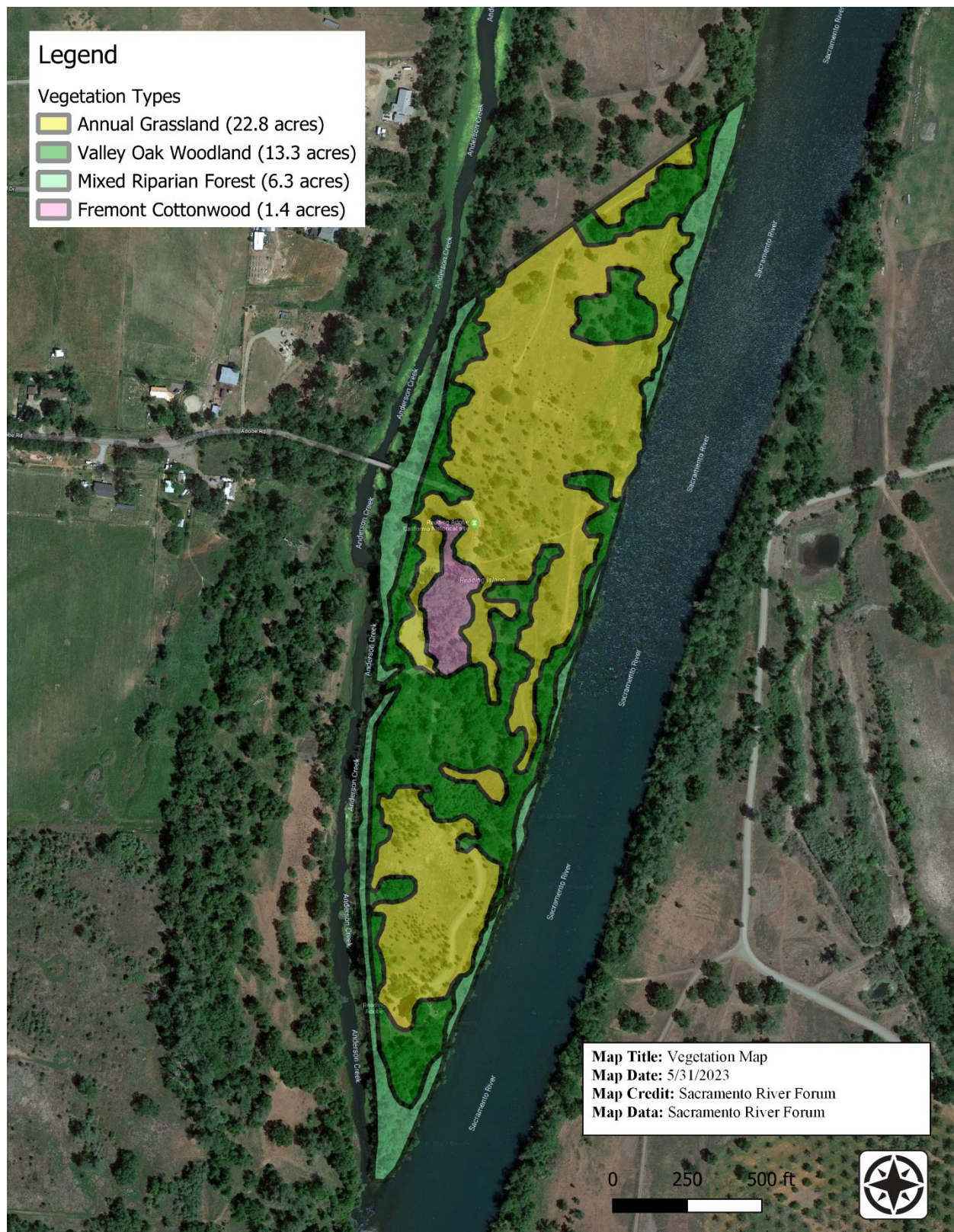


Figure 2. Aerial Photography of Survey Area



Soils

According the Web Soil Survey (U.S. Department of Agriculture 2022), most of the site's soils (33.8 acres) are composed of Reiff fine sandy loam, which is associated with deep alluvial fans and supports Valley Oak Woodland and Valley Oak Savanah and Annual Grassland. The second largest soils by area (8.3 acres) is Cobbly alluvial land, frequently flooded. The soils along Anderson Creek and the Sacramento River are classified as Water-Fluventic Haploxerepts are associated with Stream Channels and Floodplains.

Impacts to Critical Habitat

NMFS has designated the reach of Anderson Creek below the Adobe Road bridge as critical habitat for *Oncorhynchus tshawytscha* (Central Valley spring-run ESU). NMFS has also designated the Sacramento River adjacent to the study area as critical habitat for *Oncorhynchus tshawytscha* (Central Valley spring-run ESU), *Oncorhynchus tshawytscha* (Sacramento River winter-run ESU), and *Acipenser medirostris* (Southern DPS). Table 2 provides a summary of critical habitat designations within and adjacent to the study area.

Project activities within Anderson creek have the potential to impact critical habitat for the *Oncorhynchus tshawytscha* (Central Valley spring-run ESU). Primary constituent elements essential for conservation of this ESU are habitat components that support freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover supporting juvenile and adult mobility and survival (50 CFR 226.211). The following measures are proposed to reduce project impacts to critical habitat for this species:

- Minimization and Avoidance Measures for Fish
- Specific Protection Measures for Chinook Salmon

Table 2. Designated Critical Habitat within the Study Area

Listed Entity	Life Stage	Federal ESA Listing Status	Location
Salmon, Chinook [Central Valley spring-run ESU]	Rearing habitat	Threatened	Anderson Creek, downstream of Anderson Road Bridge to the Sacramento River
Salmon, Chinook [Central Valley spring-run ESU]	spawning, rearing, migration habitat	Threatened	Sacramento River
Salmon, Chinook [Sacramento River winter-run ESU]	-	Endangered	
Steelhead [California Central Valley DPS]	spawning, rearing, migration habitat	Threatened	
Sturgeon, green [Southern DPS]	-	Threatened	

Migratory Birds

Sixteen migratory birds that occur on the USFWS Birds of Conservation Concern (BCC) have the potential to occur within the Survey Area. These birds, their status, and breeding season are listed in the table below. The listing status of each bird is given as follows: BCC refers to Bird of Conservation Concern; CON refers to species whose conservation status is throughout the continental USA and Alaska; Vulnerable indicates the species is susceptible to certain development activities.

The following measures are proposed to reduce project impacts to migratory birds:

- Implement General Protection Measures for Birds
- Conduct Pre-Construction Surveys for Nesting Migratory Bird Treaty Act Species

Table 3. Birds of Conservation Concern that may occur within the Survey Area

Common Name	Species Name	Status	Breeding Season
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Non-BCC Vulnerable	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow	<i>Passerculus sandwichensis beldingi</i>	BCC - BCR	Breeds Apr 1 to Aug 15
Black Swift	<i>Cypseloides niger</i>	BCC Rangewide (CON)	Breeds Jun 15 to Sep 10
Bullock's Oriole	<i>Icterus bullockii</i>	BCC - BCR	Breeds Mar 21 to Jul 25
California Thrasher	<i>Toxostoma redivivum</i>	BCC Rangewide (CON)	Breeds Jan 1 to Jul 31
Cassin's Finch	<i>Carpodacus cassinii</i>	BCC Rangewide (CON)	Breeds May 15 to Jul 15
Common Yellowthroat	<i>Geothlypis trichas sinuosa</i>	BCC - BCR	Breeds May 20 to Jul 31
Golden Eagle	<i>Aquila chrysaetos</i>	Non-BCC Vulnerable	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch	<i>Carduelis lawrencei</i>	BCC Rangewide (CON)	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	BCC - BCR	Breeds Apr 1 to Jul 20
Oak Titmouse	<i>Baeolophus inornatus</i>	BCC Rangewide (CON)	Breeds Mar 15 to Jul 15
Olive-sided Flycatcher	<i>Contopus cooperi</i>	BCC Rangewide (CON)	Breeds May 20 to Aug 31
Tricolored Blackbird	<i>Agelaius tricolor</i>	BCC Rangewide (CON)	Breeds Mar 15 to Aug 10
Western Grebe	<i>Aechmophorus occidentalis</i>	BCC Rangewide (CON)	Breeds Jun 1 to Aug 31
Wrentit	<i>Chamaea fasciata</i>	BCC Rangewide (CON)	Breeds Mar 15 to Aug 10
Yellow-billed Magpie	<i>Pica nuttalli</i>	BCC Rangewide (CON)	Breeds Apr 1 to Jul 31

Special-Status Species Assessment

This section discusses 36 special-status species that were found to have some likelihood of occurring within the Survey Area. The likelihood of occurrence for each species was determined by examining the proximity to known occurrences and by the availability of suitable habitat within the Survey Area. Minimization and avoidance measures are proposed for those species with an occurrence likelihood of moderate or high.

The species list provided in Table 5 was generated in part by a query of the California Natural Diversity Database (CNDDDB 2023) of all species within 9 USGS quadrangles around the Survey Area (Table 4) and by querying IPaC (Appendix D, USFWS 2022). Additional species known to be in the vicinity but not within the CNDDDB query were also included.

Table 4. USGS 7.5-Minute Quadrangles Referenced for a California Natural Diversity Database Check of the Survey Area

Enterprise	Palo Cedro	Clough Gulch
Cottonwood	Balls Ferry	Tuscan Buttes NE
Hooker	Bend	Dales
* The Survey Area is located entirely within the Balls Ferry Quadrangle		

The listing status of each species is given as follows: CESA refers to the California Endangered Species Act listing; ESA refers to the federal Endangered Species Act listing status; CNPS listing reflects the California Native Plant Society Rare Plant Program status; CDFW refers to California Department of Fish and Wildlife; SSC refers to Species of Special Concern; FPS refers to Fully Protected Species.

Table 5. Special-Status Species Known to Occur or Likely to Occur within the Survey Area

Species	Common Name	Listing Status	Likelihood of Occurrence
Mammals			
<i>Antrozous pallidus</i>	Pallid Bat	CDFW: SSC	Moderate. Roosting and Foraging habitat available
<i>Corynorhinus townsendii</i>	Townsend's Big-Eared Bat	CDFW: SSC	Moderate. Roosting and Foraging habitat available
<i>Euderma maculatum</i>	Spotted Bat	CDFW: SSC	Low. Foraging habitat available, few nearby occurrences
<i>Lasiurus frantzii</i>	Western Red Bat	CDFW: SSC	High. Foraging and roosting habitat and nearby populations
Birds			
<i>Agelaius tricolor</i>	Tricolored Blackbird	CESA: Threatened, CDFW: SSC	Moderate. Nearby breeding colonies
<i>Athene cunicularia</i>	Burrowing Owl	CDFW: SSC	Moderate. Suitable habitat available

<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	ESA: Threatened, CESA: Endangered, CDFW: FP	Moderate. Suitable habitat available
<i>Haliaeetus leucocephalus</i>	Bald Eagle	ESA: Delisted, CESA: Endangered, CDFW: FP	High. Proximity to known nests and availability of suitable habitat
<i>Pandion haliaetus</i>	Osprey	CDFW: WL	High. Proximity to known nests and availability of suitable habitat
<i>Riparia riparia</i>	Bank Swallow	CESA: Threatened	Moderate. Nearby breeding colonies, Foraging habitat available
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	ESA: Endangered, CESA: Endangered	Low. Known distribution now restricted to Southern California.
Reptiles			
<i>Actinemys marmorata</i>	Western Pond Turtle	CDFW: SSC	High. Proximity to known populations and availability of potentially suitable habitat
Amphibians			
<i>Rana boylei</i> (pop. 1)	Foothill Yellow-Legged Frog – North Coast DPS	CDFW: SSC	Low. Lack of suitable habitat
<i>Spea hammondi</i>	Western Spadefoot	CDFW: SSC	Low. Lack of suitable habitat
Fish			
<i>Acipenser medirostris</i> (pop. 1)	Green Sturgeon-Southern DPS	ESA: Threatened CDFW: SSC	High. The Survey Area is within a reach of the Sacramento River that is habitat for this species.
<i>Entosphenus tridentatus</i>	Pacific Lamprey	CDFW: SSC	High. Proximity to known populations and availability of potentially suitable habitat
<i>Hypomesus transpacificus</i>	Delta Smelt	ESA: Threatened, CESA: Endangered	Low. Distance to known populations
<i>Oncorhynchus mykiss irideus</i> (pop. 11)	Steelhead - Central Valley DPS	ESA: Threatened	High. The Survey Area is within a reach of the Sacramento River that is habitat for this species.
<i>Oncorhynchus tshawytscha</i> (pop. 11)	Chinook Salmon - Central Valley Spring-Run ESU	ESA: Threatened, CESA: Threatened	High. The Survey Area is within a reach of the Sacramento River that is habitat for this species.
<i>Oncorhynchus tshawytscha</i> (pop. 7)	Chinook Salmon - Sacramento River Winter-Run ESU	ESA: Endangered, CESA: Endangered	High. The Survey Area is within a reach of the Sacramento River that is habitat for this species.
Invertebrates			
<i>Branchinecta conservatio</i>	Conservancy Fairy Shrimp	ESA: Endangered	Low. Lack of suitable habitat

<i>Branchinecta lynchi</i>	Vernal Pool Fairy Shrimp	ESA: Threatened	Low. Lack of suitable habitat
<i>Danaus plexippus</i> (pop. 1)	Monarch Butterfly	ESA: Candidate	Moderate. Nearby populations, but lack of breeding habitat.
<i>Desmocerus californicus dimorphus</i>	Valley Elderberry Longhorn Beetle	ESA: Threatened	High. Found in the Survey Area; availability of suitable habitat
<i>Lepidurus packardi</i>	Vernal Pool Tadpole Shrimp	ESA: Endangered	Low. Lack of suitable habitat
Plants			
<i>Acmispon rubriflorus</i>	Red-Flowered Bird's-Foot Trefoil	CNPS: 1B.1	Low. Distance to known populations and not observed during surveys.
<i>Agrostis hendersonii</i>	Henderson's Bent Grass	CNPS: 3.2	Low. Not detected during surveys and lack of suitable habitat.
<i>Balsamorhiza macrolepis</i>	Big-Scale Balsamroot	CNPS: 1B.2	Low. Distance to known populations and not observed during surveys.
<i>Brasenia schreberi</i>	Watershield	CNPS: 2B.3	Moderate. Availability of potentially suitable habitat.
<i>Clarkia borealis</i> ssp. <i>arida</i>	Shasta Clarkia	CNPS: 1B.1	Low. Not detected during surveys and lack of suitable habitat.
<i>Cryptantha crinita</i>	Silky Cryptantha	CNPS: 1B.2	Moderate. Proximity to known populations and availability of potentially suitable habitat
<i>Gratiola heterosepala</i>	Boggs Lake Hedge-Hyssop	CESA: Endangered, CNPS: 1B.2	Low. Not detected during surveys and lack of suitable habitat
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff Dwarf Rush	CNPS: 1B.1	Low. Not detected during surveys and lack of suitable habitat
<i>Lathyrus sulphureus</i> var. <i>argillaceus</i>	Dubious Pea	CNPS: 3	Low. Not detected during surveys and lack of suitable habitat
<i>Legenere limosa</i>	Legenere	CNPS: 1B.1	Low. Not detected during surveys and lack of suitable habitat
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	Woolly Meadowfoam	CNPS: 4.2	Low. Not detected during surveys and lack of suitable habitat
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's Navarretia	CNPS: 1B.1	Low. Not detected during surveys and lack of suitable habitat.
<i>Orcuttia tenuis</i>	Slender Orcutt Grass	ESA: Threatened, CESA: Endangered, CNPS: 1B.1	Low. Not detected during surveys and lack of suitable habitat
<i>Paronychia ahartii</i>	Ahart's Paronychia	CNPS: 1B.1	Low. Not detected during surveys and lack of suitable habitat

<i>Sagittaria sanfordii</i>	Sanford's Arrowhead	CNPS: 1B.2	Low. Distance to known populations and not observed during surveys
<i>Trifolium piorkowskii</i>	Maverick Clover	CNPS: 1B.2	Low. Distance to known populations and not observed during surveys

Mammals

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

Listing Status - CDFW: SSC

The pallid bat can be locally common in low elevations throughout much of California. A wide variety of habitats are utilized including grasslands, shrublands, woodlands. This species is most common in open, dry habitats with adequate roost sites which include caves, mines, and occasionally hollow trees and buildings. There are two recent observations of this species within 11 miles of the Survey Area. Large trees within the site's riparian areas could provide diurnal roosts. The availability of suitable foraging and roosting habitat indicate this species has a moderate likelihood of occurring within the Assessment Area. The following measures are proposed to reduce project impacts to *Antrozous pallidus*:

- Implement Protective Measures During Removal of Trees that Provide Suitable Bat Roosting Habitat

***Corynorhinus townsendii* (Townsend's Big-Eared Bat)**

Listing Status - CDFW: SSC

Townsend's big-eared bat is found throughout California but is considered uncommon in the state. The bat is most abundant in mesic habitats where it feeds of insects by gleaning from foliage along habitat edges. Maternity roots are found in caves, tunnels, mines, and buildings in relatively warm sites. These bats are at hibernacula from October to April. The closest known observation of this species is a single specimen taken in 1926 about 1.4 miles southeast of the Survey Area. The availability of suitable roosting habitat within the Survey Area is very low. There are a variety of residential structures within the vicinity, some of which could serve as roosting habitat. The riparian habitat within the site may provide suitable foraging habitat. This species is considered to have a moderate likelihood of occurring within the Survey Area. The following measures are proposed to reduce project impacts to *Corynorhinus townsendii*:

- Implement Protective Measures During Removal of Trees that Provide Suitable Bat Roosting Habitat

***Euderma maculatum* (Spotted Bat)**

Listing Status - CDFW: SSC

The spotted bat ranges through many western states. Its distribution is patchy, likely due to its dependence on large, isolated cliffs for roosting within 40 km of foraging areas (Luce and Keinath 2007). Foraging habitat can include large riverine/riparian areas, meadows, wetlands, and old agricultural fields. A single specimen from 1983 was collected about 11.5 miles

northeast of the Survey Area. Suitable roosting habitat for this species does not occur within the Survey Area, but is available within 40 km of the Survey Area. Potential foraging habitat does occur within the Survey Area and vicinity. The small number of nearby occurrences indicates that this species has a low likelihood of occurring in the Survey Area.

***Lasiurus frantzii* (Western Red Bat)**

Listing Status - CDFW: SSC

Lasiurus frantzii is locally common in some parts of California between Shasta County to the Mexican border and west of the Sierra Nevada / Cascade crests. The bat's winter range includes western lowlands. Migration occurs between winter and summer ranges. Roosts are primarily in trees often in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected above, open below, and located above dark groundcover. Foraging is typically along edges or habitat mosaics near roost trees and open areas. There are two known observations of this species within 10 miles of the Survey Area. Suitable roost trees and foraging habitat is available within the Survey Area and throughout the vicinity. This species is considered to have a high probability of occurring within the site. The following measures are proposed to reduce project impacts to *Lasiurus frantzii*:

- Protective Measures During Removal of Trees that Provide Suitable Bat Roosting Habitat

Birds

***Agelaius tricolor* (Tricolored Blackbird)**

Listing Status - CESA: Threatened, CDFW: SSC

The project site is within the species current range. Breeding colonies are generally found in the San Joaquin and southern Sacramento Valley in freshwater marshes with tall emergent vegetation. About 11 observations of colonies are within 5 miles of the Survey Area (CNDDDB 2023). Pre-project avian surveys along Anderson Creek did not find patches of emergent seasonal wetland vegetation typical of nesting sites such as cattails (*Typha latifolia*) or tules (*Schoenoplectus* sp.). However, these habitats are present within the vicinity. The availability of nearby breeding habitat and nearby occurrences indicate that this species has a moderate likelihood of occurring within the Survey Area. The following measure is proposed to reduce project impacts to *Agelaius tricolor*:

- Implement General Protection Measures for Birds
- Conduct Pre-Construction Surveys for Nesting Migratory Bird Treaty Act Species

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

Listing Status - CDFW: SSC

Burrowing Owls are found in open landscapes in North and South America, and was historically common and locally abundant throughout much of California. Breeding occurs in open areas with mammal burrows in various open habitats including dry open rolling hills, grasslands,

fallow fields, washes, arroyos, and human disturbed landscapes. In California, nests and roost burrows are most commonly dug by ground squirrels such as *Spermophilus beecheyi* (Shuford 2008). Within the Survey Area, burrowing mammal activity in annual grassland could provide suitable habitat for Burrowing Owls. However, only two populations are known, both are within 8 miles in the Dales Lake area. The availability of potentially suitable habitat indicate that this species has a moderate likelihood of occurring within the Survey Area. The following measures (CDFW 2012) are proposed to reduce project impacts to *Athene cunicularia*.

- Specific Protection Measures for Burrowing Owls

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

Listing Status - ESA: Threatened, CESA: Endangered

The closest known observation of this species is located along the Sacramento River approximately 16 miles south of the Survey Area (CNDDDB 2023). Critical habitat has been proposed for the Sacramento River Corridor (Federal Register: 79 FR 48547) and its northern extent is 16 miles south of the Survey Area.

WYBC prefer dense riparian thickets with low-level foliage near slow-moving water sources. Nest are typically constructed in willows. Yellow-billed cuckoos typically forage by gleaning large insects. Foraging occurs extensively in cottonwood riparian habitat (Hughes 1999). Laymon and Halterman (1989) proposed that optimum habitat patches for the western yellow-billed cuckoo are greater than 200 acres in size and wider than 1,950 feet; sites 101 to 200 acres in size and wider than 650 feet were suitable; sites 50 to 100 acres in size and 325 to 65 feet were marginal; while sites with smaller habitat patches were defined as unsuitable.

A total of approximately 14.7 acres of riparian vegetation occurs within the Survey Area (see Figure 3). These riparian habitats include mixed riparian forest and Fremont cottonwood riparian forest. These riparian habitats form a relatively contiguous patch with a relatively open understory. Larger patches of riparian vegetation occur within the vicinity, particularly around the Survey Area, along Anderson Creek, Battle Creek and the Sacramento River. Although potentially suitable habitat occurs within the vicinity, the distance to known occurrences indicate that this species has a low likelihood of occurring within the Survey Area. The following measures are proposed to reduce project impacts to *Coccyzus americanus occidentalis*:

- General Protection Measures for Birds
- Pre-Construction Surveys for Nesting Migratory Bird Treaty Act Species

***Haliaeetus leucocephalus* (Bald Eagle)**

Listing Status - ESA: Delisted, CESA: Endangered, CDFW: FP

Haliaeetus leucocephalus is a bird of prey found in North America. The species is an opportunistic feeder, subsisting mainly on fish. During the breeding season, Bald Eagles occur in wetlands, seacoasts, rivers, lakes or marshes or other large bodies of open water with abundant fish. A large nest was documented in 1988 less than 0.2 miles east of the Survey Area. Two other nests are documented within 4 miles of the Survey Area. During biological surveys in 2022, Forum Staff did not observe Bald Eagle nests within the Survey Area, however many large trees in the site, and nearby along the Sacramento River could serve as nest sites. The

proximity to active nests, and the availability of large trees and snags within project site and immediate vicinity indicate that this species is highly likely to occur within the site. A qualified biologist should conduct a pre-construction survey no less than 14 days prior to initiating ground disturbance activities. If an active bald eagle nest is found within 0.5 mile of the Survey Area, the following protection measures are proposed for implementation:

- Implement Specific Protection Measures for the Bald Eagle

***Pandion haliaetus* (Osprey)**

Listing Status - CDFW: WL

Pandion haliaetus have a worldwide distribution. They are migratory throughout most of their range, wintering in Central and South America. In California, Osprey arrive at nesting grounds in mid-March to early April. They feed primarily on fish but also take mammals, birds, reptiles, amphibians, and invertebrates. Large trees, snags, and dead-topped trees in open forest habitats are utilized for cover and nesting. A total of 8 active nests were documented within five miles of the Survey Area (CNDDDB 2023). *Pandion haliaetus* was observed adjacent to the Survey Area during biological surveys in 2022. The numerous large trees and snags in proximity to the Sacramento River indicate that suitable habitat is present. This species is considered to have a high likelihood of occurring within the Survey Area. The following measure is proposed to reduce project impacts to *Pandion haliaetus*:

- Implement General Protection Measures for Birds
- Conduct Pre-Construction Surveys for Nesting Raptors

***Riparia riparia* (Bank Swallow)**

Listing Status - CESA: Threatened

Bank Swallows nest in colonies in recently eroded vertical cliffs or banks with friable soils. Foraging is often in open areas over fields, marshes, ponds, and open water. Two colonies have been documented on the Sacramento River within one mile of the Survey Area (CNDDDB 2023, BANS-TAC 2022). This species was not detected during biological surveys, although suitable foraging habitat is available over the fields, ponds, and river within the site. The availability of foraging habitat, and nearby colonies indicate that this species has a moderate likelihood of occurring within the Survey Area. The following measure is proposed to reduce project impacts to *Riparia riparia*:

- Implement General Protection Measures for Birds
- Conduct Pre-Construction Surveys for Nesting Migratory Bird Treaty Act Species

***Vireo bellii pusillus* (Least Bell's Vireo)**

Listing Status - ESA: Endangered, CESA: Endangered

This species was historically present along the Sacramento Valley as far north as Red Bluff. The current known distribution of Least Bell's Vireo is restricted to Southern California. This species is considered to have a low likelihood of occurring within the Survey Area.

Reptiles

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

Listing Status - CDFW: SSC

This western pond turtle inhabits a wide range of waterbodies. Nest sites are typically on gentle slopes in compact soil from 10 to 1,300 feet from aquatic habitats. Overwintering sites are typically in upland habitat beyond the riparian zone, however aquatic environments such as mud bottoms, beneath undercut banks or logs, or in areas of emergent vegetation may be used for overwintering sites. This species may be inactive in the winter or active throughout the year depending on environmental conditions. This species was seen during biological surveys in April 2023. Several individuals were seen basking on logs in Anderson Creek south of Anderson Road Bridge. Suitable aquatic habitat for this species is available in the Sacramento River and Anderson Creek, and upland overwintering habitat is available throughout the Survey Area. This species is considered to have a high likelihood of occurring onsite. The following measure is proposed to reduce project impacts to *Actinemys marmorata*:

- Specific Protection Measures for the Western Pond Turtle

Amphibians

***Rana boylei* - pop. 1 (Foothill Yellow-Legged Frog - North Coast DPS)**

Listing Status - CDFW: SSC

Rana boylei is a small sized frog found in the foothills of the Sierra Nevada and the Cascade and Coast Ranges of Oregon and California. These frogs are found in or near rocky streams in a variety of habitats. Adults prey on aquatic and terrestrial invertebrates, while tadpoles are thought to graze on algae and diatoms along rocky stream bottoms. Within Northern California, *Rana boylei* is likely inactive or hibernating during the winter. The nearest populations of *Rana boylei* are more than six miles to the south in Paynes Creek (CNDDDB 2023). Anderson Creek would provide suitable habitat, but the large population of American bullfrogs pose a predation pressure that likely precludes *Rana boylei* from persisting in Anderson Creek. The profusion of *Ludwigia peploides* along the margins of the Anderson Creek would reduce basking sites for this species. These ecological conditions indicate that *Rana boylei* has a low likelihood of occurring within the Survey Area.

***Spea hammondi* (Western Spadefoot)**

Listing Status - CDFW: SSC

Spea hammondi is a species of American spadefoot toad that is found throughout the Central Valley of California. Occupied habitats primarily include grasslands, but they are also found in scrub, chaparral, and oak woodlands. Grasslands with shallow temporary pools are optimal habitats for *Spea hammondi*. Adults are nocturnal and are active during the wet season or during summer rainstorms. Adults spend most of the year in underground burrows up to 36 inches deep. Breeding and egg laying occur in shallow, temporary pools formed by heavy winter rains. Approximately six occurrences are within 10 miles of the Survey Area. These populations are found in annual grasslands associated with vernal pools. Suitable habitat, such as temporary pools, is not present within the Survey Area. The lack of suitable habitat indicates that *Spea hammondi* has a low likelihood of occurring within the Survey Area.

Fish

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

Listing Status - ESA: Threatened, CDFW Status: SSC

Adult green sturgeon typically return from the Pacific Ocean to the Sacramento River to spawn between February and March and are thought to select deeper holes with fast flowing water and cobble sediment for spawning. Juveniles rear in fresh water for 1-2 years before migrating to the ocean where they mature into adults. The project is within a reach of the Sacramento River that has been designated as critical habitat for the North American Green Sturgeon Southern DPS of *Acipenser medirostris*. The Sacramento River provides spawning, adult holding, foraging, and juvenile rearing habitat for this species. This species is considered to have a high likelihood of occurring within the Sacramento River adjacent to the Survey Area. The following measures are proposed to reduce project impacts to *Acipenser medirostris*:

- General Minimization and Avoidance Measures for Fish

***Entosphenus tridentatus* (Pacific Lamprey)**

Listing Status - CDFW: SSC

Pacific lamprey are large anadromous and parasitic fish with a historic geographic range including the entire Pacific Rim. The species is thought to be declining or locally extirpated from parts of California. Adults migrate from the Pacific Ocean into freshwater and reside for months to years prior to spawning. Lamprey spawn and rear in low gradient stream reaches with complex channel structure, pools, riffles, and stream margins and side channels with finer sediment and detritus. Eggs hatch in graveled upstream areas and newly emerged ammocoetes drift downstream to silt areas, where the ammocoetes remain in stream and metamorphose in 4-7 years (Goodman and Reid 2012). Ammocoetes are known to rear in fine sediments with organic matter and detritus in slow depositional areas along streambanks. Suitable spawning and rearing habitat for this species occurs within the Survey Area, particularly in Anderson Creek which is low gradient with sediment laden substrates and some gravel. Due to the presence of suitable habitat within this species known range, Pacific lamprey are considered to have a high likelihood of occurring within the Survey Area.

Hypomesus transpacificus (Delta Smelt)

Listing Status - ESA: Threatened, CESA: Endangered

The Delta Smelt are a small fish endemic to the upper San Francisco Bay-Delta Estuary. Delta smelt can be found in the Sacramento River from Sherman Lake and Rio Vista and parts of the Sacramento Deep Water Channel Region (USFWS 2016). Due to a lack of nearby occurrences, this species is considered to have a low likelihood of occurring within the Survey Area.

Oncorhynchus mykiss irideus (Steelhead - Central Valley DPS)

Listing Status - ESA: Threatened

The Survey Area is within a reach of the Sacramento River that has been designated as critical habitat for *Oncorhynchus mykiss irideus*. The Sacramento River provides spawning, adult holding, foraging, and juvenile rearing habitat for this species. This species is considered to have a high likelihood of occurring within the Sacramento River adjacent to the Survey Area. The following measures are proposed to reduce project-related impacts to *Oncorhynchus mykiss irideus*:

- Minimization and Avoidance Measures for Fish
- Specific Protection Measures for Chinook Salmon

Oncorhynchus tshawytscha (Chinook Salmon - Central Valley spring-run ESU)

Listing Status - ESA: Threatened, CESA: Threatened

The Survey Area includes sections of Anderson Creek and the Sacramento River that are critical habitat for Central Valley spring-run ESU. Anderson Creek provides rearing habitat for this species. The Sacramento River provides spawning, adult holding, foraging, and juvenile rearing habitat for this species. This species is considered to have a high likelihood of occurring within Anderson Creek and within the Sacramento River adjacent to the Survey Area. The following measures are proposed to reduce project impacts to *Oncorhynchus tshawytscha*:

- Minimization and Avoidance Measures for Fish
- Specific Protection Measures for Chinook Salmon

Oncorhynchus tshawytscha (Chinook Salmon - Sacramento River winter-run ESU)

Listing Status - ESA: Endangered, CESA: Endangered

The Survey Area is within a reach of the Sacramento River that has been designated as critical habitat for the Sacramento River Winter-Run ESU. The Sacramento River provides spawning, adult holding, foraging, and juvenile rearing habitat for *Oncorhynchus tshawytscha*. This species is considered to have a high likelihood of occurring within the Sacramento River adjacent to the Survey Area. The following measures are proposed to reduce project impacts to *Oncorhynchus tshawytscha*:

- Minimization and Avoidance Measures for Fish
- Specific Protection Measures for Chinook Salmon

Invertebrates

***Branchinecta conservatio* (Conservancy Fairy Shrimp)**

Listing Status - ESA: Endangered

Branchinecta conservatio inhabit vernal pools and vernal pool-like habitats in California's Central Valley. No vernal pools, vernal swales or similar ephemeral aquatic habitats were found within the site. Due to a lack of suitable habitat, this species is considered to have a low likelihood of occurring within the Survey Area.

***Branchinecta lynchi* (Vernal Pool Fairy Shrimp)**

Listing Status - ESA: Threatened

Branchinecta lynchi inhabit vernal pools and vernal pool-like habitats. No vernal pools, vernal swales or similar ephemeral aquatic habitats were found within the site. Due to a lack of suitable habitat, this species is considered to have a low likelihood of occurring within the Survey Area.

***Danaus plexippus* - pop. 1 (Monarch Butterfly)**

Listing Status - ESA: Candidate

This western population overwinters in coastal California in forested groves and in the spring, spread out across interior California and several western states. Breeding habitat is characterized by the presence of early spring milkweeds, with *Asclepias fascicularis* and *Asclepias speciosa* being two commonly used species in California. There is data to suggest that monarchs in the western U.S. occur along rivers and autumn migrants follow river corridors (Jepsen et al. 2015). There are six confirmed observations of this species within 18 miles of the Survey Area (GBIF 2023). No milkweeds were found within the Survey Area (Appendix A), but milkweeds are very likely within the immediate vicinity. Due to the presence of nearby populations and nearby suitable habitat, this species is considered to have a moderate likelihood of occurring onsite.

***Desmocerus californicus dimorphus* (Valley Elderberry Longhorn Beetle)**

Listing Status - ESA: Threatened

The valley elderberry longhorn beetle (VELB) requires elderberry shrubs (*Sambucus* sp.) for larval development. Numerous blue elderberry shrubs (*Sambucus mexicana*) occur within the Survey Area. Scattered shrubs and dense stands of elderberry can be found growing with Valley Oak (*Quercus lobata*). VELB galleries and exit holes were observed in elderberry stems within the Survey Area in 1998 (CNDDDB 2023). All elderberry shrubs within the site are considered potential habitat for the valley elderberry longhorn beetle. Due to documented occurrences onsite and the availability of suitable habitat, this species is considered to have a high likelihood

of occurring within the Survey Area. To reduce project impacts to *Desmocerus californicus dimorphus*, the following measures (USFWS 2017) are proposed:

- Implement Specific Protection Measures for Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*).

***Lepidurus packardii* (vernal pool tadpole shrimp)**

Listing Status - ESA: Endangered

Lepidurus packardii inhabit vernal pools and vernal pool-like habitats. No vernal pools, vernal swales or similar ephemeral aquatic habitats were found within the site. Due to a lack of suitable habitat, this species is considered to have a low likelihood of occurring within the Survey Area.

Plants

***Acmispon rubriflorus* (Red-Flowered Bird's-Foot Trefoil)**

Listing Status - CNPS: 1B.1

Acmispon rubriflorus is an annual herb endemic to California known from four disjunct occurrences. The closest known occurrence to the Survey Area is located 7 miles to the southeast on a volcanic plateau near Dale's Lake a grassland supporting vernal pools and swales. No seasonal or temporary pools analogous to vernal pool habitat were found within the Survey Area. *Acmispon rubriflorus* was not detected during botanical surveys and was determined to have a low likelihood of occurring within the Survey Area due to the lack of suitable habitat.

***Agrostis hendersonii* (Henderson's Bent Grass)**

Listing Status - CNPS: 3.2

Agrostis hendersonii is an annual grass native to California. It is found in mesic habitats in valley and foothill grassland and in vernal pools. The closest known occurrence to the Survey Area is located 6 miles to the northeast on a volcanic plateau supporting vernal pools and vernal swales. No seasonal or temporary pools analogous to vernal pool habitat were found within the Survey Area. The grasslands within the Survey Area are relatively well-drained and not characteristic of suitable habitat for this species. *Agrostis hendersonii* was not detected during surveys and due to the lack of suitable habitat, this species was determined to have a low likelihood of occurring within the Survey Area.

***Balsamorhiza macrolepis* (Big-Scale Balsamroot)**

Listing Status - CNPS: 1B.2

Balsamorhiza macrolepis is a perennial herb native to California which is found on slopes in Foothill Woodland and Valley Grassland. This plant has a strong affinity with ultramafic soils.

The closest known occurrence to the Survey Area is located 9.7 miles to the northeast. The relatively flat alluvial soils within the Survey Area are not characteristic of this species preferred habitat. *Balsamorhiza macrolepis* was not detected during surveys and due to the lack of suitable habitat and nearby populations, this species was determined to have a low likelihood of occurring within the Survey Area.

***Brasenia schreberi* (Watershield)**

Listing Status - CNPS: 2B.3

Brasenia schreberi is a perennial aquatic plant native to California. It is associated with wetlands and wetland-riparian communities and is found in ponds and slow streams. The closest known occurrence to the Survey Area is located 7.4 miles to the north in a large pond. The slow currents in Anderson Creek may be suitable for *Brasenia schreberi*. However, this species was not detected during surveys but due to availability of suitable habitat, this species was determined to have a moderate likelihood of occurring within the Survey Area (Appendix A).

***Clarkia borealis* ssp. *arida* (Shasta Clarkia)**

Listing Status - CNPS: 1B.1

The Shasta clarkia (*Clarkia borealis* ssp. *arida*) is an annual herb that is endemic to California. This species is restricted to a small number of populations in foothill woodland habitats in the Kamath Ranges and the foothills of the Cascade Range. The closest known occurrence to the Survey Area is located 12 miles to the east (Harlan Lewis, 2012). *Clarkia borealis* ssp. *arida* was not detected during surveys and due to the lack of suitable habitat, this species was determined to have a low likelihood of occurring within the Survey Area due to the lack of nearby populations.

***Cryptantha crinita* (Silky Cryptantha)**

Listing Status - CNPS: 1B.2

Cryptantha crinita is found in intermittent stream gravel bars and streambeds in nearby tributaries of the Sacramento River. The closest known occurrence to the Survey Area is located 0.4 miles to the south along the Cottonwood Creek. A low terrace adjacent to the river contains some cobble and sandy soils and which appear marginally suitable for this species. The proximity to known populations and the availability of potentially habitat indicates that *Cryptantha crinita* may occur within the vicinity. This species was not detected during botanical surveys, although potentially suitable habitat was found. This species was considered to have a moderate likelihood of occurring within the Survey Area (Appendix A). The following measures are proposed to reduce project impacts to *Cryptantha crinita*:

- General Measures to Protect Special-Status Species

***Gratiola heterosepala* (Boggs Lake Hedge-Hyssop)**

Listing Status - CESA: Endangered, CNPS: 1B.2

This species occurs along lake-margins, marshes, swamps and vernal pool edges on clay soils. No temporary or seasonal pools analogous to nearby vernal pool habitats were found within the Survey Area. Clay soils were not found within the site, indicating that suitable habitat is not available for this species. *Gratiola heterosepala* was not detected during surveys and due to the lack of suitable habitat, this species was determined to have a low likelihood of occurring within the Survey Area.

***Juncus leiospermus* var. *leiospermus* (Red Bluff Dwarf Rush)**

Listing Status - CNPS: 1B.1

Juncus leiospermus var. *leiospermus* is an annual herb endemic to California that is found in vernal mesic microhabitats such as vernal pools in chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland. The closest known occurrences of this species are located 6.6 miles north of the project site. Vernal mesic habitat such as seasonal pools or vernal pools were not found within the Survey Area, indicating that suitable habitat is not present for this species. Red Bluff dwarf rush was not detected during surveys and due to lack of suitable habitat, this species was determined to have a low likelihood of occurring within the Survey Area.

***Lathyrus sulphureus* var. *argillaceus* (Dubious Pea)**

Listing Status - CNPS: 3

Lathyrus sulphureus var. *argillaceus* is a perennial herb endemic to California. It is found in brushy places in foothill woodland and fir forest habitats. The closest occurrence is from a 1911 collection located 16 miles north in Redding. All of the remaining occurrences are more than 20 miles from the Survey Area. This species was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area.

***Legenere limosa* (legenere)**

Listing Status - CNPS: 1B.1

Legenere limosa is an annual herb endemic to California that is found in vernal pools and similar habitats. These habitat types were not found in the Survey Area. This species was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area.

***Limnanthes floccosa* ssp. *floccosa* (woolly meadowfoam)**

Listing Status - CNPS: 4.2

Woolly meadowfoam is an annual herb native to Oregon and California. Occupied microhabitats are vernal mesic and are typically in vernal pools, chaparral, cismontane woodland, valley and foothill grassland. The closest observation is 2.6 miles to the east on Tuscan flows. Suitable

vernally mesic habitat for this species is not present within the Survey Area. This species was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area.

***Navarretia leucocephala* ssp. *bakeri* (Baker's Navarretia)**

Listing Status - CNPS: 1B.1

Navarretia leucocephala ssp. *bakeri* is an annual herb endemic to California that is found in vernal mesic microhabitats in cismontane woodland, low coniferous forests, meadows and seeps, valley and foothill grassland, and vernal pool habitats. Suitable vernal mesic habitat for this species is not present within the Survey Area. *Navarretia leucocephala* ssp. *bakeri* was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area.

***Orcuttia tenuis* (Slender Orcutt Grass)**

Listing Status - ESA: Threatened, CESA: Endangered, CNPS: 1B.1

Orcuttia tenuis is an annual grass endemic to California's Central Valley and Modoc Plateau regions. Occupied habitats are often gravelly vernal pools; however, it has been reported from other natural and artificial wetlands such as stock ponds and borrow pits. These habitat types do not occur within the Survey Area. *Orcuttia tenuis* was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area due to a lack of suitable habitat.

***Paronychia ahartii* (Ahart's Paronychia)**

Listing Status - CNPS: 1B.1

Paronychia ahartii is an annual herb endemic to Northern California. It is found in Cismontane woodland, Valley and foothill grassland and Vernal pool habitats. Microhabitats are often vernal moist and on barren clay or thin rocky soils with low plant cover. *Paronychia ahartii* was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area due to a lack of suitable habitat.

***Sagittaria sanfordii* (Sanford's Arrowhead)**

Listing Status - CNPS: 1B.2

Sagittaria sanfordii is a perennial herb endemic to California. It is distributed in the Central Valley and northern San Joaquin Valley. Occupied habitats are freshwater wetlands and wetland-riparian habitats. There are no occurrences along the Sacramento River north of Sacramento. The closest populations are on upland volcanic terraces 7.4 miles southeast of the Survey Area. *Sagittaria sanfordii* was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area.

***Trifolium piorkowskii* (Maverick Clover)**

Listing Status - CNPS: 1B.2

Trifolium piorkowskii is an annual herb native to California. It is only known from one population on the Tuscan Buttes, on a volcanic plateau north of Battle Creek. Suitable soils include volcanic clays. The project site does not contain suitable habitat. *Trifolium piorkowskii* was not detected during surveys and was determined to have a low likelihood of occurring within the Survey Area.

Proposed Mitigation Measures for Biological Resources

Implement General Measures to Protect Special-Status Species

The following measures shall be implemented and enforced during all project construction activities to avoid or minimize adverse effects on candidate, sensitive, and special-status species.

- *Fencing*: All sensitive areas to be avoided during construction activities shall be fenced and/or flagged as close to construction limits as feasible.
- *Construction monitoring*: A qualified biologist shall monitor the construction area at appropriate intervals to assure Contractor implementation and adherence with all established resource impact avoidance/minimization measures. The amount and duration of monitoring shall depend upon project specifics and shall be based upon consultation with CDFW, USFWS, and permitting entity's personnel.
- *Worker awareness training*: Before any construction begins, a qualified biologist shall conduct a mandatory training session for all construction crew personnel. The training shall include a discussion of the sensitive biological resources, including the valley elderberry longhorn beetle and its elderberry host plant, within the Survey Area and the potential presence of special-status species. Special-status species habitat protection measures (including Best Management Practices, Mitigation Measures, permit requirements, and other site-specific requirements established by the project manager or agency personnel) shall also be discussed along with the extent of project boundaries to ensure such species are not impacted by project activities. The training and any supporting materials shall include a discussion of penalties for noncompliance. Upon completion of training, construction personnel shall sign a form stating that they have attended the training and understand all the conservation measures. Training shall be conducted in English and other languages, as appropriate. Proof of this instruction (signed forms) shall be kept on file with contractor and the project manager, who shall provide a copy (as requested) to USFWS and permitting entities, along with a copy of the training materials.

- *Delineation of Project boundary*: Project boundaries shall be clearly marked on final project design drawings with work confined within those boundaries. Prior to construction, the project contractor and project manager shall meet on site to agree upon and flag boundaries of sensitive areas, particularly those within riparian areas.
- *Relocation of special-status species*: If a special-status species enters a work area, the project contractor shall contact the project manager for further guidance. In such instances the project manager shall contact appropriate State and/or federal regulatory agencies for guidance. If a federal or State- listed species or any other special- status species enters the work area, the species shall not be captured or handled without permission from the appropriate agency (State listed – CDFW; Federally listed – USFWS) as conveyed to the project contractor by the project manager. Construction activities shall cease until it is determined that the species shall not be harmed or that it has left the construction area on its own.

Minimization and Avoidance Measures for Fish

To reduce the potential for impacts to special status fish species during project implementation, the following measures shall be employed.

- Work windows shall be restricted to October 1 to March 1 for any channel with flowing water. Work in areas separated from the main channel by gravel berms that are naturally present or artificially created may occur outside this window, as long as other environmental work is in compliance with related work windows.
- Heavy equipment operation practices that minimize the potential for injury or death of listed aquatic species' vulnerable life stages shall include alerting fish to equipment operation in the channel before gravel is placed in watered areas (e.g., slow, deliberate equipment operation and tapping water surface prior to entering in place or newly developed slough channels).
- Work within watered areas shall only occur for up to 12 hours per day to allow a 12-hour window of time for fish to migrate through without noise disturbance.
- In-water work with heavy equipment shall be completed during timing windows designed to have the lowest potential to adversely affect salmonids and sturgeon. Where feasible (i.e. in most side channel areas), the work area shall be separated from the river by gravel berms or other methods to prevent fish from entering the work area.
- Any work with the potential to affect listed salmonids shall require consultation with CDFW and/or NMFS. Such work shall also be implemented according to the requirements of all appropriate permits or other authorizations.

Implement Specific Protection Measures for Chinook Salmon

Within one week prior to construction, the designated qualified biologist shall coordinate with CDFW to determine if salmon are spawning in the Sacramento River at that time. If so, the qualified biologist shall obtain real-time aerial or boat redd survey data from CDFW, if available. A qualified biologist shall perform pre-construction surveys the day prior to construction; if redds from listed species are present within 200 feet downstream of the Survey Area the designated qualified biologist shall contact NMFS with an impact minimization plan to be approved by NMFS personnel prior to final approval of project implementation.

Prevent the Introduction of Invasive Plant Species

- Construction equipment shall be washed prior to entering the Survey Area
- If straw bales or other vegetative materials are used for erosion control, they shall be certified weed free
- All re-vegetation materials (e.g., mulches, seed mixtures) shall be certified weed free and come from locally adapted native plant materials to the extent practicable

Implement Specific Protection Measures for the Western Pond Turtle

If a western pond turtle is observed in the Survey Area during construction activities, the Contractor shall temporarily halt construction until it is determined that the turtle will not be harmed or until the turtle has moved to a safe location outside of the construction limits. The Contractor shall inform the Project Manager of such occurrences. If construction is to occur during the nesting season (late June - July), a pre-construction survey for turtles and nest sites shall be conducted by a qualified biologist. This survey shall be conducted within 660 feet of the Survey Area no more than 2 days prior to the start of construction or restoration activities in suitable habitat. If a pond turtle nest is found, the biologist shall flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, in consultation with CDFW, a no-disturbance buffer zone may be established around the nest until the young have left the nest. If weather conditions prevent implementation of construction for more than 2 days after completion of turtle surveys, resurvey for this species shall be completed.

Implement Specific Protection Measures for Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The following protection measures (United States Fish and Wildlife Service 2017) shall be implemented to protect valley elderberry longhorn beetles and their host plant, the elderberry shrub, if elderberry shrubs occur on or within 50 meters (165 feet) of the Survey Area:

- During Project implementation, no elderberry shrubs shall be removed.
- For activities that have the potential to damage or kill an elderberry shrub (e.g., trenching, paving, spoiling), an avoidance area shall be established at least 6 meters (20 feet) from the elderberry shrub's drip-line.
- As feasible, all Project-related activities that could occur within 50 meters (165 feet) of an elderberry shrub shall be conducted outside of the flight season of the valley elderberry longhorn beetle (March - July).
- To avoid and minimize adverse effects to valley elderberry longhorn beetle during trimming operations, all elderberry shrub trimming activities shall occur between November and February. Such trimming shall avoid the removal of any branches or stems that are ≥ 1 inch in diameter. Measures to address regular and/or large-scale maintenance (trimming) shall be established as required in consultation with USFWS.
- Herbicides shall not be used within the drip-line of the any elderberry shrub. Insecticides shall not be used within 30 meters (98 feet) of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method.
- Temporary stockpiling of excavated material shall occur only in approved construction material staging areas created more than 20 feet from elderberry shrub drip-lines. Excess excavated soil shall be used on site or disposed of at a regional landfill or other appropriate area.

- Mechanical weed removal within the drip-line of the elderberry shrub shall be limited to the season when adult elderberry longhorn beetles are not active (August - February) and will avoid damaging the elderberry shrub.
- Construction personnel shall ensure that dust control measures (e.g., watering) are implemented in the vicinity of any elderberry shrub within 100 feet of construction activities. To avoid affecting the valley elderberry longhorn beetle, dirt roads shall be watered at least twice each day when being used by gravel trucks and other project-related vehicles during dry periods.

Implement General Protection Measures for Birds

To reduce the potential for impacts to bird species resulting from project implementation, the following avoidance and mitigation measures are proposed:

- Nationwide Standard Conservation Measures shall be employed (USFWS 2015)
- Vegetation removal shall not occur between March 1 and August 31.
- In order to protect potential nesting habitat, only the minimum number of trees required to satisfy the proposed Project design shall be removed or trimmed during project implementation. Removal or trimming shall not occur between March 1 and August 31. Trees larger than 10" in diameter shall not be removed unless retaining such trees shall prevent project implementation or are a safety hazard as determined by the project manager. If such trees are identified by the contractor, approval of such removal shall be obtained from the project manager which shall be based upon guidance provided by appropriate State/federal regulatory agency personnel.
- If construction activity inadvertently results in take of individual birds or their nests, appropriate mitigation shall be determined by the Project Manager in coordination with CDFW.
- Vehicle speed limits shall not exceed 15 MPH to avoid striking birds.

Conduct Pre-Construction Surveys for Nesting Migratory Bird Treaty Act Species

For migratory birds, a qualified biologist shall conduct a pre-construction survey no more than one week prior to commencement of construction or restoration activities scheduled between March 1 and August 31. The pre-construction survey shall be used to determine if active nests of these species are present in or within 250 feet of where construction activities take place. If an active nest is found, a qualified biologist in consultation with CDFW and/or USFWS shall determine the extent of a No-Treatment Buffer Zone to be established around the nest. If no active nests are identified, no further mitigation is necessary.

Conduct Pre-Construction Surveys for Nesting Raptors

A qualified biologist shall conduct pre-construction surveys in all suitable upland and riparian habitat for common raptors. Surveys shall occur no more than one week prior to commencement of construction or restoration activities scheduled between February 1 and August 31. In addition to areas where project construction will occur, these surveys shall be conducted along proposed access roads and within construction staging areas. Surveys shall include examination of nests for raptor activity, visual searches for whitewash, listening for calls and any other evidence of nesting raptors.

Implement Specific Protection Measures for the Bald Eagle

- Construction activities located within 0.5 mile of a known bald eagle nest shall occur between September 1 and December 31.

- If construction activities are to occur outside of this period, a 660-foot buffer around the nest would be maintained for a single construction activity visible from the nest and within one mile of the nest (USFWS 2007).
- If established, the construction buffer shall remain in place until after the nesting season, or until the biologist determines that the young have fledged during subsequent surveys.

Implement Specific Protection Measures for Burrowing Owls

A qualified biologist shall conduct a pre-construction survey no less than 14 days prior to initiating ground disturbance activities. If positive owl presence is found, the following avoidance and mitigation measures (CDFW 2012) shall be implemented:

- Place visible markers near burrows to ensure that construction equipment or vehicles do not collapse burrows.
- Avoid disturbing occupied burrows during the nesting period, from February 1 through August 31.
- Avoid impacting burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls.

Implement Protective Measures During Removal of Trees that Provide Suitable Bat Roosting Habitat

All removal of trees that provide suitable bat roosting (such as trees with deep bark crevices, snags, or holes) shall be conducted between August 15 and October 30, or earlier than October 30 if evening temperatures fall below 45 degrees Fahrenheit and/or more than a half inch of rainfall occurs within 24 hours. These dates correspond to the time period when bats would not be caring for non-volant young and have not yet entered torpor. A qualified biologist shall monitor removal/trimming of trees that provide suitable bat roosting habitat. Tree removal/trimming shall occur over two consecutive days. On the first day in the afternoon, limbs and branches shall be removed using chainsaws only. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and only branches or limbs without those features shall be removed. On the second day, the entire tree shall be removed. Prior to tree removal/trimming, each tree shall be shaken gently and several minutes shall pass before felling trees or limbs to allow bats time to arouse and leave the tree. The biologist shall search downed vegetation for dead or injured bat species and report any dead or injured special-status bat species to CDFW.

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Botanical Survey Report

For the Reading Island Boat Ramp Project

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Summary

Survey dates: 10-7-2022, 11-4-2022, 4-24-2023

Person(s) present: Robert Irwin

Report prepared by: Robert Irwin (Biologist - Sacramento River Forum)

Date of Report: May 31, 2023

The purpose of this survey was to search for rare plants and describe the vegetation of the survey area (Table 1, Figure 1). The survey area encompasses the work area of a proposed project, the Reading Island Boat Ramp Project, located in Tehama County at Redding Island River Access and Group Campground. The survey area lies between Anderson Creek and the west bank of the Sacramento River, approximately 4 miles east of Cottonwood, California. The proposed project aims to improve recreational boat access at an existing boat ramp facility. Potential impacts to botanical resources include sediment excavation within Anderson Creek, and the establishment of spoils areas, haul routes, and staging areas for heavy equipment.

Table 1. Survey area Location Summary

Survey area Size	49.47 acres
Survey area Center Coordinates (NAD 83)	Latitude: 40.390002° N Longitude: -122.196738° W
Survey area Center Coordinates (UTM)	UTM: 10N 568174.8766 4471354.7714
Public Land Survey System (PLSS)	Sections 3, 4, 9, and 10 of Township 29 North, Range 03 West MDB&M
USGS 7.5-Min Quadrangle Name	Balls Ferry, California

Target Rare Plants

A list of 16 target species was generated from a query of the California Natural Diversity Database within 9 USGS quadrangles around the survey area (California Department of Fish and Wildlife 2023, Table 2). These species, along with their listing status is provided in Table 3.

Table 2. USGS 7.5-Minute Quadrangles Referenced for a California Natural Diversity Database Check of the Survey area

Enterprise	Palo Cedro	Clough Gulch
Cottonwood	Balls Ferry	Tuscan Buttes NE
Hooker	Bend	Dales

Target Microenvironments

Anderson creek includes habitat that could support rare plants associated with wetlands and ponds such as watershield (*Brasenia schreberi*). Documented occurrences of silky cryptantha (*Cryptantha crinita*) growing in gravely streambeds of nearby tributaries to the Sacramento River suggest gravel bars within the project area could support this rare plant.

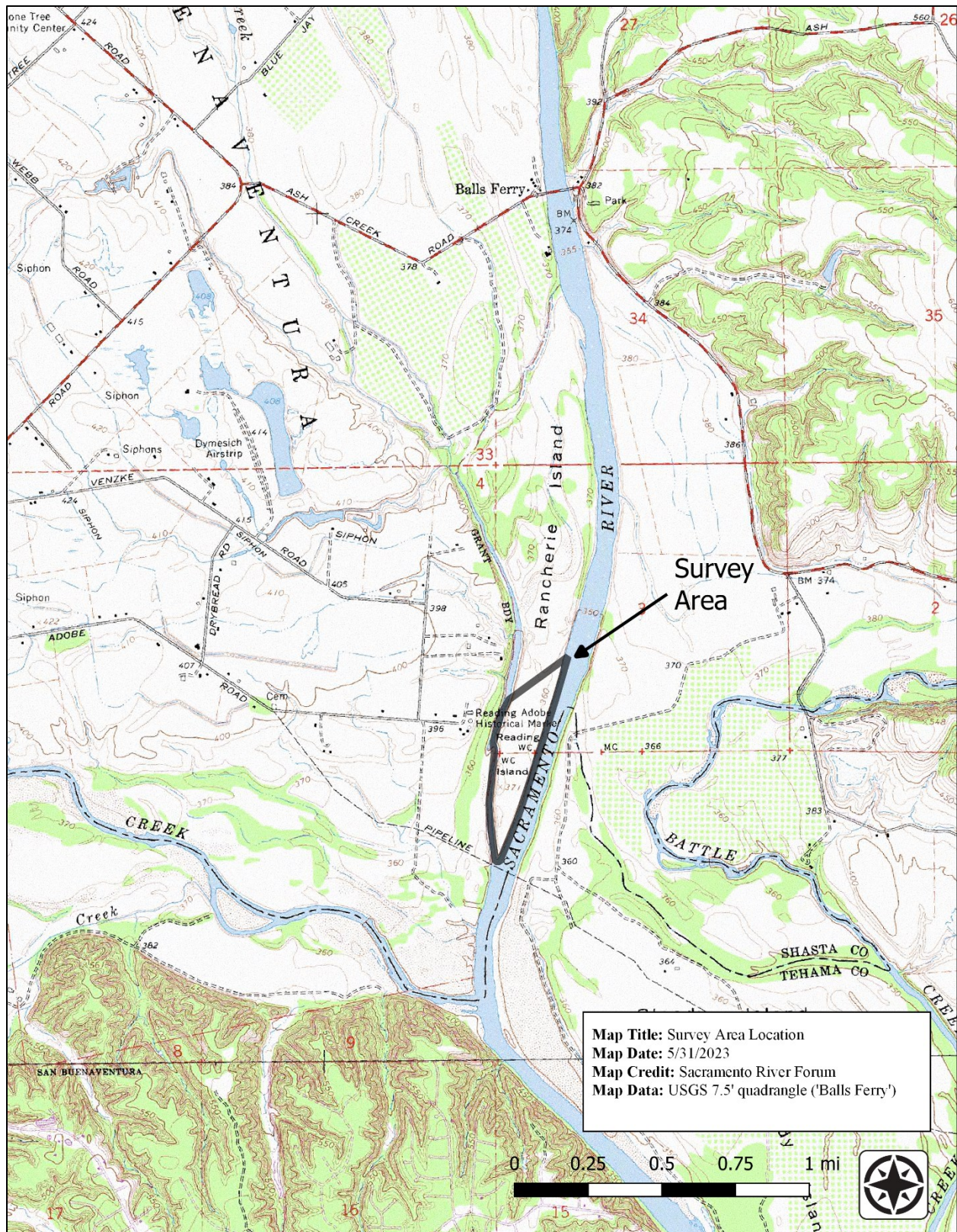


Figure 1. Survey Area Location Map

The listing status of each species is given as follows: CESA refers to the California Endangered Species Act listing; ESA refers to the federal Endangered Species Act listing status; CNPS listing reflects the California Native Plant Society Rare Plant Program status.

Table 3. Target Rare Plants

Species	Common Name	Listing Status*	Habitat (admin)
<i>Acmispon rubriflorus</i>	red-flowered bird's-foot trefoil	CNPS: 1B.1	Vernal pools
<i>Agrostis hendersonii</i>	Henderson's bent grass	CNPS: 3.2	Vernal pools
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	CNPS: 1B.2	Ultramafic slopes
<i>Brasenia schreberi</i>	watershield	CNPS: 2B.3	ponds and slow streams
<i>Clarkia borealis</i> ssp. <i>arida</i>	Shasta clarkia	CNPS: 1B.1	Out of range
<i>Cryptantha crinita</i>	silky cryptantha	CNPS: 1B.2	intermittent stream gravel bars and streambeds
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	CESA: Endangered, CNPS: 1B.2	Vernal pools
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	CNPS: 1B.1	vernally mesic microhabitats
<i>Lathyrus sulphureus</i> var. <i>argillaceus</i>	dubious pea	CNPS: 3	foothill woodland and fir forest
<i>Legenere limosa</i>	legenere	CNPS: 1B.1	vernal pools
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	woolly meadowfoam	CNPS: 4.2	vernally mesic microhabitats
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	Baker's navarretia	CNPS: 1B.1	vernally mesic microhabitats
<i>Orcuttia tenuis</i>	slender Orcutt grass	ESA: Threatened, CESA: Endangered, CNPS: 1B.1	vernal pools
<i>Paronychia ahartii</i>	Ahart's paronychia	CNPS: 1B.1	vernally moist and on barren clay or thin rocky soils with low plant cover. Very rare on poor clay of swales and higher ground around vernal pools. F
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	CNPS: 1B.2	
<i>Trifolium piorkowskii</i>	maverick clover	CNPS: 1B.2	
* - CESA refers to the California Endangered Species Act listing; ESA refers to the federal Endangered Species Act listing status; CNPS listing reflects the California Native Plant Society Rare Plant Program status.			

Existing Ecological & Hydrological Conditions

The survey area is located on an island which is bordered by Anderson Creek on the west and the Sacramento River on east. The southern portion of the survey area is located at the confluence with Anderson Creek and the Sacramento River. The western boundary of the survey area encompasses a series of low terraces along Anderson Creek with deeper soils supporting riparian forest and woodlands. The interior of the island ranges from xeric areas with thin soils supporting grassland to valley oak woodland and savanna. The eastern boundary is along the Sacramento River which supports a thin band of riparian forest and scrub.

According the Web Soil Survey (U.S. Department of Agriculture 2022), most of the site's soils (33.8 acres) is composed of Reiff fine sandy loam, which is associated with deep alluvial fans and supports Valley Oak Woodland and Valley Oak Savannah and Annual Grassland. The second largest soils by area (8.3 acres) is Cobbly alluvial land, frequently flooded. The soils along Anderson Creek and the Sacramento River are classified as Water-Fluventic Haploxerepts are associated with Stream Channels and Floodplains.

Survey Results

In total, 135 plant taxa were observed within the survey area (Table 4). No target rare plants were found. However, *Cryptantha flaccida* was encountered which is a close relative to the rare *Cryptantha crinita*.

Vegetation Characterization

The vegetation structure and composition of the Survey area can be broadly categorized as riparian forest, valley oak savannah, annual grassland, and riverine, and shoreline/emergent marsh habitats. Riparian forest trees include Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*), Northern California black walnut (*Juglans hindsii*), box elder (*Acer negundo* var. *californicum*), valley oak (*Quercus lobata*), black locust (*Robinia pseudoacacia*), white alder (*Alnus rhombifolia*), and arroyo willow (*Salix lasiolepis*), tree-of-heaven (*Ailanthus altissima*), and California button-willow (*Cephalanthus occidentalis* var. *californicus*). The riparian forest understory includes scouring horsetail (*Equisetum arvense*), Santa Barbara sedge (*Carex barbarae*), California greenbrier (*Smilax californica*), California manroot (*Marah fabacea*), and Himalayan Blackberry (*Rubus armeniacus*). The valley oak savannah is dominated by large valley oaks (*Quercus lobata*) often with elderberry (*Sambucus cerulea*) in the shrub layer. The understory of this habitat is similar to annual grassland with the addition of coffeeberry (*Frangula californica*), fragrant sumac (*Rhus aromatica*), poison oak (*Toxicodendron diversilobum*), and California goldenrod (*Solidago velutina* ssp. *californica*). Grassland habitat includes a variety of annual grasses including ripgut brome (*Bromus diandrus*), bulbous bluegrass (*Poa bulbosa*) with wild oat (*Avena fatua*), slender wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), wall barley (*Hordeum murinum*) as well as forbs such as yellow star-thistle (*Centaurea solstitialis*), rose clover (*Trifolium hirtum*), Wright's buckwheat (*Eriogonum wrightii*), California brickellbush (*Brickellia californica*), and Oregon goldenaster (*Heterotheca oregona*), sky lupine (*Lupinus nanus*), Q-tips (*Micropus californicus*), and flaccid cryptantha (*Cryptantha flaccida*). Riverine environments include shoreline / emergent marsh habitats along the banks and shallow water of the Sacramento River and Anderson Creek. Sandbar willow (*Salix exigua*) is frequently dominant in the shrub layer, with understory plants including reed canarygrass (*Phalaris arundinaceae*), pale smartweed (*Persicaria lapathifolia*), waterpepper (*Persicaria hydropiper*), South American vervain (*Verbena bonariensis*) yellow nutsedge (*Cyperus esculentus*), Pacific

rush (*Juncus effusus* ssp. *pacificus*) and rice cutgrass (*Leersia oryzoides*). In slower moving water in Anderson Creek, dominant aquatic plants Montevidea waterweed (*Ludwigia peploides* ssp. *montevidensis*) and Amazon frogbit (*Limnobium laevigatum*).

Table 4. Plant taxa observed within the survey area

Species	Common Name	Habitat
<i>Acer negundo</i> var. <i>californicum</i>	box-elder	Riparian
<i>Acmispon americanus</i> var. <i>americanus</i>	Spanish clover	Grassland
<i>Acmispon wrangelianus</i>	wrangel lotus	Grassland
<i>Aesculus californica</i>	California buckeye	Riparian
<i>Ailanthus altissima</i>	tree-of-heaven	Riparian
<i>Alnus rhombifolia</i>	white alder	Riparian
<i>Ambrosia psilostachya</i>	western ragweed	Riparian
<i>Amsinckia menziesii</i>	common fiddleneck	Grassland
<i>Anthriscus caucalis</i>	bur chervil	Grassland
<i>Arctostaphylos viscida</i>	whiteleaf manzanita	Valley Oak Savannah
<i>Aristolochia californica</i>	California pipevine	Riparian
<i>Artemisia douglasiana</i>	California mugwort	Riparian
<i>Athysanus pusillus</i>	common sandweed	Grassland
<i>Avena barbata</i>	slender wild oat	Grassland
<i>Avena fatua</i>	wild oat	Grassland
<i>Azolla</i> sp.	mosquito fern	Riverine
<i>Baccharis pilularis</i>	coyote brush	Grassland
<i>Bidens frondosa</i>	devil's beggarticks	Riparian
<i>Brassica nigra</i>	black mustard	Grassland
<i>Brickellia californica</i>	California brickelbush	Grassland
<i>Bromus diandrus</i>	ripgut brome	Grassland
<i>Bromus hordeaceus</i>	soft chess	Grassland
<i>Calycadenia fremontii</i>	Fremont's western rosinweed	Grassland
<i>Camissonia contorta</i>	plains evening primrose	Grassland
<i>Carduus pycnocephalus</i>	Italian thistle	Grassland
<i>Carex barbarae</i>	Santa Barbara sedge	Riparian
<i>Centaurea solstitialis</i>	yellow star-thistle	Grassland
<i>Cephalanthus occidentalis</i> var. <i>californicus</i>	California button-willow	Riparian
<i>Cerastium glomeratum</i>	sticky mouse-ear chickweed	Grassland
<i>Clematis ligusticifolia</i>	virgin's-bower	Riparian
<i>Conium maculatum</i>	poison-hemlock	Riparian
<i>Croton setiger</i>	turkey mullein	Grassland
<i>Cryptantha flaccida</i>	weak-stemmed cryptantha	Grassland
<i>Cynodon dactylon</i>	Bermuda-grass	Valley Oak Savannah
<i>Cynosurus echinatus</i>	hedgehog dogtail	Grassland
<i>Cyperus eragrostis</i>	tall flatsedge	Riverine
<i>Cyperus esculentus</i>	yellow nutsedge	Riverine

<i>Cyperus strigosus</i>	straw-colored flatsedge	Riverine
<i>Datura wrightii</i>	sacred datura	Grassland
<i>Daucus carota</i>	Queen Anne's lace	Valley Oak Savannah
<i>Dipterostemon capitatus</i> ssp. <i>capitatus</i>	bluedicks	Grassland
<i>Echinochloa colona</i>	jungle-rice	Riverine
<i>Elymus glaucus</i>	blue wild rye	Valley Oak Savannah
<i>Epilobium ciliatum</i>	fringed willowherb	Riparian
<i>Equisetum arvense</i>	common horsetail	Riparian
<i>Equisetum hyemale</i> ssp. <i>affine</i>	common scouring-rush	Riparian
<i>Erigeron bonariensis</i>	flax-leaved horseweed	Grassland
<i>Eriodictyon californicum</i>	California yerba-santa	Grassland
<i>Eriogonum roseum</i>	wand buckwheat	Grassland
<i>Eriogonum umbellatum</i>	sulfur buckwheat	Grassland
<i>Eriogonum vimineum</i>	wickerstem buckwheat	Grassland
<i>Eriogonum wrightii</i> var. <i>trachygonum</i>	rough-node bastard-sage	Grassland
<i>Erodium botrys</i>	Mediterranean stork's-bill	Grassland
<i>Euphorbia maculata</i>	spotted spurge	Grassland
<i>Euphorbia ocellata</i> ssp. <i>ocellata</i>	valley spurge	Grassland
<i>Euthamia occidentalis</i>	western goldenrod	Riparian
<i>Frangula californica</i>	coffeeberry	Grassland
<i>Fraxinus latifolia</i>	Oregon ash	Riparian
<i>Helenium puberulum</i>	rosilla	Riverine
<i>Heliotropium europaeum</i>	European heliotrope	Grassland
<i>Heterotheca grandiflora</i>	telegraphweed	Grassland
<i>Heterotheca oregona</i> var. <i>compacta</i>	Oregon golden-aster	Grassland
<i>Hirschfeldia incana</i>	shortpod mustard	Grassland
<i>Hordeum murinum</i>	wall barley	Grassland
<i>Hypericum perforatum</i>	common St. John's-wort	Grassland
<i>Iris pseudacorus</i>	yellow water iris	Riverine
<i>Juglans hindsii</i>	Northern California black walnut	Riparian
<i>Juncus effusus</i> ssp. <i>pacificus</i>	Pacific rush	Riverine
<i>Lactuca saligna</i>	willowleaf lettuce	Riparian
<i>Lamium amplexicaule</i>	henbit deadnettle	Grassland
<i>Lamium purpureum</i>	red deadnettle	Grassland
<i>Leersia oryzoides</i>	rice cutgrass	Riverine
<i>Lepidium latifolium</i>	broad-leaved pepper-grass	Grassland
<i>Lepidium nitidum</i>	shining peppergrass	Grassland
<i>Leymus triticoides</i>	creeping wild rye	Grassland
<i>Limnobium laevigatum</i>	Amazon frogbit	Riverine
<i>Logfia gallica</i>	narrow-leaved filago	Grassland
<i>Ludwigia peploides</i> ssp. <i>montevidensis</i>	Montevideo waterweed	Riverine
<i>Lupinus nanus</i>	sky lupine	Grassland

<i>Marah fabacea</i>	California manroot	Riparian
<i>Marrubium vulgare</i>	horehound	Grassland
<i>Melilotus albus</i>	white sweetclover	Grassland
<i>Mentha pulegium</i>	pennyroyal	Riparian
<i>Micropus californicus</i>	q-tips	Grassland
<i>Mollugo verticillata</i>	green carpetweed	Grassland
<i>Muhlenbergia rigens</i>	deergrass	Grassland
<i>Oloptum miliaceum</i>	smilo grass	Riparian
<i>Paspalum dilatatum</i>	dallisgrass	Riparian
<i>Persicaria hydropiper</i>	waterpepper	Riverine
<i>Persicaria lapathifolia</i>	pale smartweed	Riverine
<i>Persicaria punctata</i>	dotted knotweed	Riverine
<i>Phalaris arundinacea</i>	reed canarygrass	Riverine
<i>Phytolacca americana</i> var. <i>americana</i>	American pokeweed	Valley Oak Savannah
<i>Plagiobothrys canescens</i>	valley popcorn flower	Grassland
<i>Plantago erecta</i>	California plantain	Grassland
<i>Plantago erecta</i>	California plantain	Grassland
<i>Plantago lanceolata</i>	English plantain	Grassland
<i>Poa bulbosa</i>	bulbous bluegrass	Grassland
<i>Polygonum aviculare</i>	prostrate knotweed	Grassland
<i>Populus fremontii</i>	Fremont cottonwood	Riparian
<i>Prunus</i> sp.	plums, cherries, and allies	Riparian
<i>Pseudognaphalium</i> sp.	rabbit-tobacco	Grassland
<i>Quercus lobata</i>	valley oak	Valley Oak Savannah
<i>Quercus wislizeni</i>	interior live oak	Grassland
<i>Rhus aromatica</i>	fragrant sumac	Valley Oak Savannah
<i>Robinia pseudoacacia</i>	black locust	Riparian
<i>Rosa californica</i>	California rose	Riparian
<i>Rubus armeniacus</i>	Himalayan blackberry	Riparian
<i>Rubus ursinus</i>	California blackberry	Riparian
<i>Rubus ursinus</i>	California blackberry	Riparian
<i>Rumex californicus</i>	California dock	Riverine
<i>Rumex crispus</i>	curly dock	Valley Oak Savannah
<i>Salix exigua</i>	sandbar willow	Riparian
<i>Salix gooddingii</i>	Goodding's willow	Riparian
<i>Salix laevigata</i>	red willow	Riparian
<i>Salix lasiolepis</i>	arroyo willow	Riparian
<i>Salix melanopsis</i>	dusky willow	Riparian
<i>Sambucus cerulea</i>	blue elder	Valley Oak Savannah
<i>Scleranthus annuus</i>	annual knawel	Grassland
<i>Sesbania punicea</i>	scarlet sesbane	Riverine
<i>Setaria parviflora</i>	knotroot bristlegrass	Riparian

<i>Smilax californica</i>	California greenbrier	Riparian
<i>Solanum americanum</i>	American black nightshade	Riparian
<i>Solidago velutina</i> ssp. <i>californica</i>	California goldenrod	Valley Oak Savannah
<i>Sorghum halepense</i>	Johnson grass	Riparian
<i>Torilis arvensis</i>	common hedge parsley	Grassland
<i>Toxicodendron diversilobum</i>	Pacific poison oak	Valley Oak Savannah
<i>Tribulus terrestris</i>	puncture vine	Grassland
<i>Trifolium hirtum</i>	rose clover	Grassland
<i>Verbascum blattaria</i>	moth mullein	Grassland
<i>Verbascum thapsus</i>	woolly mullein	Grassland
<i>Verbena bonariensis</i>	purpletop vervain	Riverine
<i>Vicia villosa</i>	winter vetch	Valley Oak Savannah
<i>Vitis californica</i>	California wild grape	Riparian

Recommendations – Minimization Measures

Since no rare plants were encountered, no minimization measures for rare plant protection are proposed. However, native riparian trees and shrubs serve an important ecological and hydrological role and should be preserved as much as possible during construction.

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Natural Resources Conservation Service. 2022. U.S. Web Soil Survey. Viewed online at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed November 2, 2022.

Wildlife and Avian Survey Report

For the

Reading Island Boat Ramp Project

Tehama County, California

May 31, 2023

Prepared by the Sacramento River Forum

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Introduction

This report summarizes the results of a wildlife and avian survey within a 49.47-acre survey area on Reading Island. The location and extent of the survey area is shown on Figure 1.

Methods

Rob Irwin (Biologist - Sacramento River Forum) and Aurelia Gonzalez (Project Manager - Sacramento River Forum) conducted surveys on 10-7-2022, 11-4-2022, and 4-24-2023. Surveys were conducted within the 49.47-acre study area. Avian surveys were conducted using variable radius point count surveys to establish baseline avian abundance. Bird species were noted by call, song, and visual cues. Non-avian species were surveyed by looking for tracks and scat, or by visual or aural cues. The habitat type of each observation was noted using the California Wildlife Habitat Relationships habitat classification.

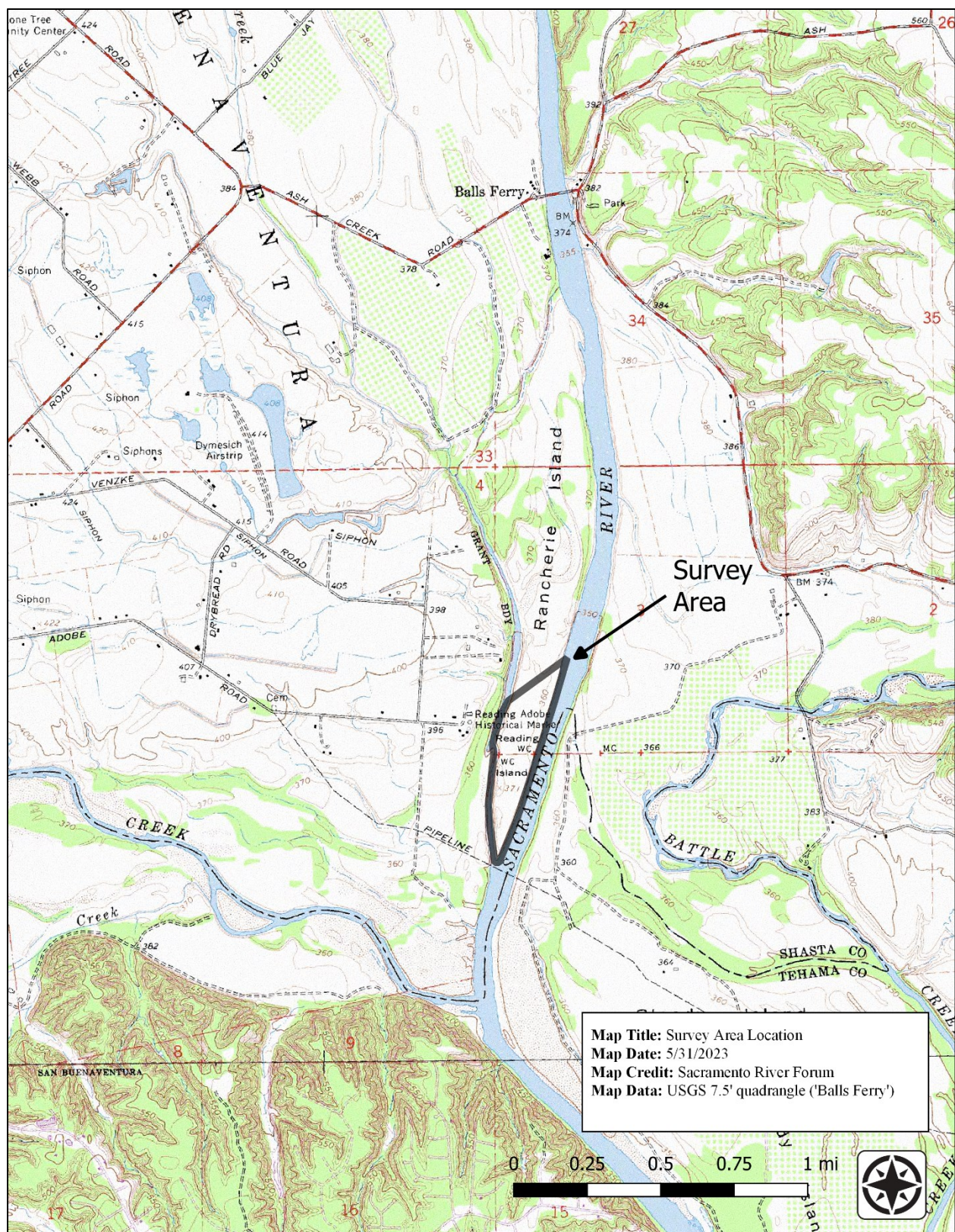


Figure 1. Survey Area Location Map

Results

Table 1 gives the name, type, date, and habitat type of each observed species.

Table 1. Wildlife and Avian Survey Results

Species	Common Name	Type	CWHRs Habitat
<i>Actinemys marmorata</i>	Western Pond Turtle	Reptile	Riverine
<i>Aphelocoma californica</i>	California Scrub-Jay	Bird	Valley Foothill Riparian
<i>Ardea alba</i>	Great Egret	Bird	Valley Foothill Riparian
<i>Ardea herodias</i>	Great Blue Heron	Bird	Valley Foothill Riparian
<i>Baeolophus inornatus</i>	Oak Titmouse	Bird	Riparian
<i>Branta canadensis</i>	Canada Goose	Bird	Valley Foothill Riparian
<i>Buteo lineatus</i>	Red-shouldered Hawk	Bird	Valley Foothill Riparian
<i>Callipepla californica</i>	California Quail	Bird	Valley Foothill Riparian
<i>Canis latrans</i>	Coyote	Mammal	Annual Grassland
<i>Cardellina pusilla</i>	Wilson's Warbler	Bird	Valley Foothill Riparian
<i>Cathartes aura</i>	Turkey Vulture	Bird	Valley Foothill Riparian
<i>Catharus ustulatus</i>	Swainson's Thrush	Bird	Valley Foothill Riparian
<i>Colaptes auratus</i>	Northern Flicker	Bird	Riparian
<i>Dryobates nuttallii</i>	Nuttall's Woodpecker	Bird	Valley Foothill Riparian
<i>Dryobates pubescens</i>	Downy Woodpecker	Bird	Valley Foothill Riparian
<i>Geothlypis trichas</i>	Common Yellowthroat	Bird	Valley Foothill Riparian
<i>Icterus bullockii</i>	Bullock's Oriole	Bird	Valley Foothill Riparian
<i>Leiothlypis celata</i>	Orange-crowned Warbler	Bird	Valley Foothill Riparian
<i>Lontra canadensis</i>	North American River Otter	Mammal	Riverine
<i>Megaceryle alcyon</i>	Belted Kingfisher	Bird	Riparian
<i>Melanerpes formicivorus</i>	Acrorn Woodpecker	Bird	Valley Foothill Riparian
<i>Meleagris gallopavo</i>	Wild Turkey	Bird	Valley Foothill Riparian
<i>Melospiza lincolnii</i>	Lincoln's Sparrow	Bird	Valley Foothill Riparian
<i>Melospiza melodia</i>	Song Sparrow	Bird	Riparian
<i>Myiarchus cinerascens</i>	Ash-throated Flycatcher	Bird	Valley Foothill Riparian
<i>Otospermophilus beecheyi</i>	California ground squirrel	Mammal	Annual Grassland
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	Bird	Valley Foothill Riparian
<i>Pica nuttalli</i>	Yellow-billed Magpie	Bird	Valley Foothill Riparian
<i>Pipilo maculatus</i>	Spotted Towhee	Bird	Valley Foothill Riparian
<i>Poecile rufescens</i>	Chestnut-backed Chickadee	Bird	Valley Foothill Riparian
<i>Sayornis nigricans</i>	Black Phoebe	Bird	Riparian
<i>Sciurus griseus</i>	Western Gray Squirrel	Mammal	Valley Foothill Riparian
<i>Setophaga coronata</i>	Yellow-rumped Warbler	Bird	Valley Foothill Riparian
<i>Sitta carolinensis</i>	White-breasted Nuthatch	Bird	Valley Foothill Riparian
<i>Spinus psaltria</i>	Lesser Goldfinch	Bird	Valley Foothill Riparian
<i>Streptopelia decaocto</i>	Eurasian Collared-dove	Bird	Valley Foothill Riparian
<i>Sturnus vulgaris</i>	European Starling	Bird	Valley Foothill Riparian

<i>Thryomanes bewickii</i>	Bewick's Wren	Bird	Valley Foothill Riparian
<i>Trachemys scripta elegans</i>	Red-eared slider	Reptile	Riverine
<i>Troglodytes aedon</i>	House Wren	Bird	Valley Foothill Riparian
<i>Turdus migratorius</i>	American Robin	Bird	Valley Foothill Riparian
<i>Tyrannus verticalis</i>	Western Kingbird	Bird	Valley Foothill Riparian
<i>Vireo gilvus</i>	Warbling Vireo	Bird	Valley Foothill Riparian
<i>Zenaida macroura</i>	Mourning Dove	Bird	Valley Foothill Riparian
<i>Zonotrichia albicollis</i>	White-throated Sparrow	Bird	Valley Foothill Riparian
<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow	Bird	Valley Foothill Riparian
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	Bird	Valley Foothill Riparian

Site Photograph Report for the Reading Island Boat Ramp Project

May 31, 2023

Prepared by the Sacramento River Forum

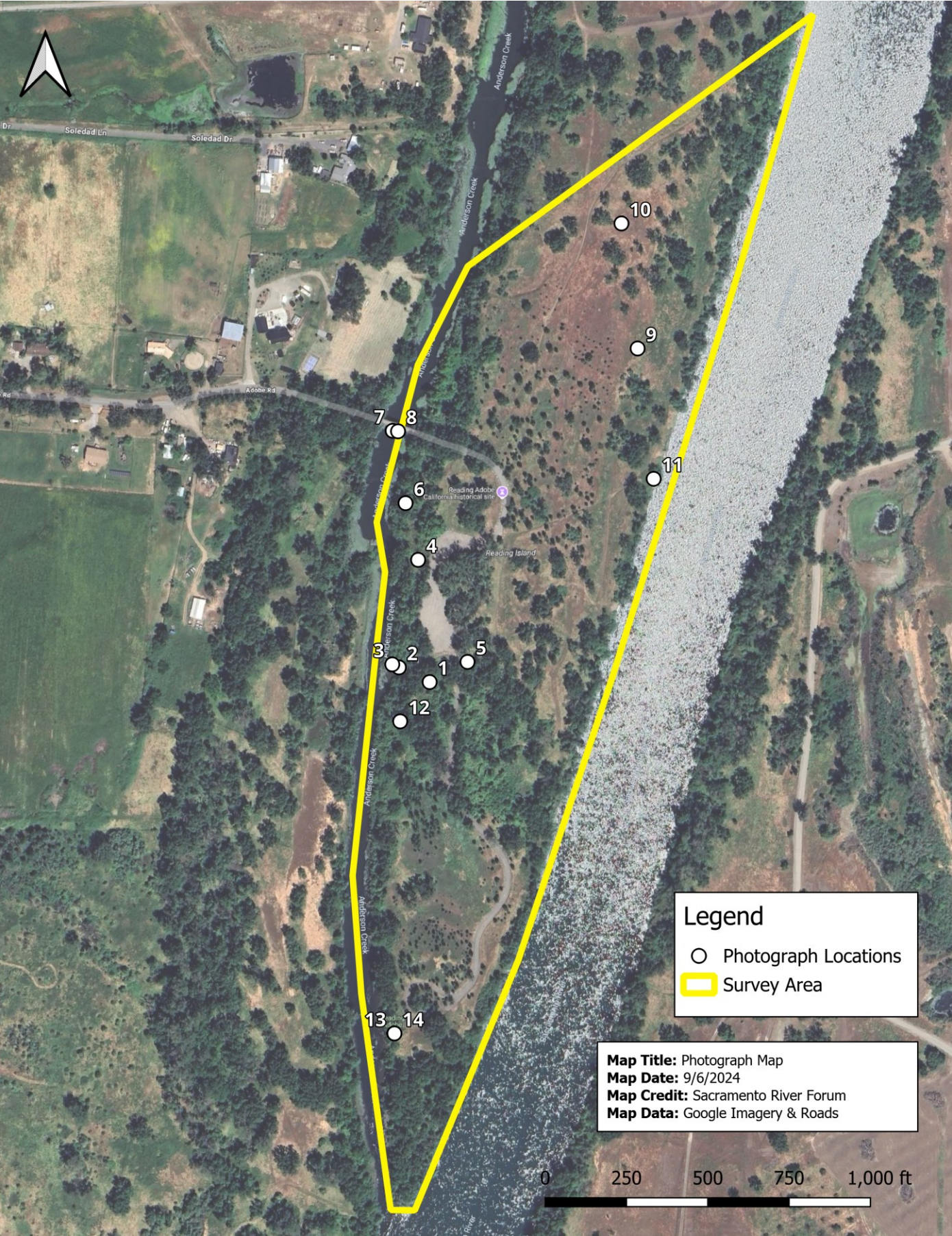
Summary

This report provides photographs taken throughout the study area which are meant to convey the habitat characteristics of the site. Each photograph's location is indicated on the map on page 2. Flows in cubic feet/second (cfs) are provided from the USGS Bend monitoring gage at the for each photograph date. All photographs were taken by the Sacramento River Forum.

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Map of Photograph Locations



Photopoints

Photo #1

Latitude, Longitude 40.389072, -122.197852

Caption View of access road to the boat ramp

View location on a map [\(link\)](#)



ID: Photo #1 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #2

Latitude, Longitude 40.389198, -122.19819

Caption View down boat ramp to Anderson Creek

View location on a map [\(link\)](#)



ID: Photo #2 | date: 2022-10-07 | Bend gauge (cfs): 4,020

Photo #3

Latitude, Longitude 40.389224, -122.198263

Caption

View location on a map [\(link\)](#)



ID: Photo #3 | date: 2022-10-07 | Bend gauge (cfs): 4,020

Photo #4

Latitude, Longitude 40.390103, -122.197967

Caption View of access road

View location on a map [\(link\)](#)



ID: Photo #4 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #5

Latitude, Longitude 40.389239, -122.197432

Caption A stand of Fremont cottonwood trees

View location on a map [\(link\)](#)



ID: Photo #5 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #6

Latitude, Longitude 40.390582, -122.1981

Caption Riparian forest along Anderson Creek

View location on a map [\(link\)](#)



ID: Photo #6 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #7

Latitude, Longitude 40.391193, -122.198235

Caption Downstream view of Anderson Creek from the bridge

View location on a map [\(link\)](#)



ID: Photo #7 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #8

Latitude, Longitude 40.391188, -122.198176

Caption Upstream view of Anderson Creek from the bridge

View location on a map [\(link\)](#)



ID: Photo #8 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #9

Latitude, Longitude 40.391868, -122.195523

Caption View of annual grassland

View location on a map [\(link\)](#)



ID: Photo #9 | date: 2022-10-07 | Bend gauge (cfs): 4,020

Photo #10

Latitude, Longitude

40.392923, -122.195689

Caption

View of a patch of annual grassland with thin soils supporting native herbs such as *Cryptantha flaccida* and *Eriogonum wrightii* var. *trachygonum*.

View location on a map [\(link\)](#)



ID: Photo #10 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #11

Latitude, Longitude 40.390768, -122.195359

Caption Upstream view of the Sacramento River along the eastern boundary of the study area.

View location on a map [\(link\)](#)



ID: Photo #11 | date: 2022-10-07 | Bend gauge (cfs): 4,020

Photo #12

Latitude, Longitude 40.388743, -122.198181

Caption Valley Oak Woodland

View location on a map [\(link\)](#)



ID: Photo #12 | date: 2023-04-24 | Bend gauge (cfs): 7,590

Photo #13

Latitude, Longitude 40.386113, -122.198278

Caption Upstream view of Anderson Creek

View location on a map [\(link\)](#)



ID: Photo #13 | date: 2022-10-07 | Bend gauge (cfs): 4,020

Photo #14

Latitude, Longitude 40.386113, -122.198276

Caption Downstream View of Anderson Creek

View location on a map [\(link\)](#)



ID: Photo #14 | date: 2022-10-07 | Bend gauge (cfs): 4,020

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Reading Island Boat Ramp

LOCATION

Shasta County, California



DESCRIPTION

Some(A planning project)

Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
 2. [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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
------	--------

Conservancy Fairy Shrimp <i>Branchinecta conservatio</i>	Endangered
Wherever found	
There is final critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/8246	

Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	Threatened
Wherever found	
There is final critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/498	

Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i>	Endangered
Wherever found	
There is final critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/2246	

Flowering Plants

NAME	STATUS
Slender Orcutt Grass <i>Orcuttia tenuis</i>	Threatened
Wherever found	
There is final critical habitat for this species. Your location does not overlap the critical habitat.	
https://ecos.fws.gov/ecp/species/1063	

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i>	Breeds Apr 1 to Aug 15
<p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/8</p>	
Black Swift <i>Cypseloides niger</i>	Breeds Jun 15 to Sep 10
<p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/8878</p>	
Bullock's Oriole <i>Icterus bullockii</i>	Breeds Mar 21 to Jul 25
<p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	
California Thrasher <i>Toxostoma redivivum</i>	Breeds Jan 1 to Jul 31
<p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	
Cassin's Finch <i>Carpodacus cassinii</i>	Breeds May 15 to Jul 15
<p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9462</p>	
Common Yellowthroat <i>Geothlypis trichas sinuosa</i>	Breeds May 20 to Jul 31
<p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/2084</p>	
Golden Eagle <i>Aquila chrysaetos</i>	Breeds Jan 1 to Aug 31
<p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/1680</p>	
Lawrence's Goldfinch <i>Carduelis lawrencei</i>	Breeds Mar 20 to Sep 20
<p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9464</p>	

Nuttall's Woodpecker *Picoides nuttallii*

Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Olive-sided Flycatcher *Contopus cooperi*

Breeds May 20 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3914>

Tricolored Blackbird *Agelaius tricolor*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

Western Grebe *aechmophorus occidentalis*

Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/6743>

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie *Pica nuttalli*

Breeds Apr 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

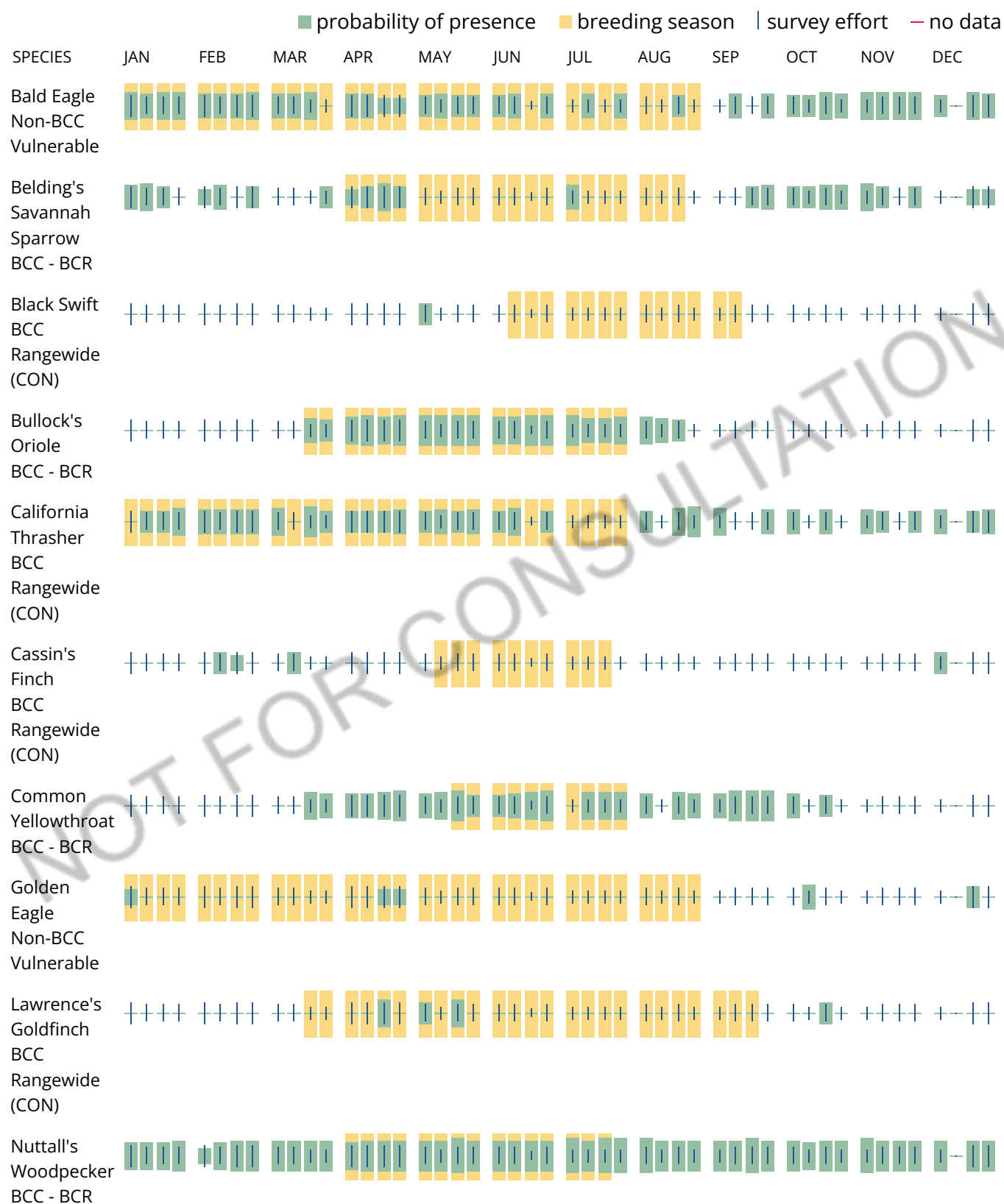
No Data (-)

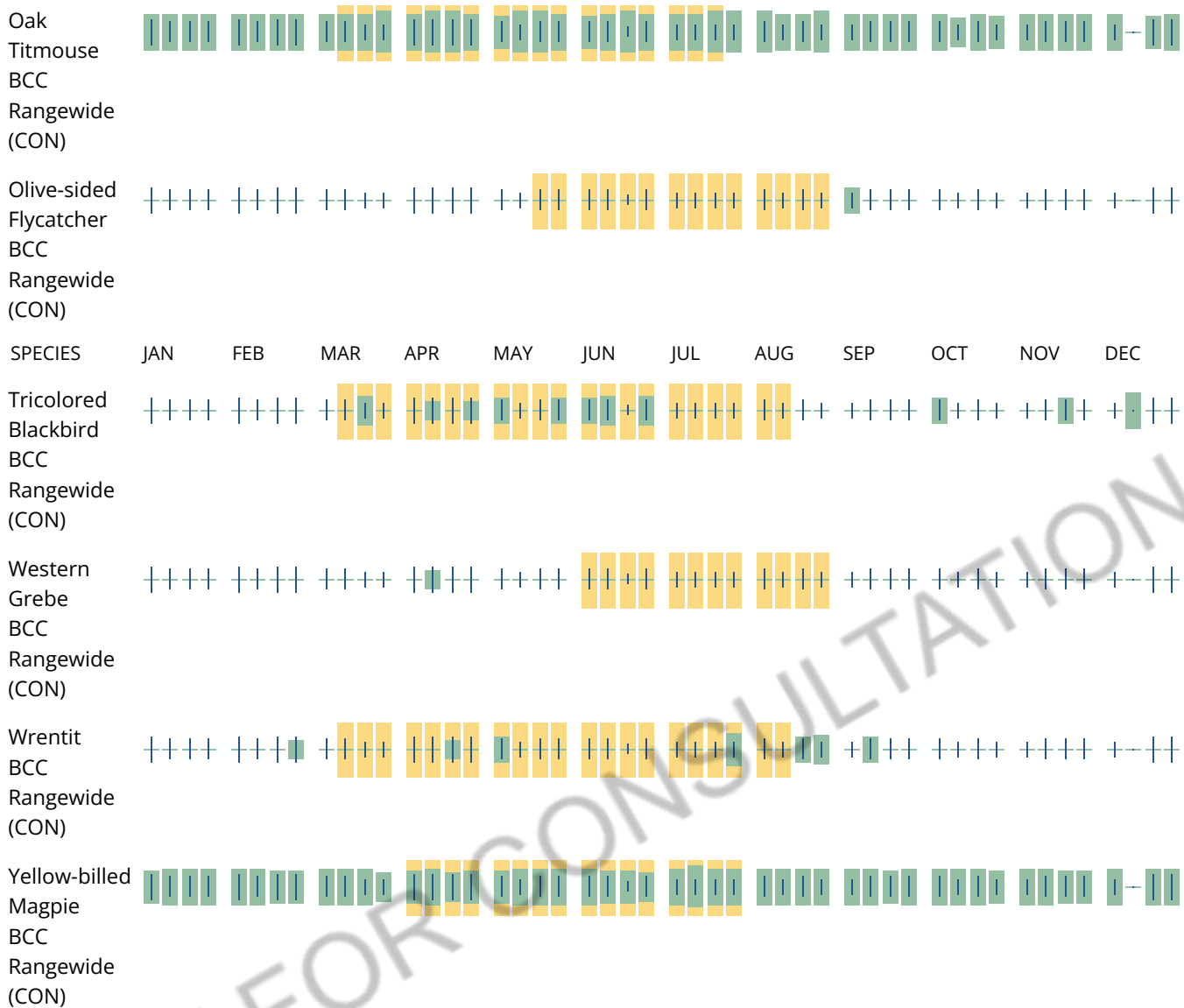
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird

returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit

the [CBRA Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe

wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION