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MEMORANDUM

To: Mr. Jim Levine, Montezuma Carbon LLC

Date: 8/15/2023

From: Cassie Pinnell, Senior Ecologist, VNLC

No. Pages: 23
plus Appendix A

Subject: Preliminary Assessment of Biological Resources for
the Montezuma Carbon LLC NorCal Sequestration Hub Project

ACTION AND ACTION AREA

The Montezuma Carbon LLC NorCal Sequestration Hub ('Project') is to be constructed on and under the 3,200- acre Sacramento river-front parcel owned by Montezuma Wetlands LLC, which is a sister company to Montezuma Carbon LLC with the same management team. Site geologic data and analyses from 2010 to the present indicate a unique potential to sequester over 100 million metric tons of CO₂ in the extensive sandstone formations 1-3 miles under the property. Supercritical CO₂ captured at nearby power plants and industrial sites will be transported to the existing permitted Montezuma offloading dock via submerged pipeline and possibly barges, then pumped into deep saline aquifers (Phase 1 will utilize the Anderson formation, located 11,000 to 13,000 feet below the land surface). These thick saline aquifer formations are sealed above and below by multiple and regionally continuous shale layers, well documented from 3D Seismic Reflection Studies. This report includes an analysis of the larger Area of Review, as identified in Figure B-15 of the MC Class VI Permit Application. The Action Area is defined based on the following "sub-projects" comprise the work necessary to build the Montezuma NorCal Sequestration Hub:

- Sub-Project 1 – Drilling and installation of up to six Deep Injection Wells, and up to 40 shallow monitoring probes (up to 300 feet deep). Standard environmental operating protocols, and drilling and other permits required for this work, already specify mitigations to do the drilling and installation without environmental impacts. These will be the baseline operating protocols for the Injection and Monitoring installations, and site-specific wildlife avoidance measures will also be implemented. The Injection wells will be clustered near the shoreline wharf and in an area one mile north of the shoreline near Fire Truck Road, and installed over a period of ten years. (Two wells will be installed initially).
- Sub-Project 2 - Adding an additional piping manifold and approximately one mile of CO₂ pipeline from the one of two permitted Montezuma Offloading Wharves through Montezuma's industrial land to the Injection Well Complex site south of Fire Truck

Figure 1. Action Area at Montezuma Site

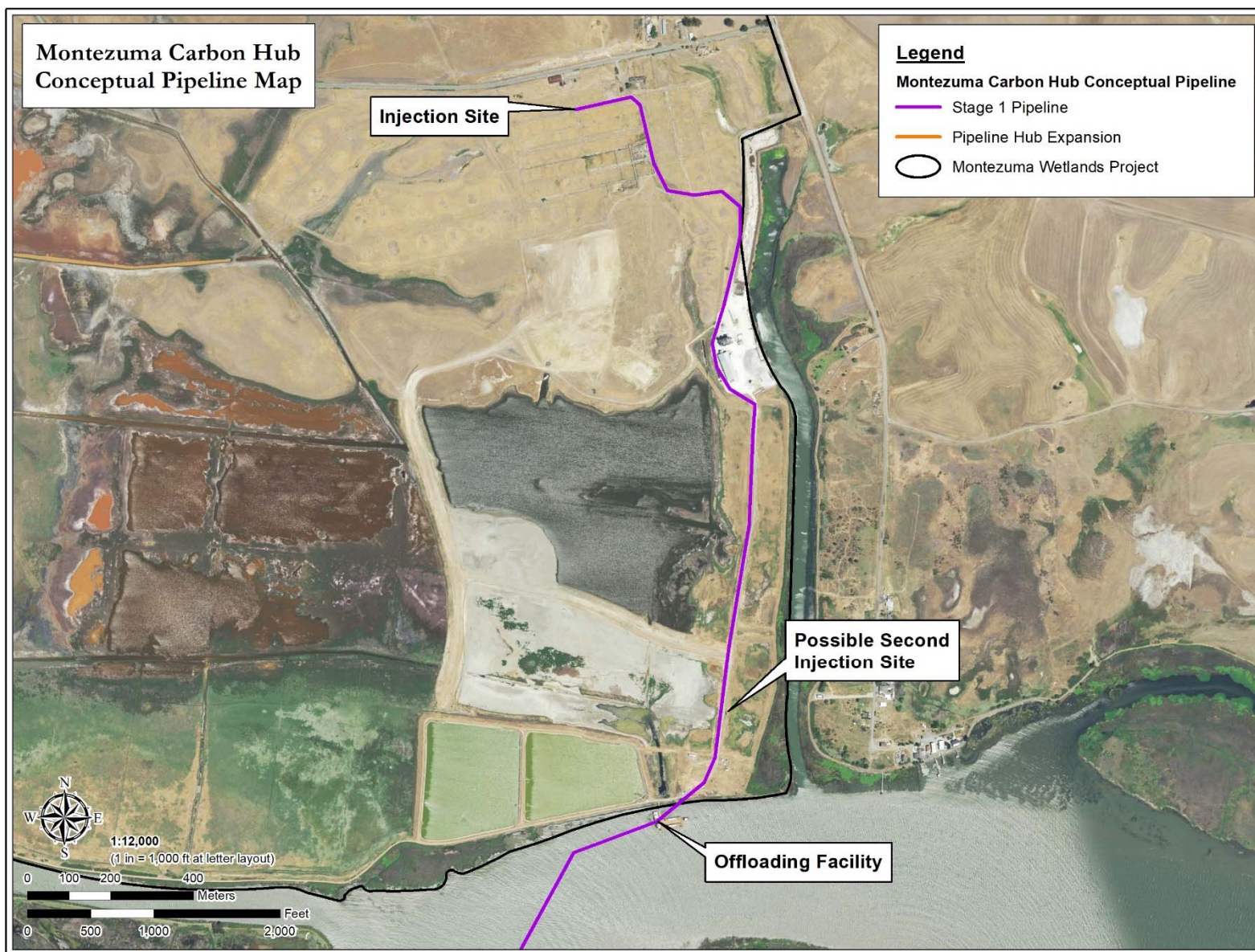
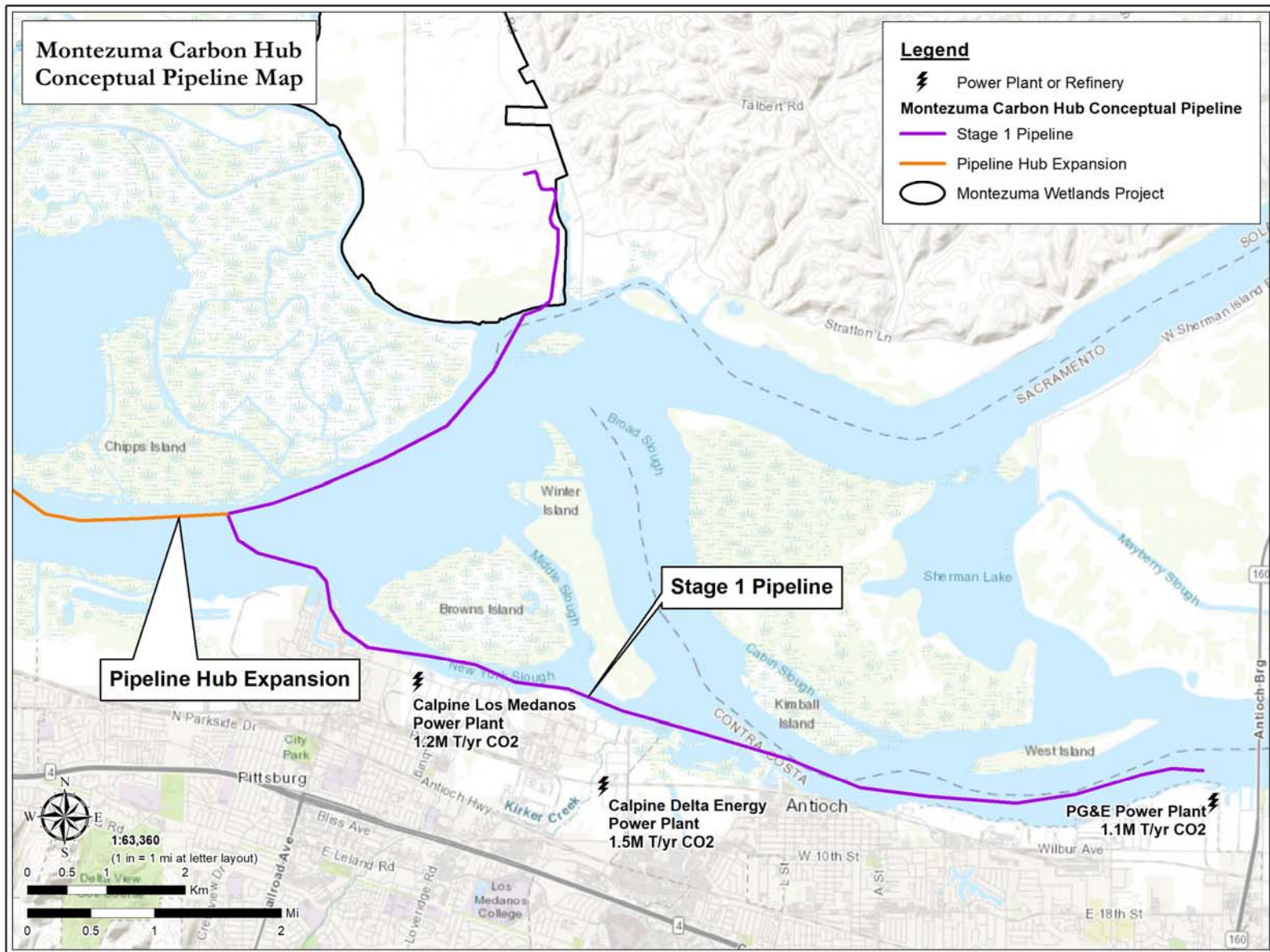


Figure 2. Action Area including River Crossing and Montezuma Site



IMPACT TO THREATENED AND ENDANGERED SPECIES

Under Section 7 of the ESA, EPA is required to ensure that any action authorized by EPA does not jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat. A U.S. Fish and Wildlife Service (USFWS) IPaC report (**Appendix A**), generated on August 8, 2023, identified twenty-six (26) threatened or endangered species as potentially occurring in the vicinity (Preliminary Area of Review) of the Montezuma NorCal Carbon Hub Project Underground Injection facility and three (3) critical habitats within the project area. In addition, the Montezuma site has been extensively studied and monitored for biological resources over the last decades. As such, the associated monitoring reports, Biological Assessments, and Biological Opinions were also reviewed for this preliminary assessment. Existing mitigation programs for species expected at the site are included in current Clean Water Act permits under which the Montezuma Wetlands project operates. The species with potential to occur within the Area of Review are identified in **Table 1**.

Table 1. Species with Potential to Occur in the Area of Review

Common Name	Latin Name	Federal Status	Critical Habitat
Salt Marsh Harvest Mouse	<i>Reithrodontomys raviventris</i>	Endangered	No
San Joaquin Kit Fox	<i>Vulpes macrotis mutica</i>	Endangered	No
California Ridgway's (Clapper) Rail	<i>Rallus obsoletus (longirostris) obsoletus</i>	Endangered	No
California Condor	<i>Gymnogyps californianus</i>	Endangered	No*
California Least Tern	<i>Sterna antillarum browni</i>	Endangered	No
Alameda Whipsnake	<i>Masticophis lateralis euryxanthus</i>	Threatened	No*
Giant Garter Snake	<i>Thamnophis gigas</i>	Threatened	No
California Red-Legged Frog	<i>Rana draytonii</i>	Threatened	No*
California Tiger Salamander	<i>Ambystoma californiense</i>	Threatened	No*
Foothill Yellow-Legged Frog	<i>Rana boylii</i>	Proposed Threatened	No

Delta Smelt	<i>Hypomesus transpacificus</i>	Threatened	Yes
Longfin Smelt	<i>Spirinchus thaleichthys</i>	Proposed Endangered	No
Delta Green Ground Beetle	<i>Elaphrus viridis</i>	Threatened	No*
Lange's Metalmark Butterfly	<i>Apodemia mormo langei</i>	Endangered	No
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	No
Valley Elderberry Longhorn Beetle	<i>Desmocerus californicus dimorphus</i>	Threatened	No*
Conservancy Fairy Shrimp	<i>Branchinecta conservatio</i>	Endangered	No*
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	Threatened	No*
Vernal Pool Tadpole Shrimp	<i>Lepidurus packardii</i>	Endangered	No*
Antioch Dunes Evening- Primrose	<i>Oenothera deltoides ssp. howellii</i>	Endangered	Yes
Colusa Grass	<i>Neostapfia colusana</i>	Threatened	No*
Contra Costa Goldfields	<i>Lasthenia conjugens</i>	Endangered	No*
Contra Costa Wallflower	<i>Erysimum capitatum var. angustatum</i>	Endangered	Yes
Keck's Checker-Mallow	<i>Sidalcea keckii</i>	Endangered	No*
Soft Bird's-Beak	<i>Cordylanthus mollis ssp. mollis</i>	Endangered	No*
Suisun Thistle	<i>Cirsium hydrophilum var. hydrophilum</i>	Endangered	No*

* These species have designated critical habitat outside of the Action Area

Mammals

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*) (Federal Endangered)

The salt marsh harvest mouse's range has diminished over time, shrinking from the entire central coast of California to the salt marshes of San Francisco where it currently resides. Smaller sub-populations exist in parts of the San Pablo Bay area, the marshes of the Sacramento and Petaluma Rivers and marshes in the Suisun Bay to the eastern San Joaquin River Delta (Haines, 2010). The Salt marsh harvest mouse resides in the uplands of salt marshes where it can escape high tides and live amongst salt-tolerant vegetation. It tends to eat seeds, grasses, forbs and insects and has a high salinity tolerance (Haines 2010).

This species is documented in the marsh and wetland areas of the Montezuma site, as well as within the larger Area of Review. The proposed location of the project and Action Area on the Montezuma site is in the upland and outside of potential habitat for this species, as are the underwater river crossings, however, avoidance and minimization measures should be employed to ensure that this Project has a less than significant impact on this species. Existing measures at the Montezuma site include having a qualified biologist clear the site then mow the Action Area to prevent this species from occupying areas during construction (Acta 2019).

San Joaquin Kit Fox (*Vulpes macrotis mutica*) (Federal Endangered/State Threatened)

San Joaquin kit fox prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the Central Valley, San Joaquin kit fox are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub and annual grassland. San Joaquin kit fox are also found in grazed grasslands including areas adjacent to tilled or fallow fields, and suburban settings (USFWS 1998). Their primary prey species include kangaroo rats, pocket mice, and rabbits. They are also known to feed on reptiles, ground-nesting birds, and insects (Eder 2005). The San Joaquin kit fox requires underground dens to raise pups, avoid predators (Golightly and Ohmart 1984), regulate temperature, and avoid other adverse environmental conditions. In the northern portion of their range, burrowing mammals, primarily California ground squirrels (*Otospermophilus beecheyi*) provide these holes. Kit foxes breed from late December to March (Egoscue 1956, Morrell 1972, Zoellick et al. 1987).

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

Birds

California Ridgway's (Clapper) Rail (*Rallus obsoletus (longirostris) obsoletus*) (Federal Endangered)

California Ridgway's rails are restricted almost entirely to the marshes of San Francisco estuary, where the only known breeding populations occur. Throughout their distribution, California Ridgway's rails occur within a range of salt and brackish marshes. In South San Francisco Bay, there are populations in all of the larger tidal marshes. Distribution in the North Bay is patchy and discontinuous, primarily in small, isolated habitat fragments. Small populations are widely distributed throughout San Pablo Bay (USFWS 2017). They have been detected occasionally in low numbers in the Suisun Marsh area since the 1970s.

This species has potential to occur in vegetated marsh areas within the larger Area of Review, though no appropriate foraging or nesting habitat for California Ridgway's rails exists in the Action Area or on the Montezuma Wetlands Project site as a whole. They have been sporadically observed in Suisun Marsh, including at Rush Ranch and in Suisun, Cutoff and Hill Sloughs (USFWS 2013) but are not known from the immediate project vicinity. Because California Ridgway's rail is not present onsite or in the immediate project vicinity, no adverse impacts to this species are expected to occur from project implementation.

California Condor (*Gymnogyps californianus*) (Federal and State Endangered)

California condors are opportunistic scavengers, feeding only on the carcasses of dead animals, including elk, deer, cattle, sheep and marine mammals such as whales and seals. A condor may eat up to 3 to 4 pounds at a time and may not need to feed again for several days (Kiff et al. 1986). The California condor nests in various types of rock formations including crevices, overhung ledges, potholes and, more rarely, in cavities in giant sequoia trees (*Sequoiadendron giganteum*) (Snyder et al. 1986). In recent years, reintroduced condors have also nested in burnt-out cavities in coast redwoods (*Sequoia sempervirens*) in the Big Sur area. Traditional roosting sites are maintained on cliffs or large trees, often near feeding sites. Foraging occurs mostly in grasslands, including potreros within chaparral areas or in oak savannahs.

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

California Least Tern (*Sterna antillarum browni*) (Federal and State Endangered)

California least terns can be found feeding in shallow estuaries or lagoons for smelt, anchovies, silversides, and other small, nearshore prey. California least terns are found in colonies in the San Francisco Bay, Sacramento River delta, and along the coast of San Luis Obispo County down to San Diego County (CDPR). The California least tern has a range from the San Francisco Bay area to San Diego, mainly being found in estuaries along the California

coast. These terns roost in pre-season nocturnal roosts and post-season dispersal sites. These sites are where adult least terns and young intermingle (USFWS 2006).

This species has been documented within the Montezuma site and has potential to be impacted by noise disturbance associated with Project activities. Therefore, avoidance and minimization measures should be employed to ensure that this Project has a less than significant impact on this species. Existing mitigation measures from the Montezuma project include (VNLC 2022):

- All construction personnel shall receive environmental training regarding the sensitive nature of the special-status species in the project area. This training will include a description of the species, comparison of the species to other similar species, life history, and a description of all project measures in place to protect the species. Crews shall also be informed to stop all work and notify their supervisor or the monitoring biologist if special-status species are observed within the project site.
- If repair or construction work at the Project occurs during the CA least tern nesting season (March 1st to August 31st), the following precautions will be required:
 - Pre-construction surveys will be conducted by an approved biologist to identify breeding locations, if any.
 - If birds are determined to be present, all activity within 500-feet of an identified nesting area will be prohibited until nesting and fledging of young is complete, as verified by the appropriately qualified biologist, or the end of the nesting season, whichever comes first.
 - If a 500-foot buffer is not possible, USFWS will be consulted and a minimum 100-foot buffer will be requested, with a construction monitor present for installation of buffer and monitoring of construction activities in close proximity to the buffer.
 - If the construction monitor observes any apparent distress to CA least tern, construction activities causing such disturbance will be halted and USFWS will be consulted to determine best course of action.

Reptiles

Alameda Whipsnake (*Masticophis lateralis euryxanthus*) (Federal Threatened)

The Alameda whipsnake is a chaparral snake belonging to the family Colubridae, the largest family of snakes in the western United States. The snake is a subspecies of the California whipsnake, also known as the striped racer. They are a fast-moving, diurnally active snake, and can often be seen foraging with their heads up. The Alameda whipsnake is primarily found in coastal scrub and chaparral habitats, but also forages in grassland and open woodlands. Rock outcrops with deep crevices and abundant rodent burrows are crucial for whipsnakes as overnight dens, refuges from predators, excessive heat, and foraging (Swaim 1994). Mating for the Alameda whipsnake occurs from late March through mid-June (USFWS 2000). Males will move throughout their home ranges, while females remain at or near their hibernaculum, where mating occurs. Female whipsnakes lay eggs from May to July (Stebbins 2003). They will use grassland habitat for egg laying (ECCC 2006). Alameda whipsnakes primarily prey on lizards,

especially western fence lizards (*Sceloporus occidentalis*), though other prey also include skinks, frogs, snakes, and birds. The Alameda whipsnake may be an example of a feeding specialist with its preference for lizards (ECCC 2006). Whipsnake populations thrive when lizard populations are abundant (McGinnis 1992).

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

Giant Garter Snake (*Thamnophis Gigas*) (Federal Threatened)

As its name would suggest, the giant garter snake is the largest of the garter snakes. The historical range for this species is from Kern County to Butte County along the California Central Valley; however, this range has diminished over time. Currently, the giant garter snake can be from Glen County to the Southern portion of San Francisco and from Merced County to Fresno County. The giant garter snake is mostly found in marshes, irrigation ditches, drainage systems, and rice fields and slow-moving creeks. The highly aquatic species prefers warm weather (daylight, warm nights) for activity. Its diet consists of fish, frogs and tadpoles.

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

Amphibians

California Red-legged Frog (*Rana draytonii*) (Federal Threatened/State Species of Special Concern)

The California Red-legged Frog (CRF) is a True Frog belonging to the family Ranidae. CRF are typically found near ponds in forests, woodlands, coastal scrub, or streams with abundant plant cover. Breeding habitat includes perennial and long-ponding seasonal ponds, freshwater coastal lagoons, and slow moving streams with pools at least 2 ft deep (Hayes and Jennings 1989). CRF prefer large, perennial aquatic vegetation for oviposition. Preferred breeding ponds also include deep-water sheltering habitat and warm, unvegetated shallows for tadpole-rearing (Alvarez, Cook et al. 2013). Breeding times vary by geographical region and habitat type. Breeding may occur from late November to late April, with earlier breeding associated with warmer water temperatures and with still waters, while later breeding avoids cold temperatures and flushing stream flows (Jennings and Hayes 1994). The time required to complete the breeding cycle is variable and likely temperature dependent—eggs typically hatch in about one month, and larvae may require from 3½ to 7 months to metamorphose (Hayes and Jennings 1989). Metamorphosed CRF frequently remain near the natal pond for some weeks. Juvenile and adult CRF may shelter in adjacent uplands and in emergent riparian vegetation. Preferred sheltering habitat includes moist microhabitats under cover objects such as logs, thick leaf litter, or mammal burrows (Jennings and Hayes 1994). CRF may also shelter in watering troughs, springs, or other small habitat patches which stay wet all summer. Larval CRF are entirely herbivorous, while the diet of adult CRF consists of a variety of invertebrates and

occasionally includes small vertebrates such as fish, frogs, mice, or salamander larvae (Hayes and Tennant 1985).

Multiple surveys have been conducted at the Montezuma site, and this species has never been observed on-site. In addition, the Action Area does not include any ponded areas or potential aquatic habitat. This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

California Tiger Salamander (*Ambystoma californiense*) (Federal and State Threatened)

The California Tiger Salamander (CTS) is a California-endemic Mole Salamander belonging to the family Ambystomatidae. CTS inhabits primarily grassland, scrub, and oak savanna habitats within portions of the Central Coast Range, Sacramento-San Joaquin Delta and San Joaquin Valley regions (Laabs 2002). The species still occurs throughout most of its historic range but has been impacted due to habitat loss and competition from invasive species. Interestingly, its range and abundance may have also expanded in some areas over the past 150 years due to the construction of stock ponds. CTS spend the majority of their lives underground, living in mammal burrows in the uplands (Loredo 2010). They show a strong preference for grassland and scrub habitat, avoiding woodlands and forest (Wang, Savage et al. 2009). They typically migrate between burrows on rainy nights (Stebbins 2012). At the onset of autumn rains, some adults will migrate from the uplands to ponds and wetlands to breed. Females attach hundreds of eggs one at a time to vegetation or other objects along the pond bottom. Young larvae prey on aquatic invertebrates; larger larvae eat other amphibian larvae (Zeiner, Laudenslayer et al. 1988). As ponds dry in spring or summer, larvae metamorphose and migrate into the uplands. In the case of perennial ponds, larvae may stay in the pond until the onset of autumn rains, or may even over-winter in the pond (Alvarez 2004). CTS breeds primarily in seasonal waters such as large vernal pools, sag ponds, and man-made stock ponds. Breeding ponds must typically pond for at least 90 continuous days for the species to complete its breeding cycle (USFWS 2014).

CTS occur northeast of the Action Area at the Jepson Prairie Preserve. However, the Montezuma site has been surveyed for this species and CTS were not observed in larval seine surveys of seasonal wetlands and ditches (1991, 1992, 1996 and 2000). The 2000 surveys also included night spotlight surveys for adults (LFR 1993, HTH 1996b and 1996c, MWLLC 2002). The upland areas around the Action Area support small seasonal wetlands unlikely to provide long enough inundation periods to support larval growth and transformation. Saline, low-pH conditions in the low-lying historic tidal wetland areas of Montezuma likely preclude CTS occurrence. Based on these considerations, CTS is unlikely to occur within the Action Area and no impacts from the Project are expected

Foothill Yellow-Legged Frog (*Rana boylei*) (Federal Proposed Threatened)

The foothill yellow-legged frog (FYF) is a True Frog belonging to the family Ranidae. FYF prefer partly shaded, shallow streams and riffles with a rocky substrate that is at least cobble-sized. They occur in streams and rivers in woodland, chaparral, and forest habitats (Stebbins 2012). In their 1989 study, Hayes and Jennings found that all sites at which post-

metamorphic and larval FYF were recorded were ≤ 2 -ft in average water depth. They also found that FYF were recorded significantly more frequently at sites with $>40\%$ riffle area than at sites with a riffle area of $\leq 40\%$. FYF diet consists of a wide variety of invertebrates such as flying, terrestrial, and aquatic insects, snails, spiders and grasshoppers. Tadpoles are known to graze the surfaces of rocks and vegetation consuming algae and detritus (Ashton et al. 1998). Breeding occurs between mid-March to early June after high water of streams subsides (Stebbins 2012). Unlike other rain frogs, mating and egg-laying occur exclusively in rivers and streams, not in ponds or lakes. Small clusters of eggs are deposited on the downstream sides of rocks in shallow slow-moving water. Eggs hatch within 5-37 days depending on water temperature. Larvae remain close to the egg mass for about 1 week after hatching, and will take between 3-4 months to metamorphose, typically between July-October. Once metamorphosed, frogs typically migrate upstream of their hatching site (Fuller and Lind 1992).

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

Fish

Delta Smelt (*Hypomesus transpacificus*) (Federal and State Threatened)

The Delta smelt is only found in the San Francisco Estuary. The life cycle of the smelt starts in the spring when they spawn in fresh water, in summer the smelt migrate and rear in low salinity zone, in the fall the smelts mature in low salinity zone and finally in winter the Delta smelt have an upstream migration before spawning. Eggs of the Delta smelt are released over firm substrates or sand. The smelts eat on planktonic copepods, cladocerans, and amphipods (CDFW). The Action Area includes Critical habitat for the Delta Smelt.

The upland portion of the Action Area at the Montezuma site is outside of fish habitat and is not expected to impact this species. However, any in-water work associated with the pipeline could have impacts to this species and its critical habitat and avoidance and minimization measures should be discussed during consultation with NOAA/NMFS and USFWS.

Longfin Smelt (*Spirinchus thaleichthys*) (Federal Proposed Endangered, State Threatened)

The longfin smelt is found in along the coast of Alaska to California. It utilizes a variety of aquatic habitats such as, nearshore waters, estuaries and lower portions of freshwater streams. Smelt from the San Francisco Bay/San Joaquin Delta spawn from November to May with peaks between February to April. Eggs are released in freshwater over sandy areas, gravel substrates, rocks and aquatic plants. The Longfin smelt larvae feast on small shrimp-like crustaceans.

The upland portion of the Action Area at the Montezuma site is outside of fish habitat and is not expected to impact this species. However, any in-water work associated with the pipeline could have impacts to this species and avoidance and minimization measures should be discussed during consultation with NOAA/NMFS and USFWS.

Invertebrates

Delta Green Ground Beetle (Federal Threatened)

The Delta green ground beetle (*Elaphrus viridis*) is a small, carnivorous beetle in the family Carabidae. Its current range is highly restricted to Solano County within the greater Jepson Prairie area. Delta green ground beetles inhabit grassland habitat interspersed with vernal and playa pools. Their habitat preferences are not entirely known but they seem to prefer open patches of habitat including pool edges, trails, and soil cracks (USFWS 1999). Delta green ground beetles are generalized predators that hunt by sight and eat a variety of invertebrates such as springtails, terrestrial midges and beetle larvae. Adult Delta green ground beetles are active from early spring to summer, after which they enter an inactive phase known as diapause. The beetle's lifespan is estimated to be 9-12 months with females most likely reproducing once in the early winter. Larval Delta green ground beetles are seldom seen and probably shelter in dense vegetation or deep soil cracks. It takes a total of 35 to 45 days for a beetle to develop from egg to adult.

Delta green ground beetles are not known from the immediate project vicinity and were not observed at Montezuma in surveys of potential habitat in 1996 and 1997. Sampling consisted of visual inspection of the pool margins for the beetle conducted a period in which beetle activity was observed at the Jepson Prairie Preserve (USACE/EPA 1998). No Delta green ground beetles have been observed during surveys of vernal pools and seasonal wetlands conducted throughout the Montezuma site over a period of many years between 2003-2017. In addition, the proposed Action Area at Montezuma is outside of potential habitat for this species, and is over 500ft from the nearest pool. This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

Lange's Metalmark Butterfly (*Apodemia mormo langei*) (Federal Threatened)

Lange's metalmark butterfly is found where Antioch Dunes Buckwheat (*Eriogonum nudum* var. *psychicola*) is found. Currently the butterfly is only found in the Antioch Dunes National Wildlife Refuge. The butterfly lays eggs in late summer on the Antioch Dunes buckwheat. The larvae begin to emerge from their eggs following the first rains in fall, and utilize the leaves of the buckwheat as shelter and as a food source. Adult butterflies emerge from pupation in early August and the buckwheat serves as their primary nectar source (USFWS 2020).

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

Monarch Butterfly (*Danaus plexippus*) (Federal Candidate Endangered Species)

Monarch butterfly (*Danaus plexippus* pop. 1) is listed as a Federal Candidate Endangered species. Monarchs breed on obligate milkweed host plants (*Asclepias* sp.). Larvae feed

exclusively on milkweed and enter pupation between 9 and 18 days old. Adult monarchs emerge after 6 to 14 days. Most adult butterflies live two to five weeks, while overwintering adults may live six to nine months. Overwintering adult monarchs migrate over 2,000 miles to overwintering sites, a journey lasting over 2 months. The cohort of overwintering adults breeds at the overwintering sites from February to March and undertakes a return migration to the summer breeding grounds (USFWS 2020). Overwintering habitat is characterized by a set of microclimatic conditions including dappled sunlight, high humidity, fresh water and an absence of freezing temperatures or high winds. Preferred trees include blue gum (*Eucalyptus globulus*), Monterey pine, and Monterey cypress (Xerces 2016).

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

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

Valley elderberry longhorn beetle (VELB) is endemic to the Central Valley of California. The beetle is found around its host plant, elderberry (*Sambucus spp.*). Adult VELB feed on the foliage and possibly flowers of the elderberry. From March to early June, VELB mate and females lay eggs on elderberry plants. The larvae bore into elderberry stems where they eat pith for 1 to 2 years. Once larvae pupate into adults, they will leave their pupal chambers in the elderberry plants and emerge between mid-March to June (USFWS 2006).

This species has not been documented on the Montezuma site and is also not expected within the Action Area due to the lack of suitable conditions, and this Project is not expected to impact this species.

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

Conservancy fairy shrimp are endemic to California vernal pools. This species of fairy shrimp is found in the Central Valley with one population of conservancy fairy shrimp found in Ventura County. The shrimp is primarily found in large, turbid, vernal pools, also known as playa pools. Conservancy fairy shrimp hatch from their cysts during the first winter rains and complete their life cycle by early summer (USFWS 2012).

This species is known from the vernal pool preserve in the northern portion of the Montezuma site, and is closely monitored. In addition, all areas of potential habitat have been mapped and are surveyed prior to impact. However, the Action Area at the Montezuma site does not include any potential habitat since the area does not include seasonal wetlands or vernal pools, and is more than 500 feet from any existing pools. Therefore, this Project is not expected to impact this species.

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

Vernal pool fairy shrimp (VPFS) is endemic to California and the Agate Desert of Oregon. VPFS only occurs in vernal pools or vernal pool-like habitats. VPFS cysts are at the bottom of dried vernal pools and once winter rains begin some of the cysts begin to hatch. VPFS only occur in cool-water pools. It must be 50°F or lower for the cysts of VPFS to hatch. Long-distance dispersal of VPFS cysts is thought to occur due to water fowl and other migratory birds that eat the cysts. The cysts may also be moved by animals that move mud around, allowing the cysts to cling to feathers, fur or hooves (USFWS 2007).

This species is known from the vernal pool preserve in the northern portion of the Montezuma site, and is closely monitored. In addition, all areas of potential habitat have been mapped and are surveyed prior to impact. However, the Action Area at the Montezuma site does not include any potential habitat since the area does not include seasonal wetlands or vernal pools, and is more than 500 feet from any existing pools. Therefore, this Project is not expected to impact this species.

Vernal Pool Tadpole Shrimp (*Lepidurus packardii*) (Federal Endangered)

Vernal pool tadpole shrimp (VPTS) are only found in ephemeral freshwater habitats, such as alkaline pools, clay flats, vernal lakes and pools, vernal swales and other seasonal wetlands in California. VPTS lay cysts in the soil until winter rains trigger the cysts to hatch. The shrimp stays in waters ranging from clear to high turbidity, 50 to 84°F, and pH from 6.2 to 8.5. It takes around 3 to 4 weeks for VPTS to fully mature. The shrimps may be hermaphroditic. The hatching of VPTS cysts is temperature-dependent, with optimal hatching being between 50 to 59°F. The shrimps can be distributed to other wetlands through flooding events or from waterfowl and other migratory birds (USFWS 2007).

This species is known from the vernal pool preserve in the northern portion of the Montezuma site, and is closely monitored. In addition, all areas of potential habitat have been mapped and are surveyed prior to impact. However, the Action Area at the Montezuma site does not include any potential habitat since the area does not include seasonal wetlands or vernal pools, and is more than 500 feet from any existing pools. Therefore, this Project is not expected to impact this species.

Plants

Antioch Dunes Evening-Primrose (*Oenothera deltoides* ssp. *howellii*) (Federal and State Endangered)

Antioch Dunes evening-primrose is only found in the Antioch Dunes National Wildlife Refuge. Here the plant grows in mostly pure sand and relies on pollinators to reproduce. The evening-primrose blooms from March to September, with large white flowers that open in the early evening and close before morning (CDFW 2013). The evening-primrose is a short-lived

perennial plant. There's critical habitat for the Antioch Dunes evening-primrose within the Area of Interest.

The Action Area is does not include potential habitat for this species, and this Project is not expected to impact this species.

Colusa Grass (*Neostapfia colusana*) (Federal Threatened and State Endangered)

Colusa grass is found in vernal pools, so is uniquely adapted to the hydrology of its habitat. It flowers in the summer with inflorescences that look similar to small ears of corn. Colusa grass is an annual grass that produces aquatic seedlings that can remain dormant for up to 3 to 4 years (CDFW 2013). The seedlings germinate in the late spring. Colusa grass is found in alkaline basins of Sacramento and the San Joaquin Valley, along with acidic soils along the eastern San Joaquin Valley and up to the Sierra Nevada foothills.

The Action Area does not include vernal pools, and this Project is not expected to impact this species.

Contra Costa Goldfields (*Lasthenia conjugens*) (Federal Endangered)

Contra Costa goldfields are an annual flowering plant with daisy-like flower heads that are golden-yellow in color. The plant is usually found near vernal pool habitats. They can also be found in swales, low depressions in open valleys and in foothill grasslands (USFWS 2013). The plant usually flowers between March to June at elevations not exceeding 100 meters. The range of Contra Costa goldfields is from the North Coast, Sacramento Valley, San Francisco Bay Area and the South Coast (Calscape).

The Action Area does not include vernal pools, and this Project is not expected to impact this species.

Contra Costa Wallflower (*Erysimum capitatum* var. *angustatum*) (Federal Endangered)

The Contra Costa wallflower is a variety of the western wallflower. Contra Costa wallflower is a short-lived perennial that has small yellow flowers with long thin stems. The plant is endemic to the riverine dune habitat associated with the Antioch Dunes ecosystem. Contra Costa wallflower thrives on wind-blown sand and north-facing slopes (USFWS 2021). It prefers open, sandy and well-drained soils. It blooms between March and August with peak bloom around late April. Contra Costa wallflower is pollinated by many insects including bees and possibly hawkmoths.

There is critical habitat for the Contra Costa wallflower within the Area of Interest. However, the Action Area does not include potential habitat for this species, and this Project is not expected to impact this species.

Keck's Checker-Mallow (*Sidalcea keckii*) (Federal Endangered)

Keck's checker-mallow (KCM) is an annual herb, that is able to remain dormant as seeds for long periods of time. KCM is endemic to California and grows in open areas on grassy slopes

of the Sierra foothills. The plant flowers in April to early May, with 5 petalled flowers that are fully pink or pink with a maroon center. The fruit of KCM is 4 to 5 wedge-shaped sections arranged in a disk (USFWS 2012). Seed sections mature and separate in May, with most seeds being dispersed by gravity. There may be other ways of seed dispersal for KCM but they have not been identified. KCM is found from 240 to 1,950 ft, where it is usually found in serpentine soils.

The Action Area does not include potential habitat for this species, and this Project is not expected to impact this species.

Soft Bird's-Beak (*Cordylanthus mollis ssp. mollis*) (Federal Endangered)

Soft bird's-beak is a hemiparasitic annual herb. It grows in coastal salt marshes and brackish marshes in Solano, Contra Costa, Sonoma and Marin County. Its populations occur from Point Pinole and Fagan Slough marsh to the Carquinez Strait to Suisun Bay. The plant is found in the upper reaches of salt grass-pickleweed marshes, near the limits of tidal action. The survival of the plant is dependent upon an early connection to a host plant. Soft bird's-beak receives water, nitrogen, fixed carbon and minerals from the host plant (USFWS 2009).

The Action Area could include areas of tidal action, where the underwater pipeline transitions to the upland areas. Preconstruction surveys for special-status plant surveys should be conducted prior to Project implementation to ensure that impacts to this species would remain at a less than significant level.

Suisun Thistle (*Cirsium hydrophilum var. hydrophilum*) (Federal Endangered)

Suisun thistle is a species of thistle with purple or pink flower heads and tall branched stems. These stems can reach to 4 to 5 feet high (USFWS 2021). The plant is biennial, generally taking 2 years to complete its life cycle. The first year for the plant, it grows roots, stems and leaves with the stem and leaves forming rosettes that stay close to the ground. During the second year of the thistle's life, the stem elongates and begins growing flowers. After flowers form, fruits and seed production follow, with the thistle dying that year or the next. Suisun thistle blooms between March to August, with peak bloom occurring in spring. The thistle is found in tidal and upland marshes in the San Francisco Bay and California Delta region (USFWS 2021). The species is native to the Suisun Marsh ecosystem. The thistle is pollinated by butterflies, bees and other insects.

The Action Area could include areas of tidal action, where the underwater pipeline transitions to the upland areas. Preconstruction surveys for special-status plant surveys should be conducted prior to Project implementation to ensure that impacts to this species would remain at a less than significant level.

CONCLUSION

Based on the preliminary analysis described above, there is potential for federal listed species including salt marsh harvest mouse, California least tern, Delta smelt, longfin smelt, soft bird's beak, and Suisun thistle to occur within or adjacent to the Action Area. Therefore, formal consultation should occur with USFWS and NOAA/NMFS during the environmental review and/or the permit application process to identify the appropriate conservation measures to ensure that any impacts to federal listed species are properly avoided, minimized, or mitigated for.

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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.

Location

Contra Costa , Sacramento , and Solano counties, California



Local offices

San Francisco Bay-Delta Fish And Wildlife

☎ (916) 930-5603

🏢 (916) 930-5654

650 Capitol Mall

US Capitol Mall

Suite 8-300

Sacramento, CA 95814

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. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. 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](#).

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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:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Condor <i>Gymnogyps californianus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern <i>Sterna antillarum browni</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered

Reptiles

NAME	STATUS
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Alameda Whipsnake (=striped Racer) *Masticophis lateralis* Threatened
euryxanthus
 Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

<https://ecos.fws.gov/ecp/species/5524>

Giant Garter Snake *Thamnophis gigas* Threatened
 Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4482>

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</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/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog <i>Rana boylei</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5133	Proposed Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> Wherever found There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Longfin Smelt <i>Spirinchus thaleichthys</i> No critical habitat has been designated for this species.	Proposed Endangered

Insects

NAME	STATUS
Delta Green Ground Beetle <i>Elaphrus viridis</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/2319	Threatened
Lange's Metalmark Butterfly <i>Apodemia mormo langei</i> Wherever found There is proposed critical habitat for this species. https://ecos.fws.gov/ecp/species/4382	Endangered
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> 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	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</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/498	Threatened

Vernal Pool Tadpole Shrimp *Lepidurus packardii* 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

Antioch Dunes Evening-primrose *Oenothera deltoides* ssp. *howellii* Endangered

Wherever found

There is **final** critical habitat for this species. Your location overlaps the critical habitat.

<https://ecos.fws.gov/ecp/species/5970>

Colusa Grass *Neostapfia colusana* 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/5690>

Contra Costa Goldfields *Lasthenia conjugens* 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/7058>

Contra Costa Wallflower *Erysimum capitatum* var. *angustatum* Endangered

Wherever found

There is **final** critical habitat for this species. Your location overlaps the critical habitat.

<https://ecos.fws.gov/ecp/species/7601>

Keck's Checker-mallow *Sidalcea keckii* 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/5704>

Soft Bird's-beak *Cordylanthus mollis* ssp. *mollis* 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/8541>

Suisun Thistle *Cirsium hydrophilum* var. *hydrophilum* 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/2369>

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
Antioch Dunes Evening-primrose <i>Oenothera deltoides</i> ssp. <i>howellii</i> https://ecos.fws.gov/ecp/species/5970#crithab	Final
Contra Costa Wallflower <i>Erysimum capitatum</i> var. <i>angustatum</i> https://ecos.fws.gov/ecp/species/7601#crithab	Final
Delta Smelt <i>Hypomesus transpacificus</i> https://ecos.fws.gov/ecp/species/321#crithab	Final

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>

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

Bald and Golden Eagle information is not available at this time

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence 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). To see 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 of bald and golden eagles 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 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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

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-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory bird information is not available at this time

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 to 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.

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.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
ANTIOCH DUNES NATIONAL WILDLIFE REFUGE	62.96 acres

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