
Memorandum

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Subject: Dixon Property — Opportunities and Constraints Memorandum

Date: July 26, 2019

This memorandum evaluates potential biological constraints for two parcels (APNs: 108-110-45, 108-110-46) totaling approximately 13.37 acres (Study Area) in the City of Dixon (City), Solano County, California (Figure 1). The Study Area is bounded to the west by residential development, to the north by Vaughn Road and residential development, to the east by Lincoln Highway (Route 113) and commercial properties, and the south by a commercial business. On July 19, 2019, WRA biologists traversed the Study Area on foot to evaluate the potential presence of sensitive vegetation communities and aquatic features, and the potential for onsite habitat to support special-status plant and wildlife species. Observed plant communities and potential aquatic features were noted. Site conditions were noted as they relate to habitat requirements of special-status plant and wildlife species known to occur in the vicinity, as determined by background literature research. A list of plant and wildlife species observed during the site visit is attached.

As part of this assessment, WRA reviewed the draft Solano Multispecies Habitat Conservation Plan (Solano HCP). The draft Solano HCP establishes a framework for complying with state and federal endangered species regulations while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities undertaken by or under the plan for participants within Solano County over the next 30 years (LSA 2012). Once the Solano HCP is finalized, projects located within the plan area will be eligible for take coverage for impacts to listed species if the project complies with the plans conservation measures. The Study Area is located within the Solano HCP plan area, within the City of Dixon Urban Growth Boundary.

Methods

Prior to the site visit, background literature was reviewed to determine the potential presence of sensitive vegetation communities, aquatic communities, and special-status plant and wildlife species. Resources reviewed for sensitive vegetation and aquatic features include aerial photography, mapped soil types, the California Native Plant Society (CNPS) Online Databases (2019), the California Department of Fish and Wildlife's (CDFW) California Natural Diversity

Database (CNDDDB; CDFW 2019), and the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) database (USFWS 2019). For databases queries, the Allendale, Davis, Dixon, Dozier, Elmira, Liberty Island, Merritt, Saxon, and Winters U.S. Geological (USGS) 7.5-minute quadrangles were included as the focal search area.

Existing Conditions and Site History

The majority of the Study Area is comprised of 13.05 acre of non-native annual grassland, dominated by wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), and Italian rye grass (*Festuca perennis*). Based on historical aerial imagery (Google Earth 2019, NETR 2019), this area has been in active agricultural since 1968. Topographic maps indicate a watercourse, Dudley Creek, located approximately 1,000 feet south of the Study Area. However, at the surface level, this water feature appears entirely absent now. Since the 1960's, the site appears to have been maintained through regularly discing and mowing activities. A narrow strip of non-native herbaceous vegetation is present along the north, east, and south edge of the Study Area where discing equipment is not able to access. Dominate vegetation in the strip consists of common mallow (*Malva neglecta*), prostrate knotweed (*Polygonum aviculare*), ripgut brome, Italian rye grass, perennial pepperweed (*Lepidium latifolium*), and flax-leaved horseweed (*Erigeron bonariensis*). Along the west edge of the Study Area is a narrow strip of ornamental trees and shrubs comprising approximately 0.32 acre. The ornamental species are dominated by oleander (*Nerium oleander*), London plane tree (*Platanus x hispanica*), scarlet firethorn (*Pyracantha coccinea*), ornamental cherry (*Prunus* sp.), and coast live oak (*Quercus agrifolia*). Sometime between 1996 and 2003, Route 113 adjacent to the Study Area was widened and repaved. Upgrades to Route 113 during this period added infrastructure upgrades to the north and east edge of the Study Area including sidewalk, sidewalk illumination, underground utility lines, and aboveground utility cabinets.

Potential Aquatic Features within the Study Area

Based on this preliminary assessment, there are no potential aquatic features within or immediately adjacent to the Study Area. The site is entirely flat with elevations ranging from 66 to 67 feet above sea level. During the July 19, 2019 site visit, the site appears to have been recently discing. As such, it is possible potential hydric soil indicators could have been obscured by discing activities. However, given the timing of the evaluation, dominance of upland vegetation, and level elevations onsite, the Study Area is highly unlikely to support aquatic features.

Special-Status Plant Species

WRA assessed the potential for habitat within the Study Area to support the occurrence of special-status plants. Due to the agricultural history and on-going discing and maintenance activities at the Study Area, no special-status plant species have moderate or high potential to occur within the Study Area. No rare plant surveys are recommended.

Special-Status Wildlife Species

WRA assessed the potential habitat within the Study Area to support the occurrence of special-status wildlife. Special-status wildlife species determined to have moderate or high potential to occur in the Study Area are discussed below.

Swainson's hawk (*Buteo swainsoni*). State Threatened, USFWS Bird of Conservation Concern. Solano HCP focal species. The Study Area contains grassland and trees which may

be suitable for nesting and foraging by this species. Swainson's hawk was documented nesting approximately 0.2 mile from the Study Area in 2006 (CDFW 2019). The Study Area is regularly disced and disturbed, reducing potential prey base for Swainson's hawk. However, due to the number of nearby documented occurrences and nearby nest trees, the Study Area has a moderate potential to support Swainson's hawk. The Study Area does not lie within a Swainson's hawk Potential Reserve Area as determined by the Solano HCP. In accordance with the Solano HCP, between March 1 and August 31 an approved biologist shall conduct a pre-construction survey within the Study Area and suitable habitat within 0.25 mile within 15 days of the start of any potential construction. If a lapse in construction related work lasts for 15 days or longer, additional pre-construction surveys may be required. If a nest is located within 0.25 miles of the Study Area, an appropriate buffer will be established. Other mitigation measures may be necessary as described in the Solano HCP if Swainson's hawk is observed nesting within the Study Area, including protection of the nesting tree.

Burrowing owl (*Athene cunicularia*). CDFW Species of Special Concern; USFWS Bird of Conservation Concern. Solano HCP focal species. Burrowing owls occupy open areas and are dependent on burrowing mammals to provide burrows for shelter and nesting. The Study Area is highly disturbed and was disced prior to the July 19, 2019 site visit. No ground squirrels or suitable burrows were observed in the Study Area during the site visit. However, burrowing owl has been documented within 1 mile of the Study Area (CDFW 2019), and ground squirrels have potential to move into the site from adjacent undeveloped land and establish burrows and suitable burrowing owl habitat. Due to the open nature of the site and nearby documented occurrences, this species has a moderate potential to occur in the Study Area. If suitable habitat is established within the site, pre-construction surveys in known or suitable habitat areas to identify and subsequently avoid nesting areas may be warranted as detailed in the Solano HCP.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. (Not included as Solano HCP focal species). The Study Area contains trees and open grassland which may be suitable for nesting and foraging by this species. The Study Area has been regularly disced and disturbed, reducing the potential prey base for this species. However, due to nearby occurrences (eBird 2019) and the open nature of the site, white-tailed kite has a moderate potential to occur.

MBTA and California Fish and Game Code Protected Nesting Birds. Within the Study Area, native birds may nest in trees, shrubbery, and on the ground. Most native birds have baseline protections under the California Fish and Game Code and guidelines for protections under the federal Migratory Bird Treaty Act of 1918. Under these laws/codes, the intentional killing, collecting or trapping of covered species, including their active nests (those with eggs or young), is prohibited.

Measures for special-status (including white-tailed kite) and non-status nesting birds typically requires a pre-construction survey by a qualified biologist during the nesting season (February 1-August 31). If nests are located, a no disturbance buffer is placed around the nest and work within the buffer resumes once the nest has either fledged or failed.

Conclusions and Recommendations Summary

Based on results of the site visit, the Study Area does not contain any aquatic features or sensitive biological communities. Any potential work conducted in the Study Area will not require authorization from the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), or CDFW. The Study Area does not have the potential to support special-status plant species.

The Study Area has potential to support special status (burrowing owl, Swainson's hawk, white-tailed kite) and non-status nesting birds with baseline legal protections. Avoidance and mitigation measures include preconstruction surveys and establishment of no disturbance buffers if nesting is observed. Swainson's hawk and burrowing owl are focal species in the Solano HCP which may require further mitigation if they are determined to be nesting within the site during preconstruction surveys. The Study Area is unlikely to support other special-status wildlife species.

Existing and some proposed trees within the Study Area may be protected under the Street Tree Ordinance of the City of Dixon (Chapter 13.05). The City's Ordinance outlines maintenance and encroachment requirements for all existing trees and planting requirements for all newly proposed street trees associated with new development. A street tree is defined by the Dixon Municipal Code as any tree within the Street Tree Area which includes the space within a public street right-of-way plus 5 feet beyond. Under the Ordinance, any maintenance of street trees requires an encroachment permit from the City. In addition, all new planting of trees within the Street Tree Area must be approved by the City's Planning Commission and follow the maintenance obligations. The City prohibits the planting of the following trees in the Street Tree Area: blackwood acacia (*Acacia melanoxydon*), black walnut (*Juglans nigra*), eucalyptus (*Eucalyptus* spp.), elm (*Ulmus* spp.), European hackberry (*Celtis australis*), palm (*Phoenix* spp. and *Washingtonia* spp.), poplar (*Populus* spp.), sweet gum (*Liquidambar styraciflua*), tree of heaven (*Ailanthus altissima*), sycamore (*Platanus* spp.), locust (*Robinia* spp.), willow (*Salix* spp.), cottonwood (*Populus* spp.), and fruiting mulberry (*Morus alba*).

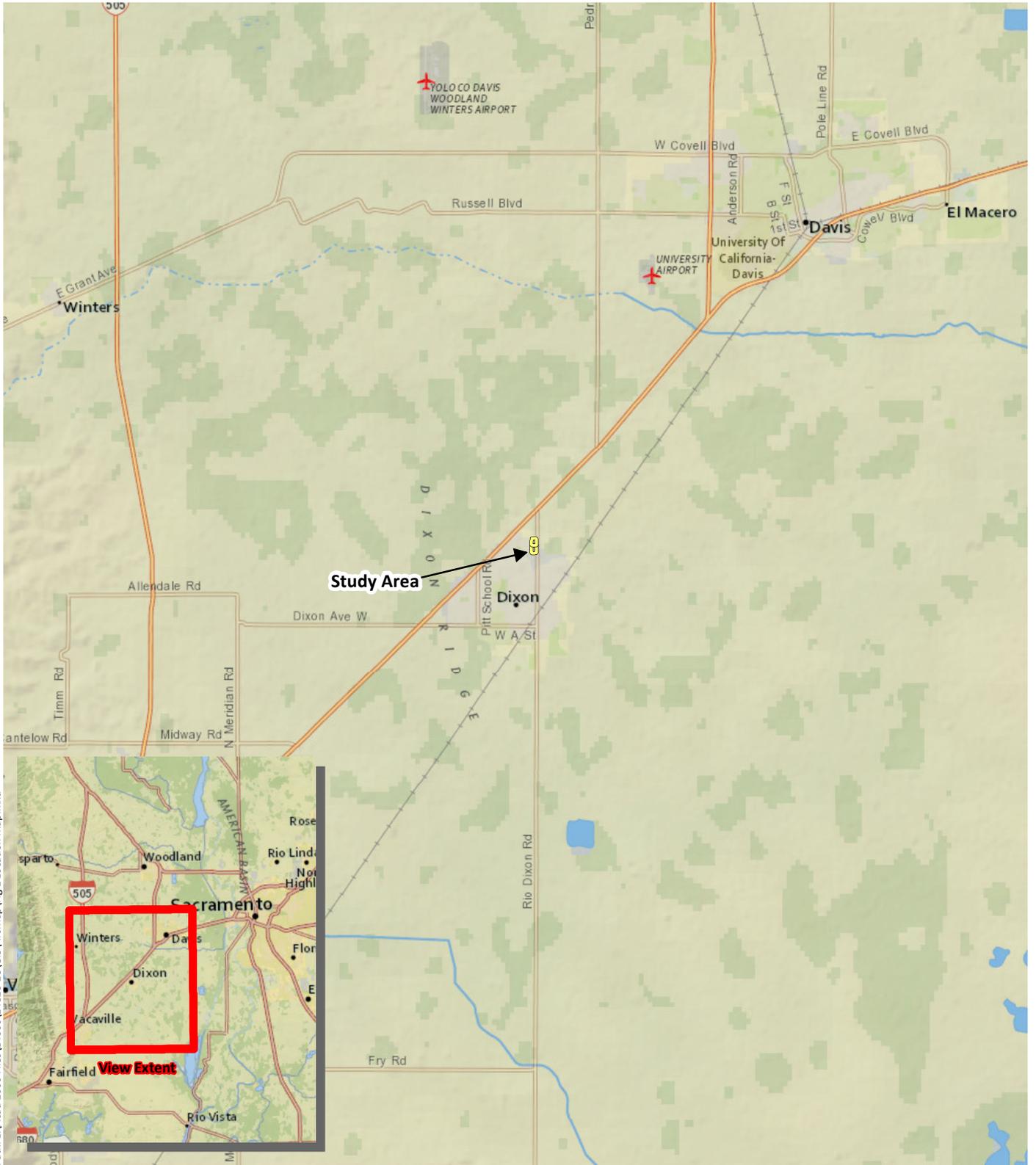
References:

- [CDFW] California Department of Fish and Wildlife. 2019. California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Accessed July 2019.
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- [NETR] Nationwide Environmental Title Research. 2019. Historic Aerials 1968-2014. July 19, 2019. Accessed at: <https://www.historicaerials.com/>.
- [USFWS] U.S. Fish and Wildlife Service. 2019. Information for Planning and Consultation (IPaC). Online at <https://ecos.fws.gov/ipac/>. Accessed July 2019.
- [USGS] U.S. Geological Survey. 2019. Allendale, Davis, Dixon, Dozier, Elmira, Liberty Island, Merritt, Saxon, and Winters 7.5-minute topographic quadrangles.

Attachments:

- Appendix A: Figures
- Appendix B: Site Photographs
- Appendix C: List of Observed Plant Species
- Appendix D: Database Search Output Lists and Reports

Appendix A. Figures



Sources: National Geographic, WRA | Prepared By: smortensen, 7/24/2019

Figure 1. Study Area Location

Lewis Dixon
 Suison City, Solano County, CA



Path: L:\Acad 2000 Files\24000\24323-18\GIS\ArcMap\Fig 2 BioComms.mxd



Sources: National Geographic, WRA | Prepared By: smortensen, 7/24/2019

Figure 2. Biological Communities

Lewis Dixon
Suisun City, Solano County, CA



Appendix B: Site Photographs



Photograph 1. The photograph was taken near the west edge of the Study Area. View is looking south towards recently disced non-native grassland in foreground, commercial property in the top left corner, and ornamental trees in the right side of the photo.



Photograph 2. The photograph was taken near the west edge of the Study Area looking north. View is of disced field in the foreground and ornamental plantings in the left side of the photo.



Photograph 3. The photograph was taken along the east edge of the Study Area looking south. The photograph from right to left shows disced fields, a strip of herbaceous non-native forbs, sidewalk, and roadway (Route 113).



Photograph 4. The photograph was taken in the south central portion of the Study Area looking west across the Project Area.

Appendix C: List of Observed Plant Species

Appendix C. Plant species observed during the July 19, 2019 site visit.

SCIENTIFIC NAME	COMMON NAME
Plants	
<i>Avena fatua</i>	Wildoats
<i>Brassica nigra</i>	Black mustard
<i>Bromus diandrus</i>	Ripgut brome
<i>Carduus pycnocephalus ssp. pycnocephalus</i>	Italian thistle
<i>Convolvulus arvensis</i>	Field bindweed
<i>Erigeron bonariensis</i>	Flax-leaved horseweed
<i>Festuca perennis</i>	Italian rye grass
<i>Hordeum murinum</i>	Foxtail barley
<i>Juglans hindsii</i>	Northern california black walnut
<i>Lactuca serriola</i>	Prickly lettuce
<i>Lepidium latifolium</i>	Perennial pepperweed
<i>Malva neglecta</i>	Dwarf mallow
<i>Malva parviflora</i>	Cheeseweed
<i>Nerium oleander</i>	Oleander
<i>Platanus ×hispanica</i>	London plane tree
<i>Polygonum aviculare</i>	Prostrate knotweed
<i>Prunus sp.</i>	-
<i>Quercus agrifolia</i>	Coast live oak
<i>Raphanus sativus</i>	Jointed charlock
<i>Sequoia sempervirens</i>	Coast redwood
<i>Silybum marianum</i>	Milk thistle
<i>Tribulus terrestris</i>	Puncture vine

Appendix D: Database Search Output Lists and Reports



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Winters) OR Merritt OR Davis OR Allendale OR Dixon OR Saxon OR Elmira OR Dozier OR Liberty Island AND Taxonomic Group (Ferns) OR Gymnosperms OR Monocots OR Dicots

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include Astragalus tener var. ferrisiae, Astragalus tener var. tener, Atriplex cordulata var. cordulata, Atriplex depressa, Atriplex persistens, Centromadia parryi ssp. parryi, Chloropyron molle ssp. hispidum, Cicuta maculata var. bolanderi, Delphinium recurvatum, Downingia pusilla, Eryngium jepsonii, Extriplex joaquinana, Fritillaria liliacea, Fritillaria pluriflora, Gratiola heterosepala, Hibiscus lasiocarpus var. occidentalis, Isocoma arguta, Lasthenia conjugens.



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
<i>Lathyrus jepsonii var. jepsonii</i> Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
<i>Legenere limosa</i> legenere	PDCAM0C010	None	None	G2	S2	1B.1
<i>Lepidium latipes var. heckardii</i> Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
<i>Limosella australis</i> Delta mudwort	PDSCR10030	None	None	G4G5	S2	2B.1
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<i>Neostaphia colusana</i> Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
<i>Orcuttia inaequalis</i> San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
<i>Plagiobothrys hystriculus</i> bearded popcornflower	PDBOR0V0H0	None	None	G2	S2	1B.1
<i>Puccinellia simplex</i> California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
<i>Sagittaria sanfordii</i> Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
<i>Symphotrichum lentum</i> Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
<i>Trifolium amoenum</i> two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Tuctoria mucronata</i> Crampton's tuctoria or Solano grass	PMPOA6N020	Endangered	Endangered	G1	S1	1B.1

Record Count: 34



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Winters (3812158) OR Merritt (3812157) OR Davis (3812156) OR Allendale (3812148) OR Dixon (3812147) OR Saxon (3812146) OR Elmira (3812138) OR Dozier (3812137) OR Liberty Island (3812136)) AND Taxonomic Group (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
<i>Ammodramus savannarum</i> grasshopper sparrow	ABPBXA0020	None	None	G5	S3	SSC
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	IIHYM35030	None	None	G2	S2	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Branchinecta mesovallensis</i> midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
<i>Charadrius alexandrinus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
<i>Cicindela hirticollis abrupta</i> Sacramento Valley tiger beetle	IICOL02106	None	None	G5TH	SH	
<i>Circus hudsonius</i> northern harrier	ABNKC11011	None	None	G5	S3	SSC
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Elaphrus viridis</i> Delta green ground beetle	IICOL36010	Threatened	None	G1	S1	
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Hydrochara rickseckeri</i> Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
<i>Hypomesus transpacificus</i> Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
<i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010	None	None	G5	S3S4	
<i>Lasiurus blossevillii</i> western red bat	AMACC05060	None	None	G5	S3	SSC
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
<i>Linderiella occidentalis</i> California linderiella	ICBRA06010	None	None	G2G3	S2S3	
<i>Melospiza melodia</i> song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
<i>Myotis yumanensis</i> Yuma myotis	AMACC01020	None	None	G5	S4	
<i>Myrmosula pacifica</i> Antioch multilid wasp	IIHYM15010	None	None	GH	SH	
<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thamnophis gigas</i> giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	

Record Count: 37

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

Plant List

40 matches found. [Click on scientific name for details](#)

Search Criteria

Found in Quads 3812158, 3812157, 3812156, 3812148, 3812147, 3812146, 3812138 3812137 and 3812136;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	Jun, Aug, Sep, Oct	1B.2	S2	G2
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	1B.1	S1	G2T1
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	2B.1	S2?	G5T4T5
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2S3	G2G3
Gratiola heterosepala	Boggs Lake hedge-	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2

	hyssop						
<u>Hesperevax caulescens</u>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	4.2	S3	G3
<u>Hibiscus lasiocarpus var. occidentalis</u>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
<u>Isocoma arguta</u>	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	1B.1	S1	G1
<u>Lasthenia conjugens</u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
<u>Lasthenia ferrisiae</u>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	4.2	S3	G3
<u>Lasthenia glabrata ssp. coulteri</u>	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	1B.1	S2	G4T2
<u>Lathyrus jepsonii var. jepsonii</u>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2	S2	G5T2
<u>Legenere limosa</u>	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
<u>Lepidium latipes var. heckardii</u>	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
<u>Lilaeopsis masonii</u>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2
<u>Limosella australis</u>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	2B.1	S2	G4G5
<u>Malacothamnus helleri</u>	Heller's bush-mallow	Malvaceae	perennial deciduous shrub	May-Jul	3.3	S3	G3Q
<u>Myosurus minimus ssp. apus</u>	little mousetail	Ranunculaceae	annual herb	Mar-Jun	3.1	S2	G5T2Q
<u>Navarretia leucocephala ssp. bakeri</u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
<u>Neostapfia colusana</u>	Colusa grass	Poaceae	annual herb	May-Aug	1B.1	S1	G1
<u>Orcuttia inaequalis</u>	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
<u>Perideridia gairdneri ssp. gairdneri</u>	Gairdner's yampah	Apiaceae	perennial herb	Jun-Oct	4.2	S3S4	G5T3T4
<u>Plagiobothrys hystriculus</u>	bearded popcornflower	Boraginaceae	annual herb	Apr-May	1B.1	S2	G2
<u>Puccinellia simplex</u>	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
<u>Sagittaria sanfordii</u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
<u>Symphyotrichum lentum</u>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
<u>Trifolium amoenum</u>	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1
<u>Trifolium hydrophilum</u>	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
<u>Tuctoria mucronata</u>	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website <http://www.rareplants.cnps.org> [accessed 24 July 2019].

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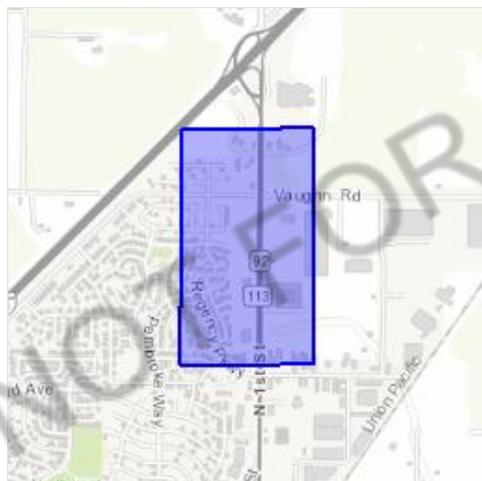
IPaC resource list

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

Solano County, California



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

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](#).

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.
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:

Reptiles

NAME

STATUS

Giant Garter Snake *Thamnophis gigas* Threatened
 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> There is final critical habitat for this species. Your location is outside 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 is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

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

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Vernal Pool Tadpole Shrimp *Lepidurus packardii*

Endangered

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

<https://ecos.fws.gov/ecp/species/2246>

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 <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.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 (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Burrowing Owl *Athene cunicularia*

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/9737>

Breeds Mar 15 to Aug 31

California Thrasher *Toxostoma redivivum*

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

Breeds Jan 1 to Jul 31

Golden Eagle *Aquila chrysaetos*

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.

<https://ecos.fws.gov/ecp/species/1680>

Breeds Jan 1 to Aug 31

Long-billed Curlew *Numenius americanus*

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

<https://ecos.fws.gov/ecp/species/5511>

Breeds elsewhere

Nuttall's Woodpecker *Picoides nuttallii*

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>

Breeds Apr 1 to Jul 20

Rufous Hummingbird *selasphorus rufus*

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

<https://ecos.fws.gov/ecp/species/8002>

Breeds elsewhere

Song Sparrow *Melospiza melodia*

Breeds Feb 20 to Sep 5

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

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>

Whimbrel *Numenius phaeopus*

Breeds elsewhere

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

<https://ecos.fws.gov/ecp/species/9483>

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.

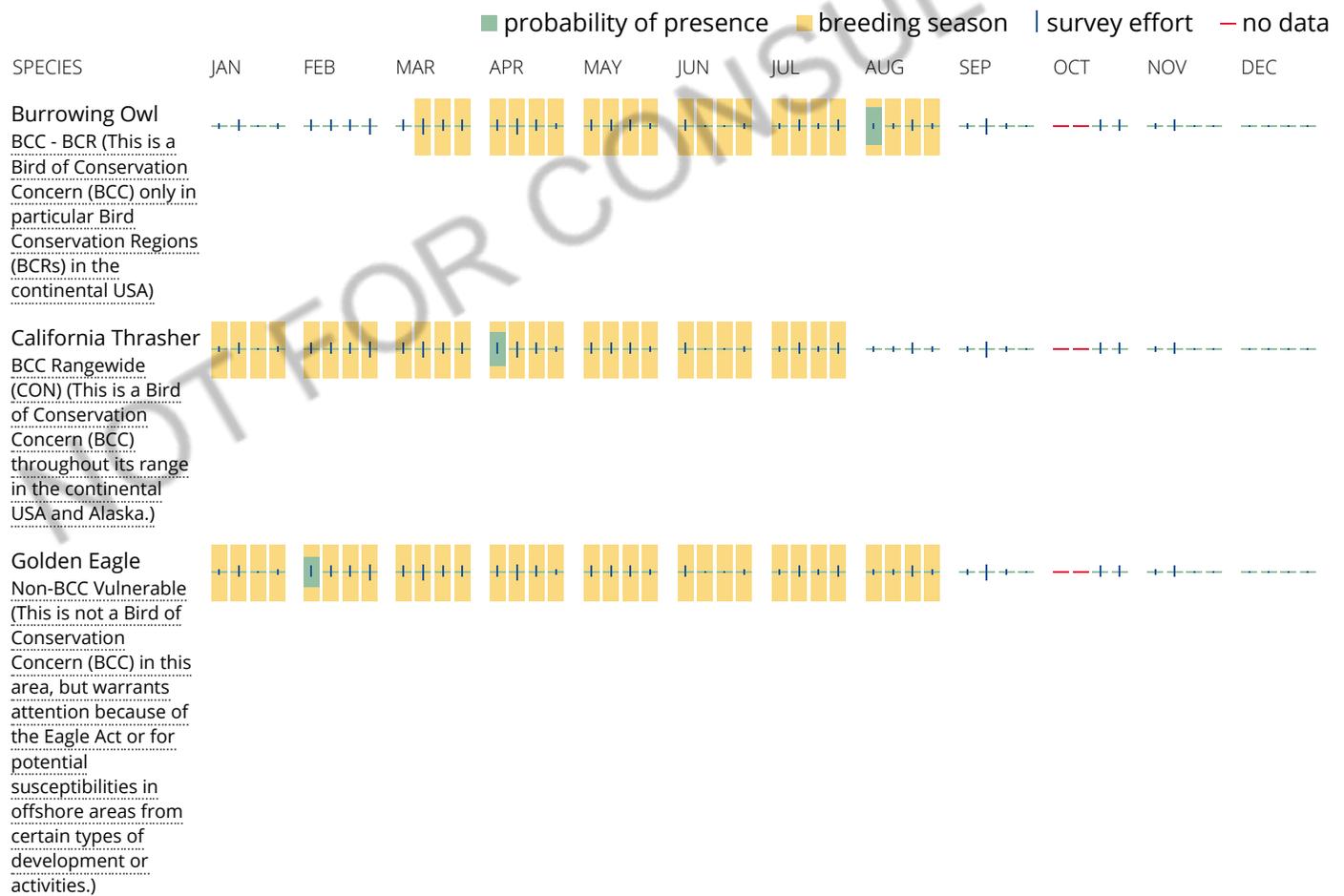
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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](#) and/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 migratory birds potentially occurring 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 [AKN Phenology 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, migrating or present year-round in my project 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 refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). 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.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

[PFOA](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

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