



## **Appendix C      Supporting Biological Resources Information**



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**CNDDDB Quad Species List 43 records.**

Element Type	Scientific Name	Common Name	Element Code	Federal Status	State Status	CDFW Status	CA Rare Plant Rank	Quad Code	Quad Name	Data Status	Taxonomic Sort
Animals - Amphibians	<i>Ambystoma californiense</i>	California tiger salamander	AAAAA01180	Threatened	Threatened	WL	-	3712183	STOCKTON WEST	Mapped	Animals - Amphibians - Ambystomatidae - Ambystoma californiense
Animals - Amphibians	<i>Spea hammondi</i>	western spadefoot	AAABF02020	None	None	SSC	-	3712183	STOCKTON WEST	Mapped	Animals - Amphibians - Scaphiropodidae - Spea hammondi
Animals - Birds	<i>Accipiter cooperii</i>	Cooper's hawk	ABNKC12040	None	None	WL	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Accipitridae - Accipiter cooperii
Animals - Birds	<i>Buteo swainsoni</i>	Swainson's hawk	ABNKC19070	None	Threatened	-	-	3712183	STOCKTON WEST	Mapped and Unprocessed	Animals - Birds - Accipitridae - Buteo swainsoni
Animals - Birds	<i>Elanus leucurus</i>	white-tailed kite	ABNKC06010	None	None	FP	-	3712183	STOCKTON WEST	Mapped	Animals - Birds - Accipitridae - Elanus leucurus
Animals - Birds	<i>Ardea alba</i>	great egret	ABNGA04040	None	None	-	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Ardeidae - Ardea alba
Animals - Birds	<i>Ardea herodias</i>	great blue heron	ABNGA04010	None	None	-	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Ardeidae - Ardea herodias
Animals - Birds	<i>Charadrius montanus</i>	mountain plover	ABNNB03100	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Charadriidae - Charadrius montanus
Animals - Birds	<i>Pica nuttalli</i>	yellow-billed magpie	ABPAV09020	None	None	-	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Corvidae - Pica nuttalli
Animals - Birds	<i>Progne subis</i>	purple martin	ABPAU01010	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Hirundinidae - Progne subis
Animals - Birds	<i>Agelaius tricolor</i>	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	3712183	STOCKTON WEST	Mapped	Animals - Birds - Icteridae - Agelaius tricolor
Animals - Birds	<i>Icteria virens</i>	yellow-breasted chat	ABPBX24010	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Icteridae - Icteria virens
Animals - Birds	<i>Setophaga petechia</i>	yellow warbler	ABPBX03010	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Parulidae - Setophaga petechia
Animals - Birds	<i>Asio flammeus</i>	short-eared owl	ABNSB13040	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Birds - Strigidae - Asio flammeus
Animals - Birds	<i>Athene cunicularia</i>	burrowing owl	ABNSB10010	None	None	SSC	-	3712183	STOCKTON WEST	Mapped and Unprocessed	Animals - Birds - Strigidae - Athene cunicularia
Animals - Birds	<i>Vireo bellii pusillus</i>	least Bell's vireo	ABPBW01114	Endangered	Endangered	-	-	3712183	STOCKTON WEST	Mapped	Animals - Birds - Vireonidae - Vireo bellii pusillus
Animals - Fish	<i>Acipenser transmontanus</i>	white sturgeon	AFCAA01050	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Acipenseridae - Acipenser transmontanus
Animals - Fish	<i>Lavinia exilicauda exilicauda</i>	Sacramento hitch	AFCJB19012	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Cyprinidae - Lavinia exilicauda exilicauda
Animals - Fish	<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	AFCJB34020	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Cyprinidae - Pogonichthys macrolepidotus

Animals - Fish	Hypomesus transpacificus	Delta smelt	AFCHB01040	Threatened	Endangered	-	-	3712183	STOCKTON WEST	Mapped and Unprocessed	Animals - Fish - Osmeridae - Hypomesus transpacificus
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	3712183	STOCKTON WEST	Mapped	Animals - Fish - Osmeridae - Spirinchus thaleichthys
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Petromyzontidae - Entosphenus tridentatus
Animals - Fish	Lampetra ayresii	river lamprey	AFBAA02030	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Petromyzontidae - Lampetra ayresii
Animals - Fish	Oncorhynchus mykiss irideus pop. 11	steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	-	-	3712183	STOCKTON WEST	Mapped	Animals - Fish - Salmonidae - Oncorhynchus mykiss irideus pop. 11
Animals - Fish	Oncorhynchus tshawytscha pop. 13	chinook salmon - Central Valley fall / late fall-run ESU	AFCHA0205N	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 13
Animals - Fish	Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	AFCHA02056	None	Candidate Endangered	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 30
Animals - Fish	Oncorhynchus tshawytscha pop. 6	chinook salmon - Central Valley spring-run ESU	AFCHA0205A	Threatened	Threatened	-	-	3712183	STOCKTON WEST	Unprocessed	Animals - Fish - Salmonidae - Oncorhynchus tshawytscha pop. 6
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04020	None	None	-	-	3712183	STOCKTON WEST	Unprocessed	Animals - Mollusks - Unionidae - Anodonta californiensis
Animals - Mollusks	Gonidea angulata	western ridged mussel	IMBIV19010	None	None	-	-	3712183	STOCKTON WEST	Unprocessed	Animals - Mollusks - Unionidae - Gonidea angulata
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Reptiles - Emydidae - Emys marmorata
Animals - Reptiles	Thamnophis gigas	giant gartersnake	ARADB36150	Threatened	Threatened	-	-	3712183	STOCKTON WEST	Mapped	Animals - Reptiles - Natricidae - Thamnophis gigas
Animals - Reptiles	Phrynosoma blainvillii	coast horned lizard	ARACF12100	None	None	SSC	-	3712183	STOCKTON WEST	Unprocessed	Animals - Reptiles - Phrynosomatidae - Phrynosoma blainvillii
Plants - Vascular	Sagittaria sanfordii	Sanford's arrowhead	PMALI040Q0	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Alismataceae - Sagittaria sanfordii
Plants - Vascular	Blepharizonia plumosa	big tarplant	PDAST1C011	None	None	-	1B.1	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Asteraceae - Blepharizonia plumosa
Plants - Vascular	Symphyotrichum lentum	Suisun Marsh aster	PDASTE8470	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Asteraceae - Symphyotrichum lentum

Plants - Vascular	Brasenia schreberi	watershield	PDCAB01010	None	None	-	2B.3	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Cabombaceae - Brasenia schreberi
Plants - Vascular	Atriplex cordulata var. cordulata	heartscale	PDCHE040B0	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Chenopodiaceae - Atriplex cordulata var. cordulata
Plants - Vascular	Extriplex joaquinana	San Joaquin spearscale	PDCHE041F3	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Chenopodiaceae - Extriplex joaquinana
Plants - Vascular	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Fabaceae - Astragalus tener var. tener
Plants - Vascular	Lathyrus jepsonii var. jepsonii	Delta tule pea	PDFAB250D2	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Fabaceae - Lathyrus jepsonii var. jepsonii
Plants - Vascular	Trifolium hydrophilum	saline clover	PDFAB400R5	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Fabaceae - Trifolium hydrophilum
Plants - Vascular	Hibiscus lasiocarpus var. occidentalis	woolly rose-mallow	PDMAL0H0R3	None	None	-	1B.2	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Malvaceae - Hibiscus lasiocarpus var. occidentalis
Plants - Vascular	Chloropyron palmatum	palmate-bracted bird's-beak	PDSCR0J0J0	Endangered	Endangered	-	1B.1	3712183	STOCKTON WEST	Mapped	Plants - Vascular - Orobanchaceae - Chloropyron palmatum

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

## Plant List

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

### Search Criteria

Found in Quad 3712183

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Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Listing Status	Federal Listing Status
<a href="#">Astragalus tener var. tener</a>	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2		
<a href="#">Atriplex cordulata var. cordulata</a>	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2		
<a href="#">Blepharizonia plumosa</a>	big tarplant	Asteraceae	annual herb	Jul-Oct	1B.1		
<a href="#">Brasenia schreberi</a>	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3		
<a href="#">Chloropyron palmatum</a>	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	CE	FE
<a href="#">Extriplex joaquinana</a>	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2		
<a href="#">Hibiscus lasiocarpus var. occidentalis</a>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2		
<a href="#">Lathyrus jepsonii var. jepsonii</a>	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	1B.2		
<a href="#">Sagittaria sanfordii</a>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2		
<a href="#">Symphyotrichum lentum</a>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2		
<a href="#">Trifolium hydrophilum</a>	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2		

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**Questions and Comments**

[rareplants@cnps.org](mailto:rareplants@cnps.org)

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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

San Joaquin 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 species<sup>1</sup> 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 Fisheries<sup>2</sup>).

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:

## Mammals

NAME

STATUS

Riparian Brush Rabbit *Sylvilagus bachmani riparius*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6189>

## 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 *Rana draytonii*

Threatened

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

<https://ecos.fws.gov/ecp/species/2891>

California Tiger Salamander *Ambystoma californiense*

Threatened

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

<https://ecos.fws.gov/ecp/species/2076>

## Fishes

NAME

STATUS

Delta Smelt *Hypomesus transpacificus*

Threatened

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

<https://ecos.fws.gov/ecp/species/321>

## Insects

NAME

STATUS

Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*

Threatened

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

<https://ecos.fws.gov/ecp/species/7850>

## Crustaceans

NAME

STATUS

Vernal Pool Fairy Shrimp *Branchinecta lynchi* Threatened  
 There is **final** critical habitat for this species. Your location is outside the critical habitat.  
<https://ecos.fws.gov/ecp/species/498>

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>

## Flowering Plants

NAME	STATUS
Palmate-bracted Bird's Beak <i>Cordylanthus palmatus</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1616">https://ecos.fws.gov/ecp/species/1616</a>	Endangered

## 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 Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

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.)
<p><b>Burrowing Owl</b> <i>Athene cunicularia</i>                      This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9737">https://ecos.fws.gov/ecp/species/9737</a></p>	<p>Breeds Mar 15 to Aug 31</p>
<p><b>Common Yellowthroat</b> <i>Geothlypis trichas sinuosa</i>                      This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/2084">https://ecos.fws.gov/ecp/species/2084</a></p>	<p>Breeds May 20 to Jul 31</p>
<p><b>Lawrence's Goldfinch</b> <i>Carduelis lawrencei</i>                      This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9464">https://ecos.fws.gov/ecp/species/9464</a></p>	<p>Breeds Mar 20 to Sep 20</p>

<p><b>Long-billed Curlew</b> <i>Numenius americanus</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/5511">https://ecos.fws.gov/ecp/species/5511</a></p>	Breeds elsewhere
<p><b>Nuttall's Woodpecker</b> <i>Picoides nuttallii</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/9410">https://ecos.fws.gov/ecp/species/9410</a></p>	Breeds Apr 1 to Jul 20
<p><b>Oak Titmouse</b> <i>Baeolophus inornatus</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9656">https://ecos.fws.gov/ecp/species/9656</a></p>	Breeds Mar 15 to Jul 15
<p><b>Song Sparrow</b> <i>Melospiza melodia</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Feb 20 to Sep 5
<p><b>Spotted Towhee</b> <i>Pipilo maculatus clementae</i>            This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/4243">https://ecos.fws.gov/ecp/species/4243</a></p>	Breeds Apr 15 to Jul 20
<p><b>Wrentit</b> <i>Chamaea fasciata</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 10
<p><b>Yellow-billed Magpie</b> <i>Pica nuttalli</i>            This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9726">https://ecos.fws.gov/ecp/species/9726</a></p>	Breeds Apr 1 to Jul 31

## 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.

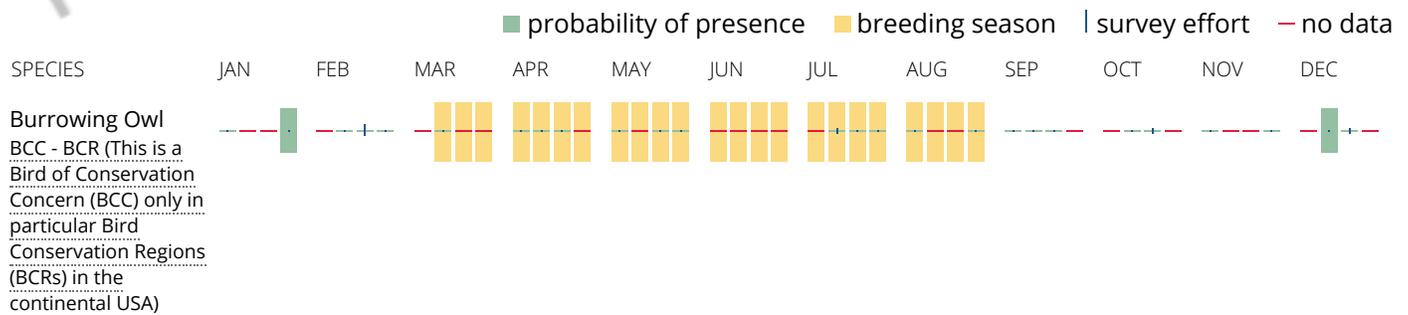
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

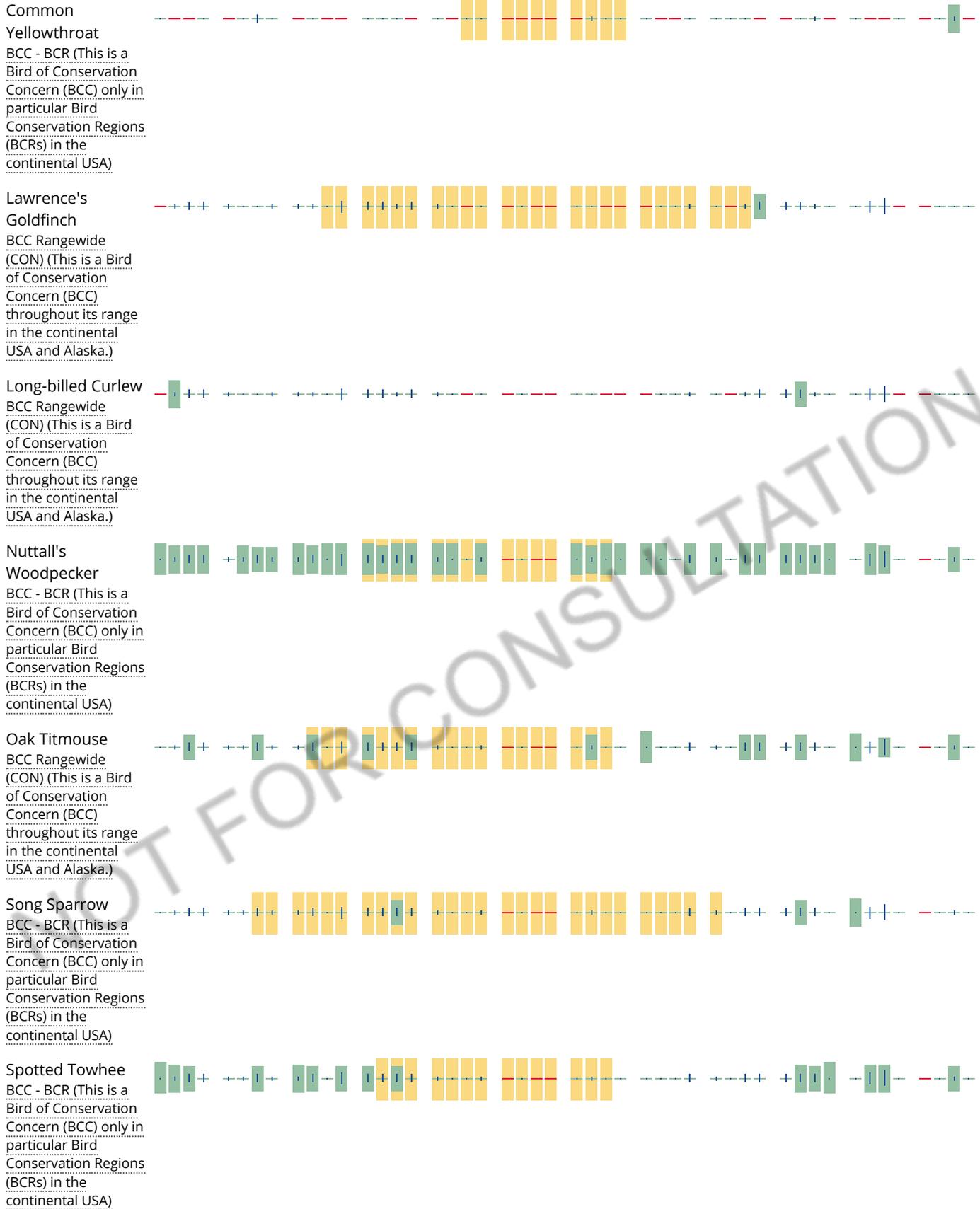
**No Data (-)**

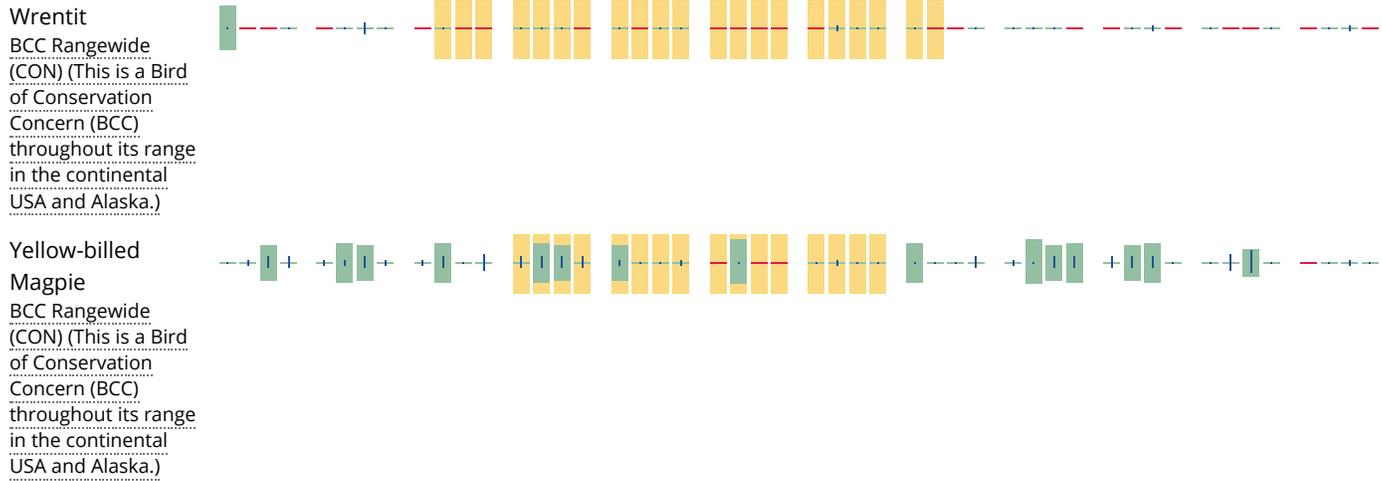
A week is marked as having no data if there were no survey events for that week.

**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 EMERGENT WETLAND

[PEM1A](#)

RIVERINE

[R5UBFx](#)

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.

Quad Name **Stockton West**

Quad Number **37121-H3**

### **ESA Anadromous Fish**

SONCC Coho ESU (T) -  
CCC Coho ESU (E) -  
CC Chinook Salmon ESU (T) -  
CVSR Chinook Salmon ESU (T) -  
SRWR Chinook Salmon ESU (E) -  
NC Steelhead DPS (T) -  
CCC Steelhead DPS (T) -  
SCCC Steelhead DPS (T) -  
SC Steelhead DPS (E) -  
CCV Steelhead DPS (T) - **X**  
Eulachon (T) -  
sDPS Green Sturgeon (T) - **X**

### **ESA Anadromous Fish Critical Habitat**

SONCC Coho Critical Habitat -  
CCC Coho Critical Habitat -  
CC Chinook Salmon Critical Habitat -  
CVSR Chinook Salmon Critical Habitat -  
SRWR Chinook Salmon Critical Habitat -  
NC Steelhead Critical Habitat -  
CCC Steelhead Critical Habitat -  
SCCC Steelhead Critical Habitat -  
SC Steelhead Critical Habitat -  
CCV Steelhead Critical Habitat - **X**  
Eulachon Critical Habitat -  
sDPS Green Sturgeon Critical Habitat - **X**

### **ESA Marine Invertebrates**

Range Black Abalone (E) -  
Range White Abalone (E) -

### **ESA Marine Invertebrates Critical Habitat**

Black Abalone Critical Habitat -

### **ESA Sea Turtles**

East Pacific Green Sea Turtle (T) -  
Olive Ridley Sea Turtle (T/E) -  
Leatherback Sea Turtle (E) -  
North Pacific Loggerhead Sea Turtle (E) -

### **ESA Whales**

Blue Whale (E) -  
Fin Whale (E) -  
Humpback Whale (E) -  
Southern Resident Killer Whale (E) -  
North Pacific Right Whale (E) -  
Sei Whale (E) -  
Sperm Whale (E) -

### **ESA Pinnipeds**

Guadalupe Fur Seal (T) -  
Steller Sea Lion Critical Habitat -

### **Essential Fish Habitat**

Coho EFH -  
Chinook Salmon EFH - **X**  
Groundfish EFH - **X**  
Coastal Pelagics EFH -  
Highly Migratory Species EFH -

### **MMPA Species (See list at left)**

### **ESA and MMPA Cetaceans/Pinnipeds**

**See list at left and consult the NMFS Long Beach office  
562-980-4000**

MMPA Cetaceans -

Scientific Name	Common Name	Federal	State	CRPR	Habitat Characteristics	Potential for Occurrence	Rationale
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	None	None	1B.2	Alkaline soils in playas, adobe clay grassland, and vernal pools. Elevation: 0–195 feet. Blooming period: March–June	N	Suitable habitat not present in the BSA.
<i>Atriplex cordulata</i> var. <i>cordulata</i>	heartscale	None	None	1B.2	Saline or alkaline soils in chenopod scrub, meadows, seeps, and sandy grassland. Elevation: 0–1,837 feet. Blooming period: April–October	N	Suitable habitat not present in the BSA.
<i>Blepharizonia plumosa</i>	big tarplant	None	None	1B.1	Usually clay soils in grassland. Elevation: 95–1,655 feet. Blooming period: July–October	N	Suitable habitat not present in the BSA.
<i>Brasenia schreberi</i>	watershield	None	None	2B.3	Freshwater marshes and swamps. Elevation: 95–7,220 feet. Blooming period: June–September	N	Suitable habitat not present in the BSA.
<i>Chloropyron palmatum</i>	palmate-bracted bird's-beak	FE	SE	1B.1	Alkaline soils in chenopod scrub and grassland. Elevation: 15–510 feet. Blooming period: May–October	N	Suitable habitat not present in the BSA.
<i>Extriplex joaquinana</i>	San Joaquin spearscale	None	None	1B.2	Alkaline soils in chenopod scrub, meadows, seeps, playas, and grassland. Elevation: 0–2,740 feet. Blooming period: April–October (synonym of <i>Atriplex joaquiniana</i> )	N	Suitable habitat not present in the BSA.
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	wooly rose-mallow	None	None	1B.2	Often in riprap on sides of levees in freshwater marshes and swamps. Elevation: 0–395 feet. Blooming period: June–September	N	Suitable habitat not present in the BSA.
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	Delta tule pea	None	None	1B.2	Freshwater and brackish marshes and swamps. Elevation: 0–16 feet. Blooming period: May–September	N	Suitable habitat not present in the BSA.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	None	None	1B.2	Fresh water marshes and swamps that are typically shallow. Elevation: 0–2,132 feet. Blooming period: May–October	N	Suitable habitat not present in the BSA.
<i>Symphyotrichum lentum</i>	Suisun Marsh aster	None	None	1B.2	Brackish and freshwater marshes and swamps. Elevation: 0–9 feet. Blooming period: (April)May–November (synonym of <i>Aster chilensis</i> var. <i>lentus</i> and <i>A. lentus</i> )	N	Suitable habitat not present in the BSA.
<i>Trifolium hydrophilum</i>	saline clover	None	None	1B.2	Marshes, swamps, vernal pools, and grassland with mesic or alkaline soils. Elevation: 0–985 feet. Blooming period: April–June	N	Suitable habitat not present in the BSA.
Source for all plant species habitat characteristics with a CRPR value is: California Native Plant Society (CNPS). 2020 (INSERT DATE). Inventory of Rare and Endangered Plants (online edition, v8-03). Sacramento, CA: CNPS. <a href="http://www.rareplants.cnps.org/">http://www.rareplants.cnps.org/</a> .							
Jepson Flora Project. 2019 (December 20, Revision 7). Jepson eFlora. Berkeley, CA: The Jepson Herbarium. <a href="http://ucjeps.berkeley.edu/eflora/">http://ucjeps.berkeley.edu/eflora/</a> .							
Plant Nomenclature and Listing Status: California Department of Fish and Wildlife (CDFW), 2020 (September). Special Vascular Plants, Bryophytes, and Lichens List. Sacramento, CA: CDFW, Natural Heritage Division.							
USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank							
Species Status:							
Federal (USFWS and USDA)	State (CDFW)						
FE Endangered	SE Endangered						
FT Threatened	ST Threatened						
FC Federal Candidate Species	SR Rare						
FSS Forest Service Sensitive	SC State Candidate Species						
WL Watch List							
CRPR							
1A Plants presumed extirpated in California and either rare or extinct elsewhere							
1B Plants Rare, Threatened, or Endangered in California and elsewhere							
2A Plants Presumed extirpated in California, but more common elsewhere							
2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere							
3 Plants about which we need more information - review list							
4 Plants of limited distribution - watch list							
CRPR Threat Code Extension							
None Plants lacking any threat information							

.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)							
.2 Moderately threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)							
.3 Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)							
Species that were observed [on site] are shown in boldface type.							
[INSERT any table footnotes; e.g., Taxon not currently recognized by the Jepson Flora Project (2018), but still tracked by the CDFW. Use * for a single footnote and superscript letters where there are multiple footnotes.]							

Scientific Name	Common Name	Federal	State	Habitat Characteristics	Potential for Occurrence	Rationale
<b>Invertebrates</b>						
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT	None	Endemic to the grasslands of the Central Valley and the Central and South Coast Range mountains of California, and the Agate Desert of southern Oregon. Found only in cool water vernal pools and vernal pool-like habitats; does not occur in riverine, marine, or other permanent bodies of water (USFWS 2007).	N	Vernal pool habitat not present within the BSA.
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT	None	Dependent on host plant, elderberry ( <i>Sambucus</i> spp.), which most commonly grows in riparian woodlands, but also in some upland habitats such as oak savannas and annual grasslands. Current presumed range in Central Valley extends from Shasta County south to Fresno County, including the valley floor and lower foothills up to about 500 feet in elevation (USFWS 2017).	N	No elderberry shrubs were documented during visual surveys conducted on November 24, 2020.
<i>Lepidurus packardii</i>	vernal pool tadpole shrimp	FE	None	Found only in ephemeral freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales, and other seasonal wetlands. Patchily distributed across the Central Valley from Shasta County south to Tulare County with isolated occurrences in the East Bay Area (USFWS 2007).	N	Vernal pool habitat not present within the BSA.
<b>Fish</b>						
<i>Acipenser medirostris</i>	green sturgeon (southern DPS)	FT	SSC	Spawning occurs primarily in the Sacramento River, but those that spawn in the Feather and Yuba Rivers are also part of the southern DPS. Oceanic waters, bays, and estuaries during non-spawning season. Enters San Francisco Bay late winter through early spring, and spawn occurs from April through early July. Spawn in cool sections of river mainstems in deep pools containing small to medium-sized gravel, cobble, or boulder substrate (NMFS 2015).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
<i>Acipenser transmontanus</i>	white sturgeon	None	SSC	Salt water from Ensenada to Alaska. Spawn in large river systems along the west coast. Currently, self-sustaining populations only occur in the Sacramento, Columbia, and Fraser Rivers. Spawn in large, deep pools (Moyle 2002).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
<i>Entosphenus tridentatus</i>	Pacific lamprey	None	SSC	Cold, clear water for spawning and incubation. Peak spawning appears to be closely tied to water temperatures that are suitable for early development, but can occur at temperatures above 72°F. Adults use gravel areas to build nests, while ammocoetes need soft sediments in which to burrow during rearing. Nests are generally associated with cover, including gravel and cobble substrates, vegetation and woody debris. Ammocoetes burrow into larger substrates as they grow. Ammocoetes also need detritus that produces algae for food and habitats with slow or moderately slow water velocities, such as low gradient riffles, pool tailouts and lateral scour pools (CDFW 2015).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
<i>Hypomesus transpacificus</i>	delta smelt	FT	SE	Endemic to open waters of San Francisco Bay and Sacramento-San Joaquin River Delta. Distribution includes San Pablo Bay up through Suisun Bay, upstream through the delta to the Sacramento River below Isleton, and the San Joaquin River below Mossdale. Spawning has not been observed in the wild, but is thought to take place in sloughs and shallow edge-water channels in the upper delta and in Montezuma Slough near Suisun Bay. (USFWS 2010).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
<i>Lampetra ayresii</i>	river lamprey	None	SSC	Occurs in the Sacramento-San Joaquin River systems, although it likely occurs elsewhere. Small lampreys that spend most of their lives in freshwater, with about 3 to 4 months in salt water. Adults migrate into freshwater for spawning in autumn (Moyle 2002).	N	The section of Mormon Slough that occurs within the proposed Project area does not hold water year round; therefore does not provide suitable habitat for special-status fish.
<i>Lavinia exilicauda exilicauda</i>	Sacramento hitch	None	SSC	Has a scattered distribution within the Central Valley, from the Tulare Lake Basin to Shasta Reservoir (Moyle 2002).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
<i>Oncorhynchus mykiss irideus</i> (pop. 11)	steelhead (central valley DPS)	FT	None	Includes naturally spawned anadromous steelhead originating below natural and manmade impassable barriers from the Sacramento and San Joaquin Rivers and their tributaries; excludes such fish originating from San Francisco and San Pablo Bays and their tributaries. This DPS does include steelhead from two artificial propagation programs: Coleman National Fish Hatchery Program and Feather River Fish Hatchery Program. Spawning habitat includes gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Non-spawning habitat includes estuarine and marine waters (NOAA 2019).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.

Oncorhynchus tshawytscha (pop. 6)	chinook salmon (Central Valley spring-run ESU)	FT	ST	Currently found in the Sacramento-San Joaquin River Delta, the Sacramento River and its tributaries, including American, Yuba and Feather Rivers, and Mill, Deer, and Butte Creeks. The numbers of adults are dependent on pool depth and volume, amount of cover, and proximity to gravel. Water temperatures greater than 80°F are lethal to adults (NMFS 2016).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
Oncorhynchus tshawytscha (pop. 13)	chinook salmon (Central Valley fall / late fall-run ESU)	None	SSC	Currently found primarily in the Sacramento River, where most spawning and rearing of juveniles takes place in the reach between Red Bluff Diversion Dam and Redding's Keswick Dam. The specific habitat requirements of late fall-run chinook salmon have not been determined but they are presumably similar to other Central Valley chinook salmon runs. It is believed that optimal conditions fall within the range of physical and chemical characteristics of the unimpaired Sacramento River above Shasta Dam (CDFW 2015).	N	The section of Mormon Slough that occurs within the proposed Project area does not hold water year round; therefore does not provide suitable habitat for special-status fish.
Oncorhynchus tshawytscha (pop. 30)	chinook salmon (upper Klamath and Trinity Rivers ESU)	None	SCE	Found in all major tributaries above the confluence of the Klamath and Trinity Rivers and raised in hatcheries below Iron Gate and Lewiston Dams. Enter the Klamath Estuary for only a short period prior to spawning. Unfavorable temperatures may exist in the Klamath Estuary and lower river during summer and chronic exposure of migrating adults to temperatures of even 62 to 68°F is detrimental (CDFW 2015).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
Pogonichthys macrolepidotus	Sacramento splittail	None	SSC	The Sacramento splittail is endemic to California's Central Valley. Splittail are now largely confined to the Delta, Suisun Bay, Suisun Marsh, Napa River, Petaluma River, and other parts of the San Francisco Estuary, while spawning on upstream floodplains and channel edges. The species is adapted for estuarine and are tolerant of a wide range of salinities and temperatures. Splittail require a rising hydrograph for upstream migration and flooded vegetation for spawning and rearing areas. Flooded areas need to be at least 1 m deep with deeper, more open, areas as refuges from predation (CDFW 2020).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
Spirinchus thaleichthys	longfin smelt	FCT	ST	Considered pelagic and anadromous, though anadromy in this species is poorly understood, and certain populations are not anadromous, completing their life cycle in freshwater lakes and streams (USFWS 2012).	N	Hydrology of Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and there is no consistent connection to other fish bearing water bodies.
<b>Amphibians</b>						
Ambystoma californiense	California tiger salamander	FT	ST	Breeds in fish-free ephemeral ponds which form in winter and dry in summer. Some also breed in slow streams and semi-permanent waters, including cattle ponds. Spends most of the year underground in small mammal burrows, especially those of California ground squirrel ( <i>Otospermophilus beecheyi</i> ). Typical habitat associations include grassland, oak savanna, edges of mixed woodland, and lower elevation coniferous forest (Nafis 2020).	N	Suitable habitat not present within the BSA. The section of Mormon Slough that bisects the BSA does not provide adequate aquatic habitat and is dry the majority of the year. The closest known occurrence is documented roughly 2 miles northwest of the BSA near Victory Park, but is outdated (1923) and presumed extirpated.
Rana draytonii	California red-legged frog	FT	SSC	Ponds and streams in humid forests, woodlands, grasslands, coastal scrub, and streambanks with plant cover in lowlands or foothills. Breeding habitat includes permanent or ephemeral water sources; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. Ephemeral wetland habitats require animal burrows or other moist refuges for estivation when the wetlands are dry. Occurs from sea level to 5,000 feet in elevation. Occurs along the Coast Ranges from Mendocino County south to northern Baja California, and inland across the northernmost reaches of the Sacramento Valley and locally south through portions of the Sierra Nevada foothills as far south as northern Tulare County (Nafis 2020).	N	Suitable habitat not present within the BSA
Spea hammondi	western spadefoot	None	SSC	Generally found in grasslands, oak woodlands, coastal sage scrub, and chaparral in washes, floodplains, alluvial fans, playas, and alkali flats. Natural and artificial water bodies are used for breeding. Specifically, vernal pools used by this species have an average ponding duration of 81 days, and successful recruitment occurs in ponds that last on average 21 days longer than larval development time. Pool temperature requirements are from 48 to 90°F. Pools with invasive species, such as crayfish ( <i>Pacifastacus</i> spp.), or bullfrogs ( <i>Lithobates catesbeianus</i> ) often, but not always, exclude this species. (Thomson et al. 2016).	N	Suitable habitat not present within the BSA
<b>Reptiles</b>						

Emys marmorata	western pond turtle	None	SSC	Ranges throughout California except for Inyo and Mono Counties. Generally occurs in various water bodies including permanent and ephemeral systems either natural or artificial. Upland habitat that is at least moderately undisturbed is required for nesting and overwintering, in soils that are loose enough for excavation (Thomson et al. 2016).	N	Hydrology of the Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and is dry a majority of the year. Additionally, suitable upland habitat is not present in the BSA. The upland habitat along the edges of the Slough is highly disturbed, urbanized, and inhabited by a large homeless population.
Phrynosoma blainvillii	coast horned lizard	None	SSC	Known to occur in open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Furthermore, grasslands, coniferous forests, woodlands, and chaparral, with patches of loose soil in open habitat. Frequently found in sandy washes with scattered shrubs and along dirt roads, and frequently found near ant hills. Ranges up onto the Kern Plateau east of the crest of the Sierra Nevada.	N	All known occurrences are documented in the foothills surrounding the Central Valley (with the exception of one near Merced). The highly urban/industrial conditions of the BSA and surrounding areas make movement of individuals into the City center very unlikely. Additionally, soils appear to be mainly loam/clay, which is not ideal.
Thamnophis gigas	giant garter snake	FT	ST	Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, rice fields and their associated uplands. Upland habitat should have burrows or other soil crevices suitable for snakes to reside during their dormancy period (November- mid March). Formerly ranged in the Central Valley from Butte County to Buena Vista Lake in Kern County, but now thought to be absent south of Fresno and in Stanislaus County (USFWS 2012).	N	Suitable habitat not present within the BSA. Hydrology of the Slough is completely dependent on intermittent stormwater runoff. Water is only present for short periods of time and is dry a majority of the year. The closest known occurrences are documented near the Calaveras River to the east and the Port of Stockton to the west. Additionally, the upland habitat along the edges of the Slough is highly disturbed, urbanized, and inhabited by a large homeless population and does not provide suitable habitat.
<b>Birds</b>						
Agelaius tricolor	tricolored blackbird	None	ST, SSC	Mostly a year-round resident in California. Common locally throughout Central Valley and in coastal districts from Sonoma County south. Breeds locally in northeastern California. In winter, becomes more widespread along the central coast and San Francisco Bay area, and can be found in portions of the Colorado Desert (Hamilton 2004). Preferred nesting habitat includes cattails ( <i>Typha</i> spp.), bulrushes ( <i>Schoenoplectus</i> spp.), Himalayan blackberry ( <i>Rubus armeniacus</i> ), and agricultural silage. Dense vegetation is preferred but heavily lodged cattails not burned in recent years may preclude settlement. Need access to open water. Strips of emergent vegetation along canals are avoided as nest sites unless they are about 30 feet or more wide but in some ponds, especially where associated with Himalayan blackberries and deep water, settlement may be in narrower fetches of cattails. (CDFW 2020).	N	Suitable habitat not present within the BSA
Asio flammeus	short-eared owl	None	SSC	Found in open, treeless areas with elevated sites for perches, and dense vegetation for roosting and nesting. Associated with perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Breeds in coastal areas in Del Norte and Humboldt Counties, San Francisco Bay Delta, northeastern Modoc plateau, east Sierras from Lake Tahoe to Inyo County and San Joaquin Valley. Winters in the Central Valley, western Sierra Nevada foothills and along the coastline (CDFW 2020).	N	Suitable habitat not present within the BSA.
Athene cucularia	burrowing owl	None	SSC	Resident in much of the state in open, dry grasslands and various desert habitats. Requires open areas with mammal burrows; especially those of California ground squirrel ( <i>Otospermophilus beecheyi</i> ) Inhabits rolling hills, grasslands, fallow fields, sparsely vegetated desert scrub, vacant lots and other open human disturbed lands such as airports and golf courses. Absent from northwest coast and elevations above 5,500 feet (CDFW 2020).	Y	Suitable habitat may be present in the BSA.
Buteo swainsoni	Swainson's hawk	None	ST	Nests in oak savanna and cottonwood riparian areas adjacent to foraging habitat of grasslands, agricultural fields, and pastures where they often follow farm equipment to gather killed and maimed rodents. Increasingly also nests in sparse stands of gum trees ( <i>Eucalyptus</i> spp.) and Australian pines ( <i>Casuarina equisetifolia</i> ) and often forage along roadsides and grassy highway medians. Breeding resident in the Central Valley, Klamath Basin, Northeastern Plateau, and in juniper-sagebrush flats of Lassen County. Limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley. Winters primarily in Argentina, with most birds absent from California October through February, though a few overwinter in the Sacramento-San Joaquin River Delta. Prolific migrant through southern California in spring and fall, with large mixed-age groups of birds frequently observed kettling high overhead on thermals or foraging together on freshly cut agricultural fields (CDFW 2020).	Y	Suitable habitat may be present in the BSA.

Charadrius montanus	mountain plover	None	SSC	Does not nest in California. Present in the state November through March in open grasslands and plowed fields with no or very short vegetation. Found in flocks mostly on the west side of the Central Valley from Colusa County south to Kern County, Carrizo Plain, Antelope Valley, Imperial Valley, and western Riverside County. Single individuals are rarely found on beaches or offshore islands (CDFW 2020).	N	Suitable habitat not present within the BSA.
Elanus leucurus	white-tailed kite	None	FP	Fairly common resident of the Central Valley, coast, and Coast Range Mountains. Nests in oak savanna, oak and willow riparian, and other open areas with scattered trees near foraging habitat. Forages in open grasslands, meadows, farmlands, and emergent wetlands. Often seen hover foraging over roadsides or grassy highway medians (CDFW 2020).	Y	Suitable habitat may be present within the BSA.
Icteria virens	yellow-breasted chat	None	SSC	Nests in early-successional riparian habitats with a well-developed shrub layer and an open canopy. Restricted to narrow borders of streams, creeks, sloughs, and rivers. Often nest in dense thickets of blackberry ( <i>Rubus</i> spp.) and willow ( <i>Salix</i> spp.) (Shuford and Gardali 2008).	N	Suitable habitat not present within the BSA.
Melospiza melodia	song sparrow (Modesto population)	None	SSC	Often found in emergent freshwater marshes dominated by bulrushes ( <i>Scirpus</i> spp.), cattails ( <i>Typha</i> spp.), and willow ( <i>Salix</i> spp.). Also nests in riparian forests of valley oak ( <i>Quercus lobata</i> ) with a sufficient understorey of blackberry ( <i>Rubus</i> spp.), along vegetated irrigation canals and levees, and in recently planted valley oak restoration sites. Found throughout the Sacramento Valley, from the delta north to Chico (Shuford and Gardali 2008).	N	Suitable habitat not present within the BSA.
Progne subis	purple martin	None	SSC	Present in California from mid-March through late September. Requires concentrations of nesting cavities, relatively open air space above accessible nest sites, and relatively abundant aerial insect prey. In the coastal mountains, Cascade Range, and Sierra Nevada foothills, inhabits open forests, woodlands, and riparian areas. Extirpated as a breeder from most of the Central Valley except the Sacramento area where it has taken to nesting in hollow-box bridges. In southern California, now only a rare and local breeder on the coast and in interior mountain ranges, with few breeding localities. Absent from higher desert regions except as a rare migrant (Shuford and Gardali 2008).	N	Suitable habitat not present within the BSA.
Setophaga petechia	yellow warbler	None	SSC	Usually found in riparian deciduous habitats in summer: cottonwoods ( <i>Populus</i> spp.), willows ( <i>Salix</i> spp.), alders ( <i>Alnus</i> spp.), and other small trees and shrubs typical of low, open-canopy riparian woodland. Also breeds in montane shrubbery in open coniferous forests (CDFW 2020).	N	Suitable habitat not present within the BSA.
Vireo bellii pusillus	least Bell's vireo	FE	SE	Once occupied much of the Central Valley, but has disappeared from most its former range, and is now restricted to southern California from southern Inyo and Monterey Counties south through the South Coast and Inland Empire regions. Obligate riparian breeder, favoring cottonwood ( <i>Populus</i> spp.), willow ( <i>Salix</i> spp.), and oak ( <i>Quercus</i> spp.) woodlands, and mule fat ( <i>Baccharis salicifolia</i> ) scrub along watercourses (USFWS 2006).	N	Suitable habitat not present within the BSA.

**Birds**

Sylvilagus bachmani riparius	Riparian brush rabbit	FE	SE	Found only at Caswell Memorial State Park on the Stanislaus River, San Joaquin County. Occur in relatively small areas of shrub/herbaceous edge, and in early successional stages of many habitats. Prefer dense brush cover of thickets, vines, brambles, or dense riparian habitat (CDFW 2020).	N	Suitable habitat not present within the BSA.
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USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; DPS: Distinct Population Segment						
Species Names and Status Follows; California Department of Fish and Wildlife. August 2019. Special Animals List. Available on-line: <a href="https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals">https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals</a> CDFW Biogeographic Data Branch. Sacramento, CA.						
Species Status:						
Federal (USFWS-USFS-BLM)	State (CDFW)					
BGEPA Bald and Golden Eagle Protection Act	SE Endangered					
FE Endangered	ST Threatened					
FT Threatened	SCE Candidate Endangered					
FCE Candidate Endangered	SCT Candidate Threatened					
FCT Candidate Threatened	SCD Candidate for delisting					
FCD Candidate for delisting	FP Fully Protected					
FSS Forest Service Sensitive	SSC Species of Special Concern					
BLMS Bureau of Land Management Sensitive						



**Unidentified burrow:** Fresh burrow in Slough under crossing bridge, one of many in complex, looking north (37.945074266789426, -121.2738179137197)



**Representative of non-BUOW habitat:** Many plots throughout project are similar. Hardpan, gravel, or concreted over with no visible burrows. (37.95008534569102, -121.27540921803684)



**Representative Project Photos (Rail Crossing):** None, looking north (37.94699592742171, -121.27223642223692 )



**Representative Project Photos (Rail Crossing):** None, looking east (37.94699592742171, -121.27223642223692)



**Representative Project Photos (Rail Crossing):** None, looking south  
(37.94699592742171, -121.27223642223692)



**Representative Project Photos (Rail Crossing):** None, looking west  
(37.94699592742171, -121.27223642223692)



**Representative Site Photo:** None, looking east (37.9476750037055,  
- 121.27576972369224)



**Representative Project Photo 1:** None, looking north (37.94759877029615,  
-121.27744057227044)



**Representative Project Photo 1: None, looking east** (37.94759877029615, - 121.27744057227044)



**Representative Project Photo 1: None, looking south** (37.94759877029615, - 121.27744057227044)



**Representative Project Photo 1: None, looking west** (37.94759877029615, - 121.27744057227044)



**Representative Gravel/Ruderal Habitat: None, looking east** (37.94768912721234, - 121.27626190904648)



**Citizen Camp at Rail Crossing:** None, looking southwest (37.947722193820354, -121.27586670231192)



**Citizen Camp at Rail Crossing:** None, looking northwest (37.947722193820354, -121.27586670231192)



**Empty lot with planned improvements (cumulative impacts):** None, looking northwest (37.954955105705146, -121.2769528293249)



**Representative Project Photo 2:** None, looking north (37.95494232330281, -121.27683003444344)



**Representative Project Photo 2:** None, looking east (37.95494232330281, - 121.27683003444344)



**Representative Project Photo 2:** None, looking south (37.95494232330281, - 121.27683003444344)



**Representative Project Photo 2:** None, looking west (37.95494232330281, - 121.27683003444344)



**Representative Project Photo 3:** None, looking north (37.948676766863045, - 121.27646667894096)



**Representative Project Photo 3:** None, looking east (37.948676766863045, - 121.27646667894096)



**Representative Project Photo 3:** None, looking south (37.948676766863045, - 121.27646667894096)



**Representative Project Photo 3:** None, looking west (37.948676766863045, - 121.27646667894096)



**Representative Project Photo 4:** None, looking north (37.941717664379254, - 121.27279666010124)



**Representative Project Photo 4:** None, looking east (37.941717664379254, - 121.27279666010124)



**Representative Project Photo 4:** None, looking south (37.941717664379254, - 121.27279666010124)



**Representative Project Photo 4:** None, looking west (37.941717664379254, - 121.27279666010124)



**Representative Project Photo 5:** None, looking north (37.947074532531666, - 121.27184401430831)



**Representative Project Photo 5:** None, looking east (37.947074532531666, - 121.27184401430831)



**Representative Project Photo 5:** None, looking south (37.947074532531666, - 121.27184401430831)



**Representative Project Photo 5:** None, looking west (37.947074532531666, - 121.27184401430831)



**Representative Project Photo 6:** None, looking north (37.95478688090849, - 121.27798656944304)



**Representative Project Photo 6:** None, looking east (37.95478688090849, - 121.27798656944304)



**Representative Project Photo 6:** None, looking south (37.95478688090849, - 121.27798656944304)



**Representative Project Photo 6:** None, looking west (37.95478688090849, - 121.27798656944304)



**Representative Project Photo 7: None, looking north** (37.95003467708635, - 121.27534425828723)



**Representative Project Photo 7: None, looking east** (37.95003467708635, - 121.27534425828723)



**Representative Project Photo 7: None, looking south** (37.95003467708635, - 121.27534425828723)



**Representative Project Photo 7: None, looking west** (37.95003467708635, - 121.27534425828723)



**Representative Project Photo 8:** None, looking north (37.95149581044721, - 121.27842703845472)



**Representative Project Photo 8:** None, looking east (37.95149581044721, - 121.27842703845472)



**Representative Project Photo 8:** None, looking south (37.95149581044721, - 121.27842703845472)



**Representative Project Photo 8:** None, looking west (37.95149581044721, - 121.27842703845472)



**Representative Project Photo 9:** None, looking north (37.9517140752058, - 121.27716254454224)



**Representative Project Photo 9:** None, looking east (37.9517140752058, - 121.27716254454224)



**Representative Project Photo 9:** None, looking south (37.9517140752058, - 121.27716254454224)



**Representative Project Photo 9:** None, looking west (37.9517140752058, - 121.27716254454224)



**Slough 1:** None, looking west (37.9445950933193, -121.27158329431607)



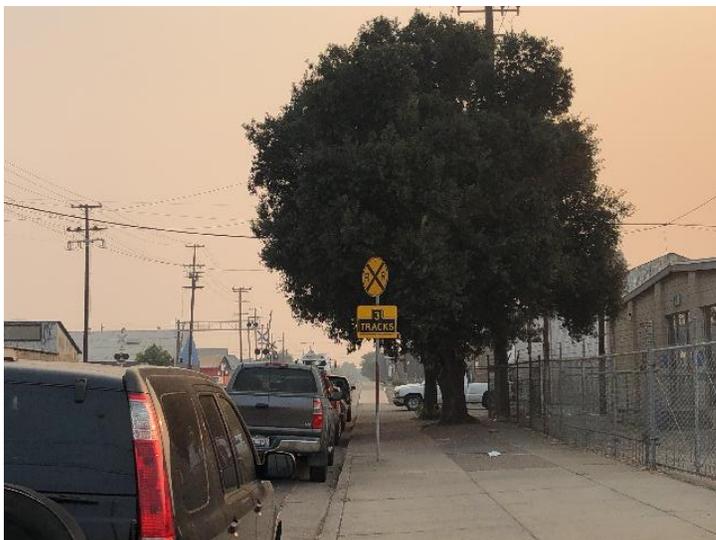
**Slough 2:** None, looking east (37.94482499391616, -121.27252193754263)



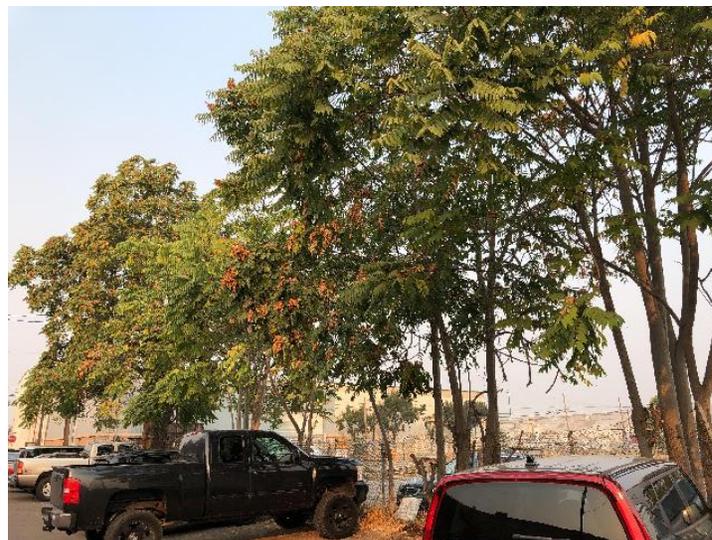
**Slough 3:** None, looking west (37.94482499391616, -121.27252193754263)



**Street Trees 1:** None, looking northwest (37.949671908317086, -121.27801565464704)



**Street Tees 2:** None, looking east (37.94846579436022, -121.27774617646008)



**Street Trees 3:** None, looking west (37.949771569145796, - 121.2770894543466)



**Union spare park:** None, looking east (37.948892056046006, -121.27538440760344)



**Union square park:** None, looking northeast (37.94808039445239, - 121.27455468300847)



**Upstream Slough Extent:** None, looking west (37.947034500574645, -121.28291496086985)

**Cross representative photos:** None, looking north (37.94699592742171, -121.27223642223692)



**Upstream Slough Extent:** None, looking east (37.947034500574645, -121.28291496086985)

**Cross representative photos:** None, looking east (37.94699592742171, -121.27223642223692)





**Botanical List – Field Visit 10/01/2020**

<i>Acer negundo</i>	box elder
<i>Ailanthus altissima</i>	tree of heaven
<i>Alnus rhombifolia</i>	white alder
<i>Arundo donax</i>	arundo
<i>Avena</i> spp.	wild oat
<i>Bromus</i> spp.	brome species
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Cedrus</i> spp.	cedar species
<i>Centaurea solstitialis</i>	star thistle
<i>Cinnamomum camphora</i>	camphor
<i>Cynara cardunculus</i>	wild artichoke
<i>Datura stramonium</i>	jimsonweed
<i>Digitaria sanguinalis</i>	crab grass
<i>Epilobium</i> spp.	willowherb
<i>Erigeron canadensis</i>	horseweed
<i>Eucalyptus globulus</i>	eucalyptus
<i>Ficus carica</i>	fig
<i>Foeniculum vulgare</i>	fennel
<i>Fraxinus</i> spp.	ash species
<i>Heterotheca grandiflora</i>	telegraphweed
<i>Holocarpha macradenia</i>	tarplant
<i>Kali tragus</i>	Russian thistle
<i>Lactuca serriola</i>	prickly lettuce
<i>Morus alba</i>	white mulberry
<i>Olea europaea</i>	olive tree
<i>Pinus</i> spp.	pine species
<i>Quercus suber</i>	cork oak
<i>Quercus wislizeni</i>	interior live oak
<i>Raphanus</i> spp.	mustard species
<i>Solanum elaeagnifolium</i>	silverleaf nightshade
<i>Washingtonia robusta</i>	Mexican fan palm

**Wildlife List – Field Visit 10/01/2020**

<i>Columbidae</i> spp.	pigeon
<i>Corvus brachyrhynchos</i>	American crow
<i>Corvus corax</i>	common raven
<i>Haemorhous mexicanus</i>	house finch
<i>Lepus californicus</i>	black-tailed jackrabbit
<i>Melanerpes formicivorus</i>	acorn woodpecker
<i>Mimus polyglottos</i>	northern mocking bird
<i>Sayornis nigricans</i>	black phoebe
<i>Sceloporus occidentalis</i>	western fence lizard
<i>Zenaida macroura</i>	mourning dove



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
650 Capitol Mall, Suite 5-100  
Sacramento, California 95814-4700

**Refer to NMFS ECO#: WCRO-2021-00423**

**May 17, 2021**

Serge Stanich  
Director of Environmental Services  
770 L Street,  
Suite 620,  
Sacramento, California 95814

Re: Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Stockton Diamond Grade Separation Project

Dear Mr. Stanich:

On February 25, 2021, NOAA's National Marine Fisheries Service (NMFS) received your request for a written concurrence that the Proposed Action, the Stockton Diamond Grade Separation Project, carried out by the San Joaquin Regional Rail Commission (SJRRC) and the California High Speed Rail Authority (Authority) under U.S. Code (U.S.C.) Title 23 Section 327 and a Memorandum of Understanding (MOU) between the Federal Rail Administration (FRA) and the State of California, is not likely to adversely affect species listed as threatened or endangered or critical habitats designated under the Endangered Species Act (ESA). NMFS recognizes that the MOU, effective July 23, 2019, designates the Authority as the federal lead agency for review of this Project under the National Environmental Policy Act (NEPA) and other federal environmental laws. Specifically, 3.2.1 of the MOU assigns the FRA's responsibilities under the ESA of 1973 (16 U.S.C. 661 – 667d) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, as amended (16 U.S.C. 1801–1891d) for both formal and informal consultations, for projects included in the scope of the MOU. The Proposed Action is a component of the *ACEforward* program of projects, which is included in the MOU, therefore the Proposed Action is included in the scope of the MOU. NMFS received sufficient information on the Stockton Diamond Grade Separation Project to initiate the consultation on April 22, 2021. This response to your request was prepared by NMFS pursuant to section 7(a)(2) of the ESA and implementing regulations at 50 CFR 402. Thank you also for your request for consultation pursuant to the essential fish habitat (EFH) provisions in Section 305(b) of the MSA (16 U.S.C. 1855(b)) for this action.

This letter underwent pre-dissemination review using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within two weeks at the Environmental Consultation Organizer [<https://eco.fisheries.noaa.gov>]. A complete record of this consultation is on file at NMFS California Central Valley Office in Sacramento, CA.



## **Consultation History**

On October 20, 2020, HDR Inc. staff, on behalf of SJRRC, requested technical assistance via email from NMFS regarding the section of Mormon Slough between the Stockton Diversion Canal and Lake McLeod and whether the section should be considered fish habitat. NMFS confirmed that Mormon Slough did contain Central Valley (CCV) steelhead designated critical habitat and could potentially host individuals depending on the stream section in question.

On February 25, 2021, the Authority requested a letter of concurrence from NMFS regarding the Stockton Diamond Grade Separate Project. The request letter included an appendix with a project description, a list of potentially affected resources, and an effects analysis (Authority et al. 2021).

On March 1, 2021, NMFS requested a GPS project location and identification of the lead action agency. The Authority responded with clarification on March 3, 2021.

On March 4, 2021, NMFS requested additional information about the flyover designs considered and also requested confirmation on the number of railroad crossings proposed to be modified in the action. NMFS also confirmed that the section of Mormon Slough directly involved with the project, though highly degraded and hydrologically isolated, is still designated critical habitat for CCV steelhead (70 FR 52488, 9/2/2005).

On March 8, 2021, HDR Inc. staff shared the Hydrologic and Hydraulic Analysis and Design Memorandum with NMFS (Yim et al. 2021).

On March 17, 2021, a virtual coordination meeting was held between NMFS, Authority, HDR Inc., and SJRRC staff. NMFS explained the requirements of ESA Section 7 consultations and scenarios in which incidental take or adverse habitat effects could occur. Potential railway flyover designs were discussed. NMFS shared our Guidelines for Salmonid Passage at Stream Crossings (NMFS 2019) via email.

On April 22, 2021, the Authority and SJRRC submitted revised flyover design options and other requested information in an updated request letter (Authority 2021) via email. After review of this document, NMFS initiated the consultation.

## **Proposed Action**

The SJRRC proposes to construct a grade separation of two principal railroad lines in Stockton, California. At the present time, the Burlington Northern and Santa Fe Railway (BNSF) Stockton Subdivision and the Union Pacific Railroad (UPRR) Fresno Subdivision consist of two main tracks each and they intersect each other at a level, at-grade crossing known as the Stockton Diamond inside the urbanized street grid of the City of Stockton. This rail intersection is located just south of Downtown Stockton near South Aurora Street and East Scotts Avenue and is considered the busiest at-grade railway junction in California as trains wait to cross this rail intersection. The at-grade crossing results in significant congestion and delays to services that moves people and freight throughout the California Central Valley as well as freight out to the

broader national network. The current, at-grade configuration of the track also results in significant delays to passenger and freight trains in the area, including those serving the Port of Stockton, as well as other rail lines in the area.

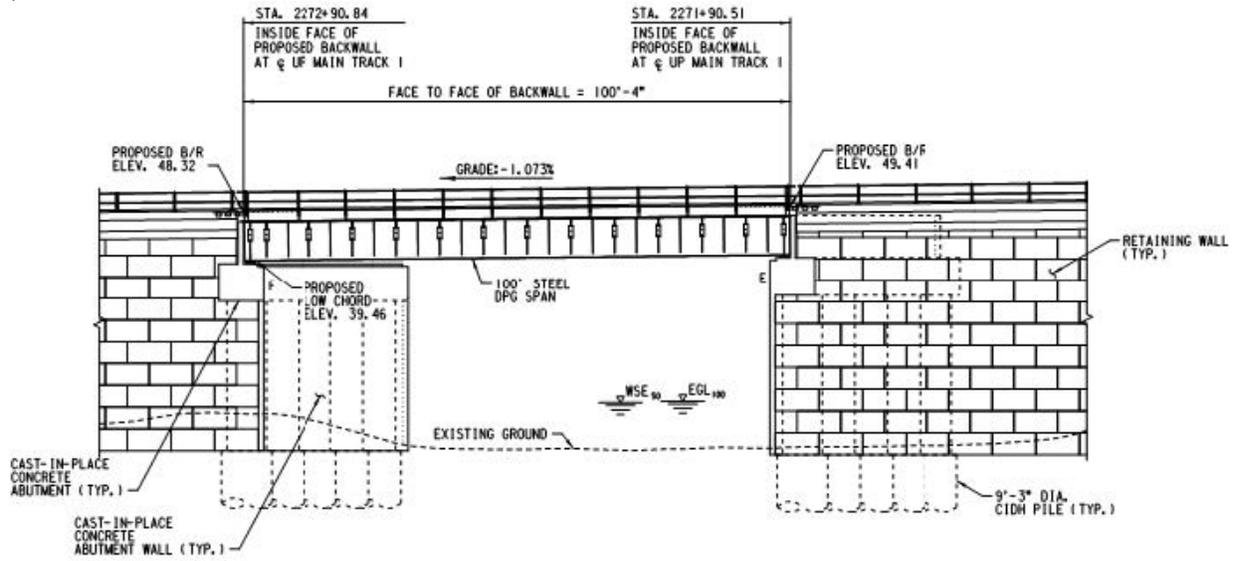
The proposed action is to replace the existing at-grade intersection of the BNSF Stockton Subdivision and UPRR Fresno Subdivision with a grade-separation structure that will elevate the UPRR main tracks above the BNSF main tracks, enabling through trains proceeding on the main tracks of each railroad to advance through the intersection without waiting on through trains on the main tracks of the other railroad. The UPRR flyover alignment is proposed to be shifted east of the existing Fresno Subdivision tracks so that construction of the new flyover would minimize impacts on existing rail operations. Construction of the Proposed Action would require either a clear span flyover bridge, a bridge with in-channel piers, or a multi-cell box culvert to span the Mormon Slough and associated floodplain. Existing drainage structures along Mormon Slough would remain in place after construction of the proposed slough bridge. Further, pipe culverts under the existing UPRR main tracks immediately downstream (west) of the flyover alignment would be left in place to support the remaining at grade connection track to BNSF. Drainage structures for passing flows beneath the new railroad flyover will either be open bottom box culverts or a bridge.

The SJRRC has committed to using a crossing type for the flyover spanning Mormon Slough that will retain a natural substrate stream channel bottom. This crossing would require a structure over Mormon Slough and would either be 1) a 100-foot-long, single-span bridge option would be skewed 15 degrees to the main tracks and provide a clear distance of approximately 89 feet between abutment walls, where the Mormon Slough channel would flow freely, 2) a four-cell, cast-in-place concrete, open bottom box culvert on pile foundations option would have four 12-foot-wide by 10-foot-tall cells with the walls of the culvert having driven-pile foundations, or 3) a precast concrete arch culvert option would consist of a single-cell arch structure on spread footings or pile foundations. The arch option would span 40 to 50 feet across the channel and have a rise of 10 to 15 feet (Figure 1). The commitment to keeping a natural stream channel bottom will be incorporated into the Final Environmental Impact Report and Environmental Assessment with the presented flyover design options for the project when the project is presented for public comment. In addition, SJRRC has committed to avoiding the use of riprap to armor the channel at this location. These measures are intended to ensure the project does not impair the quality of the channel for fish passage and that it does not further reduce the channel's suitability for restoration and use by relevant species in the future.

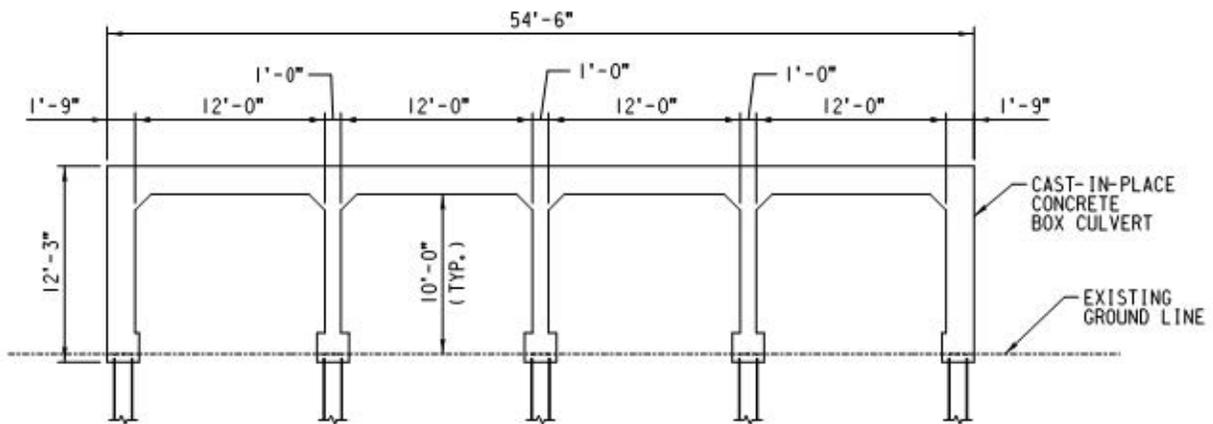
In addition to any permit conditions required under the Clean Water Act Section 402 construction general permit, which the contractor would obtain, the SJRRC has adopted the following avoidance and minimization measures that apply to all activities within 150 feet of aquatic resources to avoid contributing sediment or contamination to Mormon Slough:

- Prior to initiation of project-related activities, construction best management practices (BMPs) shall be employed on site to prevent erosion or runoff of loose soil and dust. Methods shall include the use of appropriate measures to intercept and capture sediment prior to entering aquatic resources, as well as erosion control measures along the perimeter of disturbance areas to prevent the displacement of fill material.

1)



2)



3)

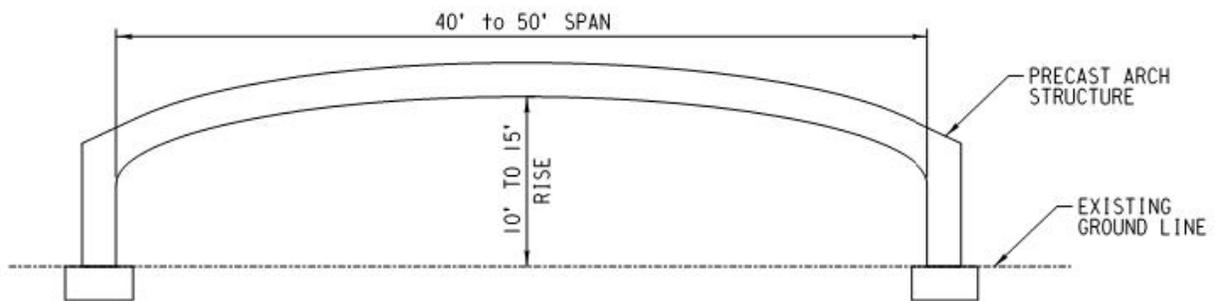


Figure 1. Stockton Diamond Grade Separation Flyover Designs Considered. 1) a single-span bridge, 2) a four-cell open bottom box culvert, and 3) a precast arch culvert, with estimated height-width measurements in feet.

- All BMPs shall be in place prior to initiation of project-related activities and shall remain until activities are completed. All erosion control methods will be maintained until all onsite soils are stabilized.
- The work areas will be reduced to the smallest practicable footprint throughout the duration of Proposed Action activities. Prior to any ground-disturbing activity, the project proponent will establish staging areas for construction equipment in areas that minimize impacts on sensitive biological resources, including aquatic resources. Staging areas (including any temporary material storage areas) would be located in areas that would be occupied by permanent facilities, where practicable. Equipment staging areas would be identified on final project construction plans. The project proponent would flag and mark access routes to restrict vehicle traffic within the project footprint to established roads, construction areas and other designated areas.
- All exposed and/or disturbed areas resulting from project-related activities shall be returned to their original contour and grade, and restored using locally native grass and forb seeds, plugs, or a mix of these methods. Areas shall be seeded with species appropriate to their topographical and hydrological character. Seeded areas shall be covered with broadcast straw and/or jute netted, where appropriate.
- All vehicle traffic associated with project-related activities shall be confined to established roads, staging areas, and parking areas. Vehicle speeds shall not exceed 15 miles per hour on access roads with no posted speed limit to avoid collisions with special-status species or habitats. Additionally, maintenance or refueling of vehicles or equipment must occur in designated areas and/or a secondary containment, located away from aquatic resources.
- During ground-disturbing activities, the project proponent may temporarily store excavated materials produced by construction activities in areas at or near construction sites within the project footprint. Where practicable, the project proponent will return excavated soil to its original location to be used as backfill. Any excavated waste materials unsuitable for treatment and reuse would be disposed at an off-site location, in conformance with applicable state and federal laws. Stockpiled, disassembled, and hazardous construction material should be stored at least 100 feet from aquatic resources, where possible.

### **Action Area**

The proposed action is in the Lower Calaveras-Mormon Slough 8<sup>th</sup> Field Hydrologic Unit 18040004 in Stockton, California. The new railroad flyover will cross the middle of Mormon Slough at approximately Latitude 37.945186/Longitude -121.274638. Existing railroad bridges and culverts currently cross Mormon Slough upstream and downstream of the new crossing location but these structures are not proposed to be changed or modified as part of this action (Figure 2). Because Mormon Slough is currently hydrologically disconnected from both the San Joaquin River Delta downstream and the Calaveras River upstream due to human modifications of these waterways and creation of the Stockton Diverting Canal, it is not anticipated that sediment mobilization or water quality degradation to other critical habitat downstream will be

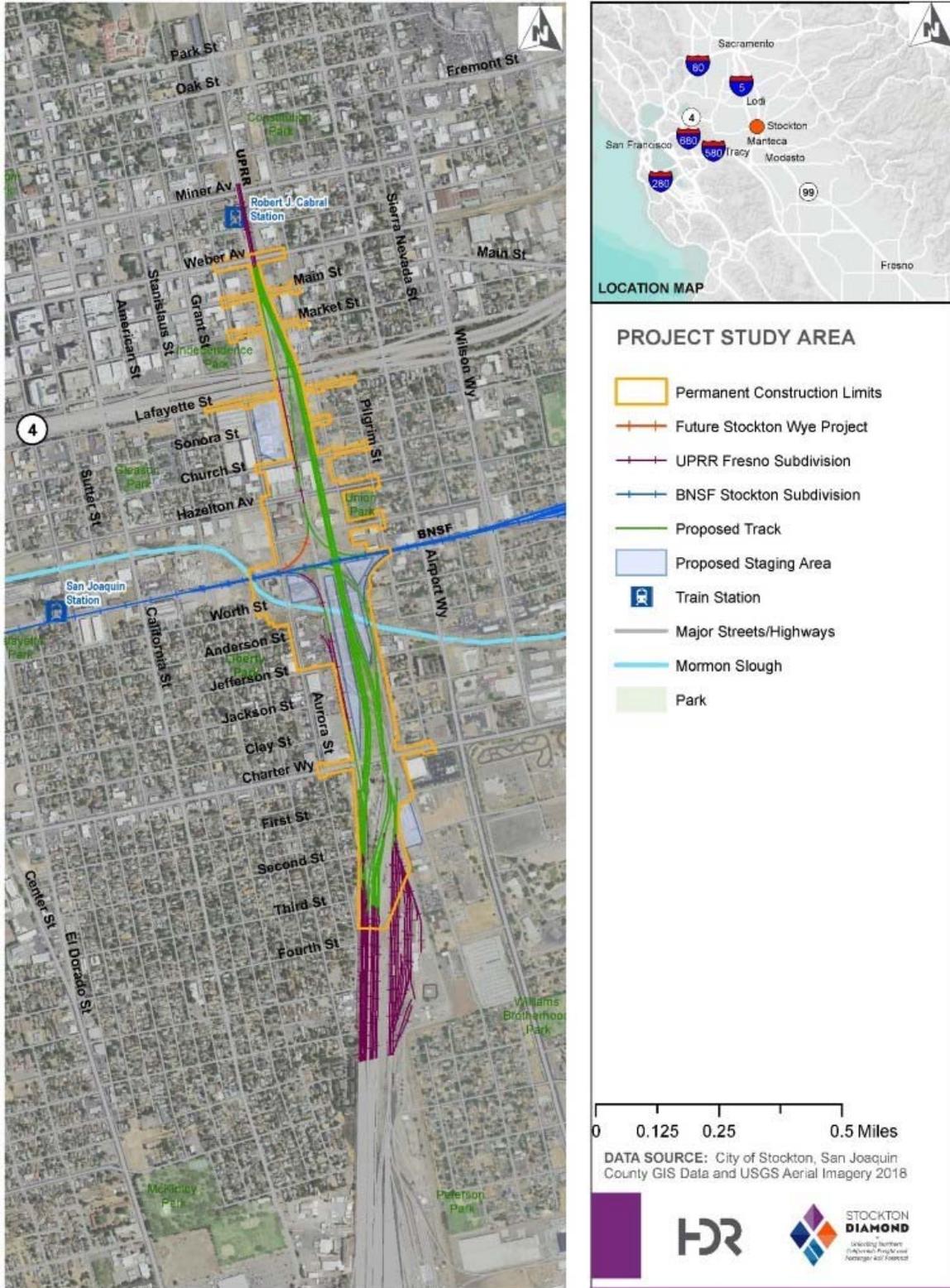


Figure 2. Proposed project area map for the new flyover structure path (green lines) and the existing railways supporting UPRR Fresno Subdivision service (purple lines) and BNSF Stockton Subdivision service (blue lines) over Mormon Slough in Stockton, California.

measurable or travel beyond BMP catchments or treatments to negatively affect waterways downstream; therefore the action area for this project is limited to the immediate construction footprint and the extent of the new grade separation and flyover structure. We considered, under the ESA whether or not the proposed action would cause any other activities and determined that it would not would cause additional consequences.

### **Background and Action Agency's Effects Determination**

The Authority identified that the following NMFS trust resources occur in the Stockton West USGS quadrangle and potentially in the action area for the proposed action:

- CCV steelhead, *Oncorhynchus mykiss*, (listed threatened, 71 FR 834, 1/5/2006) and its critical habitat (70 FR 52488, 9/2/2005);
- southern Distinct Population Segment (sDPS) of North American green sturgeon, *Acipenser medirostris*, (listed threatened, 71 FR 17757, 4/7/2006) and its critical habitat (74 FR 52300, 10/9/2009);
- Essential fish habitat (EFH) for chinook salmon (*Oncorhynchus tshawytscha*), and
- EFH for groundfish.

The species range and critical habitat for CCV steelhead does coincide with the reach of Mormon Slough that occurs in the action area but neither the accepted range nor critical habitat for green sturgeon overlap with the action area as defined by Figure 2. The reach of Mormon Slough that crosses the action area is also mapped as EFH for Chinook salmon but the mapped extent of EFH for groundfish does not coincide with the action area.

The portion of Mormon Slough the new railway flyover will cross is downstream of the split between the Old Calaveras River channel and Mormon Slough/Stockton Diverting Canal. In the past, Mormon Slough flowed southwest from its split from the Calaveras River to the harbor/Delta as a distributary but this lower slough channel was closed off by a levee constructed by the U.S. Army Corps of Engineers in the creation of the Stockton Diverting Canal/Calaveras River reroute decision (Stockton East Water District and FISHBIO 2019). The Stockton Diverting Canal was completed in 1911 and the associated flow rerouting decision provides 12,500 cubic-feet-per-second of flood control capacity around the City of Stockton but has isolated the portion of lower Mormon Slough within the Action Area and prevents it from receiving Calaveras River flows. Therefore at present, while this portion of Mormon Slough intermittently collects stormwater discharges from its urban sub-basin, it is usually completely dry. In fact, two low-flow road crossings currently intersect and cross the channel/floodplain in this flow-isolated section and, just before the channel's connection with McLeod Lake/Delta water, a road on an earthen berm prevents San Joaquin River/Delta water from encroaching back into Mormon Slough as well. Since the channel bottom consists of compacted clay, sand, and silt without much gravel or vegetation and is normally dry, the channel also hosts several homeless camps in the channel and floodplain, evident in both aerial imagery and recent site photos provided by the Authority (Authority et al. 2021).

In the future, local agencies and/or nonprofits have indicated this part of Mormon Slough may be used as part of flood control planning in the long-term and/or may rehabilitate the area to provide

bicycle/pedestrian routes (Yim et al. 2021). Considering the potential for restoration of flows to be returned to this portion of Mormon Slough, the channel may become accessible to anadromous fishes and become available for their migration and rearing purposes in the far future. It is anticipated restoration of flows will occur in the far future, after construction of the proposed flyover is complete and grade separation is achieved.

The Authority has determined that the proposed action may affect but is not likely to adversely affect CCV steelhead or its critical habitat, nor sDPS green sturgeon or its critical habitat. The Authority has also determined that the proposed action will have no adverse effect on EFH for Chinook salmon or groundfish. These determinations were reached because the section of Mormon Slough crossed the proposed flyover is hydrologically isolated and disconnected from downstream waters that may actually harbor these species and neither individuals of the species nor functional EFH is present in the action area as the waterway is typically completely dry without any water flow to or from anadromous waterways.

## ENDANGERED SPECIES ACT

### Effects of the Action

Under the ESA, “effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR 402.02). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b). When evaluating whether the proposed action is not likely to adversely affect listed species or critical habitat, NMFS considers whether the effects are expected to be completely beneficial, insignificant, or discountable. Completely beneficial effects are contemporaneous positive effects without any adverse effects to the species or critical habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Effects are considered discountable if they are extremely unlikely to occur.

The potential effects of the proposed action include:

- Further impediment to volitional fish passage through Mormon Slough
- Further degradation of critical habitat available in Mormon Slough

Because this section of Mormon Slough is completely isolated both upstream and downstream from waters used by CCV steelhead and sDPS green sturgeon, it is impossible for an individual from either population to access the action area of this project. Only during an extreme or historic flood event (>100-year event) would the levee system around the Stockton Diverting Canal be at real risk of being overtopped and allow river or Delta water to enter this section of the Mormon Slough channel because of current levees and other flow control modifications. The probability of such an event occurring during the proposed construction timeline would be so low it would be considered discountable. Without a reasonable ability for fish to access or use

the section of Mormon Slough involved in the construction of the flyover, there is no chance for individuals to be exposed to direct adverse effects normally associated with the construction process and incidental take of listed species is not expected to occur.

While the action area does not contain designated sDPS green sturgeon critical habitat (though Lake McLeod, downstream, is sDPS green sturgeon designated critical habitat), this section of Mormon Slough is still CCV steelhead designated critical habitat, despite its current state. Though the channel and floodplain cannot currently support any steelhead life history needs, it is important that the proposed action does not preclude the restoration or reestablishment of such functions in the future. The Primary Constituent Elements essential to the species that could be restored in this section of Mormon Slough are: 1) freshwater migration corridors for both adult and juvenile steelhead that are free of obstruction and excessive predation, and 2) freshwater rearing sites with sufficient water quantity and connectivity to support juvenile forage, growth, and development (NMFS 2014).

Several existing railway crossings over Mormon Slough in the action area utilize drainage structures that would not meet NMFS fish passage criteria for bridges and culverts and would be considered passage impediments if flows were restored. However, the proposed action only proposes the construction of a new flyover to achieve grade separation and does not include plans to modify any of these existing structures, or any other drainage structure, in the action area. Railroad tracks may be realigned on top of these existing crossings but there will be no changes or maintenance to the base structures in the channel/floodplain and therefore the proposed action does not present an opportunity to improve fish passage conditions through existing structures. Through coordination with the Authority and SJRRC, the three options for the flyover design now meet NMFS fish passage criteria (NMFS 2019) and will retain a natural streambed bottom regardless of which structure is ultimately selected. These designs ensure fish passage will be viable when and if blockages up and downstream are modified to restore stream flow to this section of Mormon Slough. Since the revised designs will not obstruct anadromous fish passage and do not preclude the restoration of flow to Mormon Slough, the proposed project will not adversely affect the ability of CCV steelhead critical habitat in this section to serve as a freshwater migration corridor.

Also through coordination, the Authority and SJRRC have purposefully excluded the use of riprap to armor the channel at this location. The placement of riprap, or other hard bank armoring practices, without sufficiently addressing the adverse impacts of these tactics would further degrade the rearing habitat available to the species, if flows and access were restored in the future. Riprap reduces the shoreline margin habitat and physically occupies space that could otherwise be occupied by riparian/floodplain vegetation or host macroinvertebrate prey habitat, which are essential components of a functioning stream ecosystem that supports salmonid rearing. Juvenile salmonid mortality from both native and non-native fish predators is also a factor in their populations' successful recovery in the CCV (NMFS 2014). Large piscivorous predators that utilize ambush techniques are attracted to hard surfaces with hiding spots for ambush, like stretches of riprap and artificial structures (Munsch et al. 2017). Without escapement cover like submerged vegetation or margin habitat available in the immediate vicinity, there would be a low chance of survival for targeted juveniles. Because the project design now specifically excludes the use of riprap, if in the future this section of Mormon Slough is restored and rearing juvenile steelhead become able to use the area, the proposed project will

not further reduce the ability of CCV steelhead critical habitat to provide freshwater rearing or floodplain connectivity in the action area beyond its baseline condition.

### **Conclusion**

Based on this analysis, NMFS concurs with the Authority that the proposed action is not likely to adversely affect the subject listed species and designated critical habitats.

### **Reinitiation of Consultation**

Reinitiation of consultation is required and shall be requested by the Authority, the SJRRC, or by NMFS, where discretionary Federal involvement or control over the action has been retained or is authorized by law and (1) the proposed action causes take; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence (specifically a design change wherein the proposed flyover design is modified to one that may affect the ability of the waterway to provide unimpeded fish passage or that alters the streambed bottom, or if water flow and volitional fish access to this section of Mormon Slough is restored before construction is complete); or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16). This concludes the ESA consultation.

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. The Authority also has the same responsibilities, and informal consultation offers action agencies an opportunity to address their conservation responsibilities under section 7(a)(1), as a designated federal representative. As such, NMFS recommends that the Authority, and other railway agencies such as the SJRRC, support future flood planning decisions and conservation efforts that involve the reconnection of this section of Mormon Slough to Calaveras River and the San Joaquin River Delta, the restoration of flows, the restoration of fish passage, and habitat rehabilitation/revegetation efforts that support the life history needs and recovery of ESA-listed fishes. NMFS also recommends that the Authority and SJRRC systematically and strategically replace or retrofit existing railroad crossings, drainage structures, and associated culverts that do not currently meet NMFS fish passage criteria so that these structures enable fish passage where appropriate, and work with other railway owners and partners to do the same whenever possible.

### **MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT**

Section 305(b) of the MSA directs Federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA, EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate

and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects may result from actions occurring within EFH or outside of it and may include direct, indirect, site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH (50 CFR 600.905(b)).

NMFS concurs with the Authority's determination that the proposed action would not adversely affect Pacific Coast Salmon EFH because, as established in the Background and Action Agency's Effect Determination section, Chinook salmon are also currently unable to access this section of Mormon Slough. In its present, isolated state, this slough section is also unable to provide water, substrate, prey, or any other ecosystem constituent to Pacific Coast Salmon EFH in accessible waters downstream of the action area. The proposed action under consideration had no influence on the existing rerouting decisions that lead to Mormon Slough becoming isolated *and* building a new railroad flyover is not expected to prevent the area from serving as Pacific Coast Salmon EFH if water flow and fish passage are restored in the future. NMFS has no EFH conservation recommendations to offer the Authority or SJRRC to minimize project impacts on Pacific Coast Salmon EFH beyond those suggested above or what has already been incorporated as project modifications during the ESA consultation. However, the Authority must reinstate MSA consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH in the future, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920(1)). This concludes the MSA consultation.

Please direct questions regarding this letter to Katie Schmidt, Fish Biologist, at (916) 930-3685 or [katherine.schmidt@noaa.gov](mailto:katherine.schmidt@noaa.gov).

Sincerely,



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