

Appendix B: Biological Resources Supporting Information

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B.1 - Database Searches

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad< IS (San Quentin (3712284) OR Richmond (3712283) OR San Francisco North (3712274) OR Oakland West (3712273) OR Petaluma Point (3812214) OR Mare Island (3812213) OR San Rafael (3712285) OR Novato (3812215) OR Point Bonita (3712275))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Adela oplerella</i> Opler's longhorn moth	IILEE0G040	None	None	G2	S2	
<i>Ambystoma californiense</i> pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G2G3	S2S3	WL
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	PDFAB08012	None	None	G4T2	S2	1B.2
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	PDBOR01070	None	None	G3	S3	1B.2
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G4	S3	SSC
<i>Archoplites interruptus</i> Sacramento perch	AFCQB07010	None	None	G2G3	S1	SSC
<i>Arctostaphylos franciscana</i> Franciscan manzanita	PDERI040J3	Endangered	None	GHC	S1	1B.1
<i>Arctostaphylos montana</i> ssp. <i>montana</i> Mt. Tamalpais manzanita	PDERI040J5	None	None	G3T3	S3	1B.3
<i>Arctostaphylos montana</i> ssp. <i>ravenii</i> Presidio manzanita	PDERI040J2	Endangered	Endangered	G3T1	S1	1B.1
<i>Arctostaphylos pallida</i> pallid manzanita	PDERI04110	Threatened	Endangered	G1	S1	1B.1
<i>Arctostaphylos virgata</i> Marin manzanita	PDERI041K0	None	None	G2	S2	1B.2
<i>Ardea alba</i> great egret	ABNGA04040	None	None	G5	S4	
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Arenaria paludicola</i> marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
<i>Asio flammeus</i> short-eared owl	ABNSB13040	None	None	G5	S3	SSC
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC



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<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	Candidate Endangered	G2G3	S1	
<i>Calamagrostis crassiglumis</i> Thurber's reed grass	PMPOA17070	None	None	G3Q	S2	2B.1
<i>Calicina diminua</i> Marin blind harvestman	ILARAU8040	None	None	G1	S1	
<i>Callophrys mossii marinensis</i> Marin elfin butterfly	IILEPE2207	None	None	G4T1	S1	
<i>Calochortus tiburonensis</i> Tiburon mariposa-lily	PMLIL0D1C0	Threatened	Threatened	G1	S1	1B.1
<i>Calystegia purpurata ssp. saxicola</i> coastal bluff morning-glory	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
<i>Carex comosa</i> bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
<i>Carex praticola</i> northern meadow sedge	PMCYP03B20	None	None	G5	S2	2B.2
<i>Castilleja affinis var. neglecta</i> Tiburon paintbrush	PDSCR0D013	Endangered	Threatened	G4G5T1T2	S1S2	1B.2
<i>Charadrius nivosus nivosus</i> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
<i>Chloropyron maritimum ssp. palustre</i> Point Reyes salty bird's-beak	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
<i>Chloropyron molle ssp. molle</i> soft salty bird's-beak	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
<i>Chorizanthe cuspidata var. cuspidata</i> San Francisco Bay spineflower	PDPGN04081	None	None	G2T1	S1	1B.2
<i>Chorizanthe robusta var. robusta</i> robust spineflower	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
<i>Cicindela hirticollis grvida</i> sandy beach tiger beetle	IICOL02101	None	None	G5T2	S2	
<i>Circus hudsonius</i> northern harrier	ABNKC11011	None	None	G5	S3	SSC
<i>Cirsium andrewsii</i> Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
<i>Cirsium hydrophilum var. vaseyi</i> Mt. Tamalpais thistle	PDAST2E1G2	None	None	G2T1	S1	1B.2
<i>Clarkia franciscana</i> Presidio clarkia	PDONA050H0	Endangered	Endangered	G1	S1	1B.1



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coastal Terrace Prairie Coastal Terrace Prairie	CTT41100CA	None	None	G2	S2.1	
Collinsia corymbosa round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Candidate	None	G4T2T3	S2S3	
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Enhydra lutris nereis southern sea otter	AMAJF09012	Threatened	None	G4T2	S2	FP
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eriogonum luteolum var. caninum Tiburon buckwheat	PDPGN083S1	None	None	G5T2	S2	1B.2
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	
Eumetopias jubatus Steller (=northern) sea-lion	AMAJC03010	Delisted	None	G3	S2	
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Extriplex joaquinana San Joaquin spearscale	PDCHE041F3	None	None	G2	S2	1B.2
Falco peregrinus anatum American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Fissidens pauperculus minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2



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<i>Fritillaria lanceolata</i> var. <i>tristulis</i> Marin checker lily	PMLIL0V0P1	None	None	G5T2	S2	1B.1
<i>Fritillaria liliacea</i> fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
<i>Gilia capitata</i> ssp. <i>chamissonis</i> blue coast gilia	PDPLM040B3	None	None	G5T2	S2	1B.1
<i>Gilia millefoliata</i> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<i>Gonidea angulata</i> western ridged mussel	IMBIV19010	None	None	G3	S1S2	
<i>Grindelia hirsutula</i> var. <i>maritima</i> San Francisco gumplant	PDAST470D3	None	None	G5T1Q	S1	3.2
<i>Helianthella castanea</i> Diablo helianthella	PDAST4M020	None	None	G2	S2	1B.2
<i>Helminthoglypta nickliniana bridgesi</i> Bridges' coast range shoulderband	IMGASC2362	None	None	G3T1	S1S2	
<i>Hemizonia congesta</i> ssp. <i>congesta</i> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
<i>Hesperolinon congestum</i> Marin western flax	PDLIN01060	Threatened	Threatened	G1	S1	1B.1
<i>Heteranthera dubia</i> water star-grass	PMPON03010	None	None	G5	S2	2B.2
<i>Hoita strobilina</i> Loma Prieta hoita	PDFAB5Z030	None	None	G2?	S2?	1B.1
<i>Holocarpha macradenia</i> Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
<i>Horkelia cuneata</i> var. <i>sericea</i> Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
<i>Horkelia marinensis</i> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<i>Horkelia tenuiloba</i> thin-lobed horkelia	PDROS0W0E0	None	None	G2	S2	1B.2
<i>Hydroprogne caspia</i> Caspian tern	ABNNM08020	None	None	G5	S4	
<i>Hypogymnia schizidiata</i> island tube lichen	NLT0032640	None	None	G2G3	S2	1B.3
<i>Hypomesus transpacificus</i> Delta smelt	AFCHB01040	Threatened	Endangered	G1	S1	
<i>Isocoma arguta</i> Carquinez goldenbush	PDAST57050	None	None	G1	S1	1B.1



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<i>Kopsiopsis hookeri</i> small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3
<i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010	None	None	G3G4	S3S4	
<i>Lasiurus blossevillii</i> western red bat	AMACC05060	None	None	G4	S3	SSC
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G3G4	S4	
<i>Laterallus jamaicensis coturniculus</i> California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
<i>Lathyrus jepsonii</i> var. <i>jepsonii</i> Delta tule pea	PDFAB250D2	None	None	G5T2	S2	1B.2
<i>Layia carnosa</i> beach layia	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
<i>Leptosiphon rosaceus</i> rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1
<i>Lessingia germanorum</i> San Francisco lessingia	PDAST5S010	Endangered	Endangered	G1	S1	1B.1
<i>Lessingia micradenia</i> var. <i>micradenia</i> Tamalpais lessingia	PDAST5S063	None	None	G2T2	S2	1B.2
<i>Lichnanthe ursina</i> bumblebee scarab beetle	IICOL67020	None	None	G2	S2	
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	PDAP119030	None	Rare	G2	S2	1B.1
<i>Masticophis lateralis euryxanthus</i> Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
<i>Melospiza melodia pusillula</i> Alameda song sparrow	ABPBXA301S	None	None	G5T2?	S2S3	SSC
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	ABPBXA301W	None	None	G5T2	S2	SSC
<i>Microcina leei</i> Lee's micro-blind harvestman	ILARA47040	None	None	G1	S1	
<i>Microcina tiburona</i> Tiburon micro-blind harvestman	ILARA47060	None	None	G1	S1	
<i>Microseris paludosa</i> marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2
<i>Microtus californicus sanpabloensis</i> San Pablo vole	AMAFF11034	None	None	G5T1T2	S1S2	SSC
<i>Navarretia rosulata</i> Marin County navarretia	PDPLM0C0Z0	None	None	G2	S2	1B.2
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	



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Northern Maritime Chaparral Northern Maritime Chaparral	CTT37C10CA	None	None	G1	S1.2	
Nycticorax nycticorax black-crowned night heron	ABNGA11010	None	None	G5	S4	
Nyctinomops macrotis big free-tailed bat	AMACD04020	None	None	G5	S3	SSC
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G5T2T3Q	S2	
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pentachaeta bellidiflora white-rayed pentachaeta	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
Phalacrocorax auritus double-crested cormorant	ABNFD01020	None	None	G5	S4	WL
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	PDBOR0V061	None	None	G3T1Q	S1	1B.2
Plagiobothrys diffusus San Francisco popcornflower	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
Plagiobothrys glaber hairless popcornflower	PDBOR0V0B0	None	None	GX	SX	1A
Plebejus icarioides missionensis Mission blue butterfly	IILEPG801A	Endangered	None	G5T1	S1	
Pleuropogon hooverianus North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
Pogonichthys macrolepidotus Sacramento splittail	AFCJB34020	None	None	GNR	S3	SSC
Polemonium carneum Oregon polemonium	PDPLM0E050	None	None	G3G4	S2	2B.2
Polygonum marinense Marin knotweed	PDPGN0L1C0	None	None	G2Q	S2	3.1
Pomatiopsis binneyi robust walker	IMGASJ9010	None	None	G1	S1	
Quercus parvula var. tamalpaisensis Tamalpais oak	PDFAG051Q3	None	None	G4T2	S2	1B.3
Rallus obsoletus obsoletus California Ridgway's rail	ABNME05011	Endangered	Endangered	G3T1	S1	FP
Rana boylei foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys raviventris salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	FP



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<i>Riparia riparia</i> bank swallow	ABPAU08010	None	Threatened	G5	S2	
<i>Sanicula maritima</i> adobe sanicle	PDAP11Z0D0	None	Rare	G2	S2	1B.1
<i>Scapanus latimanus insularis</i> Angel Island mole	AMABB02032	None	None	G5T1	SH	
<i>Scapanus latimanus parvus</i> Alameda Island mole	AMABB02031	None	None	G5T1Q	SH	SSC
<i>Senecio aphanactis</i> chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
<i>Serpentine Bunchgrass</i> Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
<i>Sidalcea calycosa ssp. rhizomata</i> Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
<i>Silene scouleri ssp. scouleri</i> Scouler's catchfly	PDCAR0U1MC	None	None	G5T4T5	S2S3	2B.2
<i>Silene verecunda ssp. verecunda</i> San Francisco campion	PDCAR0U213	None	None	G5T1	S1	1B.2
<i>Sorex ornatus sinuosus</i> Suisun shrew	AMABA01103	None	None	G5T1T2Q	S1S2	SSC
<i>Sorex vagrans halicoetes</i> salt-marsh wandering shrew	AMABA01071	None	None	G5T1	S1	SSC
<i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey	PDCAR0W062	None	None	G5T2	S2	1B.2
<i>Speyeria callippe callippe</i> callippe silverspot butterfly	IILEPJ6091	Endangered	None	G5T1	S1	
<i>Spirinchus thaleichthys</i> longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	
<i>Stebbinsoseris decipiens</i> Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
<i>Sternula antillarum browni</i> California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
<i>Streptanthus batrachopus</i> Tamalpais jewelflower	PDBRA2G050	None	None	G2	S2	1B.3
<i>Streptanthus glandulosus ssp. niger</i> Tiburon jewelflower	PDBRA2G0T0	Endangered	Endangered	G4T1	S1	1B.1
<i>Streptanthus glandulosus ssp. pulchellus</i> Mt. Tamalpais bristly jewelflower	PDBRA2G0J2	None	None	G4T2	S2	1B.2
<i>Suaeda californica</i> California seablite	PDCHE0P020	Endangered	None	G1	S1	1B.1
<i>Symphyotrichum lentum</i> Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2



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<i>Talanites ubicki</i> Ubick's gnaphosid spider	ILARA98030	None	None	G1	S1	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thaleichthys pacificus</i> eulachon	AFCHB04010	Threatened	None	G5	S2	
<i>Trachusa gummifera</i> San Francisco Bay Area leaf-cutter bee	IIHYM80010	None	None	G1	S1	
<i>Trifolium amoenum</i> two-fork clover	PDFAB40040	Endangered	None	G1	S1	1B.1
<i>Trifolium hydrophilum</i> saline clover	PDFAB400R5	None	None	G2	S2	1B.2
<i>Triphysaria floribunda</i> San Francisco owl's-clover	PDSCR2T010	None	None	G2?	S2?	1B.2
<i>Triquetrella californica</i> coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
<i>Valley Needlegrass Grassland</i> Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	
<i>Vespericola marinensis</i> Marin hesperian	IMGASA4140	None	None	G2	S2	
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010	None	None	G5	S3	SSC
<i>Zapus trinotatus orarius</i> Point Reyes jumping mouse	AMAFH01031	None	None	G5T1T3Q	S1S3	SSC

Record Count: 158

Inventory of Rare and Endangered Plants of California



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111 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3712284,3712283,3712274,3712273,3812214,3812213,3712285,3812215,3712275]

- Scientific NameCommon NameFamilyLifeformFed ListState ListGlobal RankState RankCA Rare Plant RankGeneral Habitats
- Micro HabitatsLowest ElevationHighest ElevationBlooming PeriodCA EndemicDate AddedPhoto

Search:

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICRO HABITATS	LOWEST ELEVATION	HIGHEST ELEVATION	BLOOMING PERIOD
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	None	None	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland		50	2000	Apr-Jul
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	None	None	1B.2	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland	3		500	Mar-Jun
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	None	None	4.3	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub	Rocky	3	1100	Feb-May
Arctostaphylos franciscana	Franciscan manzanita	Ericaceae	perennial evergreen shrub	FE	None	1B.1	Coastal scrub		60	300	Feb-Apr
Arctostaphylos montana ssp. montana	Mt. Tamalpais manzanita	Ericaceae	perennial evergreen shrub	None	None	1B.3	Chaparral, Valley and foothill grassland		160	760	Feb-Apr

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICRO HABITATS	LOWEST ELEVATION	HIGHEST ELEVATION	BLOOMING PERIOD
Arctostaphylos montana ssp. ravenii	Presidio manzanita	Ericaceae	perennial evergreen shrub	FE	CE	1B.1	Chaparral, Coastal prairie, Coastal scrub		45	215	Feb-Mar
Arctostaphylos pallida	pallid manzanita	Ericaceae	perennial evergreen shrub	FT	CE	1B.1	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal scrub		185	465	Dec-Mar
Arctostaphylos virgata	Marin manzanita	Ericaceae	perennial evergreen shrub	None	None	1B.2	Broadleafed upland forest, Chaparral, Closed-cone coniferous forest, North Coast coniferous forest		60	700	Jan-Mar
Arenaria paludicola	marsh sandwort	Caryophyllaceae	perennial stoloniferous herb	FE	CE	1B.1	Marshes and swamps		3	170	May-Aug
Aspidotis carlotta-halliae	Carlotta Hall's lace fern	Pteridaceae	perennial rhizomatous herb	None	None	4.2	Chaparral, Cismontane woodland		100	1400	Jan-Dec
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	None	None	4.2	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland		90	730	Apr-Jun
Astragalus nuttallii var. nuttallii	ocean bluff milk-vetch	Fabaceae	perennial herb	None	None	4.2	Coastal bluff scrub, Coastal dunes		3	120	Jan-Nov

CA RARE											
▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	PLANT RANK	GENERAL HABITATS	MICRO HABITATS	LOWEST ELEVATION	HIGHEST ELEVATION	BLOOMING PERIOD
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	None	None	1B.2	Playas, Valley and foothill grassland, Vernal pools		1	60	Mar-Jun
Calamagrostis crassiglumis	Thurber's reed grass	Poaceae	perennial rhizomatous herb	None	None	2B.1	Coastal scrub, Marshes and swamps		10	60	May-Aug
Calamagrostis ophitidis	serpentine reed grass	Poaceae	perennial herb	None	None	4.3	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland		90	1065	Apr-Jul
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	None	None	4.2	Chaparral, Coastal scrub		10	1220	(Jan)Mar-Jun
Calochortus tiburonensis	Tiburon mariposa-lily	Liliaceae	perennial bulbiferous herb	FT	CT	1B.1	Valley and foothill grassland		50	150	Mar-Jun
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	None	None	4.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland		100	700	Mar-May
Calochortus uniflorus	pink star-tulip	Liliaceae	perennial bulbiferous herb	None	None	4.2	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest		10	1070	Apr-Jun

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Calystegia collina ssp. oxyphylla	Mt. Saint Helena morning-glory	Convolvulaceae	perennial rhizomatous herb	None	None	4.2	Chaparral, Lower montane coniferous forest, Valley and foothill grassland		279	1010	Apr-Jun
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	Convolvulaceae	perennial herb	None	None	1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, North Coast coniferous forest		0	105	(Mar)Apr-Sep
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	None	None	2B.1	Coastal prairie, Marshes and swamps, Valley and foothill grassland		0	625	May-Sep
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	None	None	2B.2	Meadows and seeps		0	3200	May-Jul
Castilleja affinis var. neglecta	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	FE	CT	1B.2	Valley and foothill grassland		60	400	Apr-Jun
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	None	None	4.2	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools		0	435	Mar-Aug
Ceanothus gloriosus var. exaltatus	glory brush	Rhamnaceae	perennial evergreen shrub	None	None	4.3	Chaparral		30	610	Mar-Jun(Aug)

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Ceanothus pinetorum	Kern ceanothus	Rhamnaceae	perennial evergreen shrub	None	None	4.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest		1040	2745	May-Jul
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's- beak	Orobanchaceae	annual herb (hemiparasitic)	None	None	1B.2	Marshes and swamps		0	10	Jun-Oct
Chloropyron molle ssp. molle	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	FE	CR	1B.2	Marshes and swamps		0	3	Jun-Nov
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	None	None	1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub		3	215	Apr- Jul(Aug)
Chorizanthe robusta var. robusta	robust spineflower	Polygonaceae	annual herb	FE	None	1B.1	Chaparral, Cismontane woodland, Coastal dunes, Coastal scrub		3	300	Apr-Sep
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	None	None	1B.2	Broadleafed upland forest, Coastal bluff scrub, Coastal prairie, Coastal scrub		0	150	Mar-Jul
Cirsium hydrophilum var. vaseyi	Mt. Tamalpais thistle	Asteraceae	perennial herb	None	None	1B.2	Broadleafed upland forest, Chaparral, Meadows and seeps		240	620	May-Aug

CA RARE											
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Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	None	None	4.2	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland		5	300	(Feb)Mar-Jun(Aug)
Clarkia franciscana	Presidio clarkia	Onagraceae	annual herb	FE	CE	1B.1	Coastal scrub, Valley and foothill grassland		25	335	May-Jul
Collinsia corymbosa	round-headed Chinese-houses	Plantaginaceae	annual herb	None	None	1B.2	Coastal dunes		0	20	Apr-Jun
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	None	None	1B.2	Closed-cone coniferous forest, Coastal scrub		30	275	(Feb)Mar-May
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	None	None	4.3	Chaparral, Cismontane woodland		200	600	May-Jun
Cypripedium californicum	California lady's-slipper	Orchidaceae	perennial rhizomatous herb	None	None	4.2	Bogs and fens, Lower montane coniferous forest		30	2750	Apr-Aug(Sep)
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	None	None	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North Coast coniferous forest, Riparian forest, Riparian woodland		25	425	Jan-Mar(Apr)
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	None	None	4.3	Marshes and swamps		1	3020	(Apr)Jun-Aug(Sep)

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Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	None	None	4.3	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest, Riparian woodland		15	470	May-Aug(Nov)
Equisetum palustre	marsh horsetail	Equisetaceae	perennial rhizomatous herb	None	None	3	Marshes and swamps		45	1000	Unk
Eriogonum luteolum var. caninum	Tiburon buckwheat	Polygonaceae	annual herb	None	None	1B.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland		0	700	May-Sep
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	None	None	4.2	Chaparral, Coastal dunes, Coastal scrub, Valley and foothill grassland		0	550	Mar-Jun
Erythranthe laciniata	cut-leaved monkeyflower	Phrymaceae	annual herb	None	None	4.3	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest		490	2650	Apr-Jul
Erythranthe nudata	bare monkeyflower	Phrymaceae	annual herb	None	None	4.3	Chaparral, Cismontane woodland		200	700	May-Jun
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	None	None	1B.2	Chenopod scrub, Meadows and seeps, Playas, Valley and foothill grassland		1	835	Apr-Oct

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICRO HABITATS	LOWEST ELEVATION	HIGHEST ELEVATION	BLOOMING PERIOD
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss	None	None	1B.2	North Coast coniferous forest		10	1024	
Fritillaria lanceolata var. tristulis	Marin checker lily	Liliaceae	perennial bulbiferous herb	None	None	1B.1	Coastal bluff scrub, Coastal prairie, Coastal scrub		15	150	Feb-May
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	None	None	1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland		3	410	Feb-Apr
Gilia capitata ssp. chamissonis	blue coast gilia	Polemoniaceae	annual herb	None	None	1B.1	Coastal dunes, Coastal scrub		2	200	Apr-Jul
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	None	None	1B.2	Coastal dunes		2	30	Apr-Jul
Grindelia hirsutula var. maritima	San Francisco gumplant	Asteraceae	perennial herb	None	None	3.2	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland		15	400	Jun-Sep
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	None	None	1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland	Azonal soils, Partial Shade (often), Rocky (usually)	60	1300	Mar-Jun
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Asteraceae	annual herb	None	None	1B.2	Valley and foothill grassland		20	560	Apr-Nov

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	FED LIST	STATE LIST	CA RARE PLANT RANK	GENERAL HABITATS	MICRO HABITATS	LOWEST ELEVATION	HIGHEST ELEVATION	BLOOMING PERIOD
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	FT	CT	1B.1	Chaparral, Valley and foothill grassland		5	370	Apr-Jul
Heteranthera dubia	water star-grass	Pontederiaceae	perennial herb (aquatic)	None	None	2B.2	Marshes and swamps		30	1495	Jul-Oct
Hoita strobilina	Loma Prieta hoita	Fabaceae	perennial herb	None	None	1B.1	Chaparral, Cismontane woodland, Riparian woodland		30	860	May-Jul(Aug-Oct)
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	FT	CE	1B.1	Coastal prairie, Coastal scrub, Valley and foothill grassland		10	220	Jun-Oct
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	None	None	1B.1	Chaparral, Closed-cone coniferous forest, Coastal dunes, Coastal scrub		10	200	Apr-Sep
Horkelia marinensis	Point Reyes horkelia	Rosaceae	perennial herb	None	None	1B.2	Coastal dunes, Coastal prairie, Coastal scrub		5	755	May-Sep
Horkelia tenuiloba	thin-lobed horkelia	Rosaceae	perennial herb	None	None	1B.2	Broadleafed upland forest, Chaparral, Valley and foothill grassland		50	500	May-Jul(Aug)

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Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	None	None	4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland		0	700	Mar-Jul
Hypogymnia schizidiata	island rock lichen	Parmeliaceae	foliose lichen	None	None	1B.3	Chaparral, Closed-cone coniferous forest		360	405	
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	None	None	4.2	Coastal prairie, Lower montane coniferous forest, Meadows and seeps		0	600	Mar-May(Jun)
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	None	None	1B.1	Valley and foothill grassland		1	20	Aug-Dec
Juncus acutus ssp. leopoldii	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	None	None	4.2	Coastal dunes, Marshes and swamps, Meadows and seeps		3	900	(Mar)May-Jun

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Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	None	None	2B.3	North Coast coniferous forest		90	885	Apr-Aug
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	None	None	1B.2	Marshes and swamps		0	5	May-Jul(Aug-Sep)
Layia carnosa	beach layia	Asteraceae	annual herb	FE	CE	1B.1	Coastal dunes, Coastal scrub		0	60	Mar-Jul
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	None	None	4.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland		55	1500	Apr-Jul
Leptosiphon grandiflorus	large-flowered leptosiphon	Polemoniaceae	annual herb	None	None	4.2	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland		5	1220	Apr-Aug
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	None	None	4.3	Broadleafed upland forest, Cismontane woodland		170	1500	Apr-Jun
Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	annual herb	None	None	1B.1	Coastal bluff scrub		0	100	Apr-Jul
Lessingia germanorum	San Francisco lessingia	Asteraceae	annual herb	FE	CE	1B.1	Coastal scrub		25	110	(Jun)Jul-Nov

CA RARE											
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Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	None	None	3	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland		15	305	Jun-Oct
Lessingia micradenia var. micradenia	Tamalpais lessingia	Asteraceae	annual herb	None	None	1B.2	Chaparral, Valley and foothill grassland		100	500	(Jun)Jul-Oct
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	None	CR	1B.1	Marshes and swamps, Riparian scrub		0	10	Apr-Nov
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	None	None	3.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland		45	825	Mar-May
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	None	None	1B.2	Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Valley and foothill grassland		5	355	Apr-Jun(Jul)
Navarretia rosulata	Marin County navarretia	Polemoniaceae	annual herb	None	None	1B.2	Chaparral, Closed-cone coniferous forest		200	635	May-Jul

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Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	FE	CE	1B.1	Cismontane woodland, Valley and foothill grassland		35	620	Mar-May	
Perideridia gairdneri ssp. gairdneri	Gairdner's yampah	Apiaceae	perennial herb	None	None	4.2	Broadleafed upland forest, Chaparral, Coastal prairie, Valley and foothill grassland, Vernal pools		0	610	Jun-Oct	
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	None	None	4.2	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal scrub, Lower montane coniferous forest		3	915	Apr-Aug	
Plagiobothrys chorisianus var. chorisianus	Choris' popcornflower	Boraginaceae	annual herb	None	None	1B.2	Chaparral, Coastal prairie, Coastal scrub		3	160	Mar-Jun	
Plagiobothrys diffusus	San Francisco popcornflower	Boraginaceae	annual herb	None	CE	1B.1	Coastal prairie, Valley and foothill grassland		60	360	Mar-Jun	
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	None	None	1A	Marshes and swamps, Meadows and seeps		15	180	Mar-May	

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Pleuropogon hooverianus	North Coast semaphore grass	Poaceae	perennial rhizomatous herb	None	CT	1B.1	Broadleafed upland forest, Meadows and seeps, North Coast coniferous forest		10	671	Apr-Jun
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	None	None	2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest		0	1830	Apr-Sep
Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	None	None	3.1	Marshes and swamps		0	10	(Apr)May-Aug(Oct)
Quercus parvula var. tamalpaisensis	Tamalpais oak	Fagaceae	perennial evergreen shrub	None	None	1B.3	Lower montane coniferous forest		100	750	Mar-Apr
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	None	None	4.2	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools		15	470	Feb-May
Sanicula maritima	adobe sanicle	Apiaceae	perennial herb	None	CR	1B.1	Chaparral, Coastal prairie, Meadows and seeps, Valley and foothill grassland		30	240	Feb-May
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	None	None	2B.2	Chaparral, Cismontane woodland, Coastal scrub		15	800	Jan-Apr(May)
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Malvaceae	perennial rhizomatous herb	None	None	1B.2	Marshes and swamps		3	75	Apr-Sep

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Silene scouleri ssp. scouleri	Scouler's catchfly	Caryophyllaceae	perennial herb	None	None	2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland		0	600	(Mar-May)Jun-Aug(Sep)
Silene verecunda ssp. verecunda	San Francisco campion	Caryophyllaceae	perennial herb	None	None	1B.2	Chaparral, Coastal bluff scrub, Coastal prairie, Coastal scrub, Valley and foothill grassland		30	645	(Feb)Mar-Jul(Aug)
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	Caryophyllaceae	perennial herb	None	None	1B.2	Marshes and swamps, Meadows and seeps		0	255	Feb-May
Stebbinsoseris decipiens	Santa Cruz microseris	Asteraceae	annual herb	None	None	1B.2	Broadleafed upland forest, Chaparral, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Valley and foothill grassland		10	500	Apr-May
Streptanthus batrachopus	Tamalpais jewelflower	Brassicaceae	annual herb	None	None	1B.3	Chaparral, Closed-cone coniferous forest		305	650	Apr-Jul
Streptanthus glandulosus ssp. niger	Tiburon jewelflower	Brassicaceae	annual herb	FE	CE	1B.1	Valley and foothill grassland		30	150	May-Jun
Streptanthus glandulosus ssp. pulchellus	Mt. Tamalpais bristly jewelflower	Brassicaceae	annual herb	None	None	1B.2	Chaparral, Valley and foothill grassland		150	800	May-Jul(Aug)

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Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	FE	None	1B.1	Marshes and swamps		0	15	Jul-Oct
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	None	None	1B.2	Marshes and swamps		0	3	(Apr)May-Nov
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	None	None	4.2	Chaparral, Cismontane woodland, Lower montane coniferous forest, Marshes and swamps, Meadows and seeps		15	1000	Apr-Jul
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	FE	None	1B.1	Coastal bluff scrub, Valley and foothill grassland		5	415	Apr-Jun
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	None	None	1B.2	Marshes and swamps, Valley and foothill grassland, Vernal pools		0	300	Apr-Jun
Triphysaria floribunda	San Francisco owl's-clover	Orobanchaceae	annual herb	None	None	1B.2	Coastal prairie, Coastal scrub, Valley and foothill grassland		10	160	Apr-Jun
Triquetrella californica	coastal triquetrella	Pottiaceae	moss	None	None	1B.2	Coastal bluff scrub, Coastal scrub		10	100	
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	None	None	2B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest		215	1400	May-Jun

Showing 1 to 111 of 111 entries

CONTACT US

Send questions and comments to 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

Contra Costa County, California

 Map of project location

Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📅 (916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

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

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

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

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

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

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

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

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

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

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/5524	Threatened
Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

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

Tidewater Goby *Eucyclogobius newberryi*

Endangered

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/57>

Flowering Plants

NAME	STATUS
California Seablite <i>Suaeda californica</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6310	Endangered
Marin Dwarf-flax <i>Hesperolinon congestum</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5363	Threatened
Santa Cruz Tarplant <i>Holocarpha macradenia</i> Wherever found There is final critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/6832	Threatened
Showy Indian Clover <i>Trifolium amoenum</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6459	Endangered
Tiburon Jewelflower <i>Streptanthus niger</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4187	Endangered

Tiburon Mariposa Lily *Calochortus tiburonensis*

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2858>

Threatened

Tiburon Paintbrush *Castilleja affinis* ssp. *neglecta*

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/2687>

Endangered

White-rayed Pentachaeta *Pentachaeta bellidiflora*

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7782>

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 Act¹ and the Bald and Golden Eagle Protection Act².

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

1. The [Migratory Birds Treaty Act](#) of 1918.

2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

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

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

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE")

INDICATES THAT THE BIRD DOES NOT
LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

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

<https://ecos.fws.gov/ecp/species/9637>

Breeds Feb 1 to Jul 15

Black Oystercatcher *Haematopus bachmani*

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

<https://ecos.fws.gov/ecp/species/9591>

Breeds Apr 15 to Oct 31

Black Skimmer *Rynchops niger*

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

<https://ecos.fws.gov/ecp/species/5234>

Breeds May 20 to Sep 15

Black Turnstone *Arenaria melanocephala*

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

Breeds elsewhere

Burrowing Owl *Athene cunicularia*

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

<https://ecos.fws.gov/ecp/species/9737>

Breeds Mar 15 to Aug 31

California Thrasher *Toxostoma redivivum*

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

Breeds Jan 1 to Jul 31

Clark's Grebe *Aechmophorus clarkii*

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

Breeds Jan 1 to Dec 31

Common Yellowthroat *Geothlypis trichas sinuosa*

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

<https://ecos.fws.gov/ecp/species/2084>

Breeds May 20 to Jul 31

Long-billed Curlew *Numenius americanus*

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

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

Breeds elsewhere

Marbled Godwit *Limosa fedoa*

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

<https://ecos.fws.gov/ecp/species/9481>

Breeds elsewhere

Nuttall's Woodpecker *Picoides nuttallii*

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

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

Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus*

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

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

Breeds Mar 15 to Jul 15

Rufous Hummingbird *selasphorus rufus*

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

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

Breeds elsewhere

Short-billed Dowitcher *Limnodromus griseus*

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

<https://ecos.fws.gov/ecp/species/9480>

Breeds elsewhere

Song Sparrow *Melospiza melodia*

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

Breeds Feb 20 to Sep 5

Spotted Towhee *Pipilo maculatus clementae*

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

<https://ecos.fws.gov/ecp/species/4243>

Breeds Apr 15 to Jul 20

Tricolored Blackbird *Agelaius tricolor*

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

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

Breeds Mar 15 to Aug 10

Whimbrel *Numenius phaeopus*

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

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

Breeds elsewhere

Willet *Tringa semipalmata*

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

Breeds elsewhere

Wrentit *Chamaea fasciata*

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

Breeds Mar 15 to Aug 10

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 (I)

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.

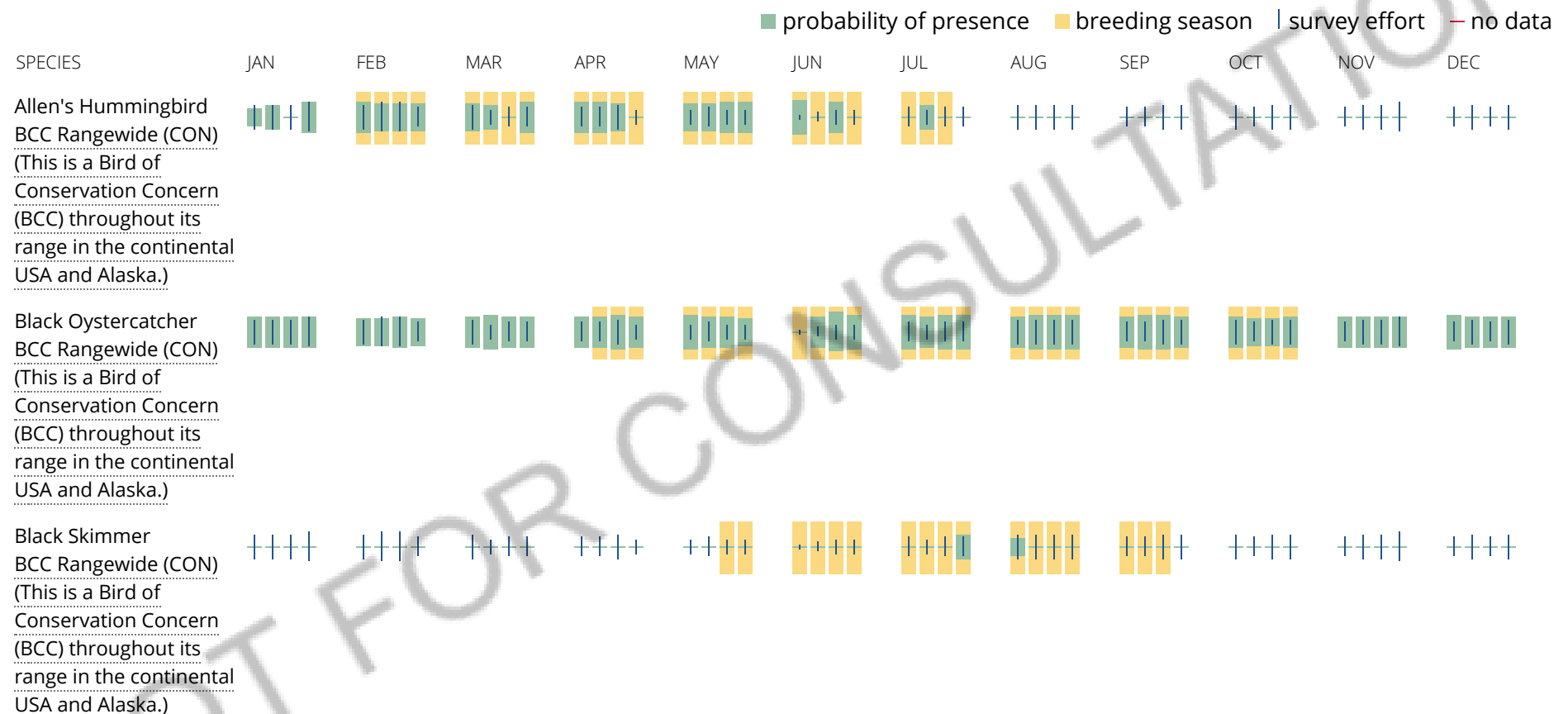
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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.



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



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



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



Clark's Grebe
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



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



Long-billed Curlew
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



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



Nuttall's Woodpecker
BCC - BCR (This is a Bird
of Conservation
Concern (BCC) only in
particular Bird
Conservation Regions
(BCRs) in the
continental USA)



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



SPECIES

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

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



Short-billed Dowitcher
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



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



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

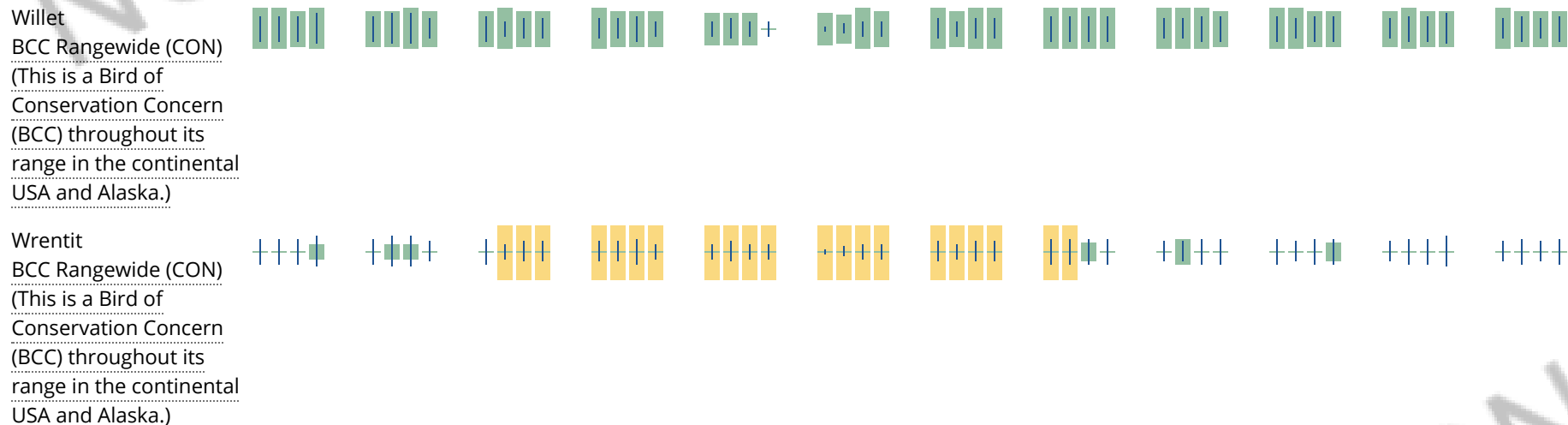


Tricolored Blackbird
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the continental
USA and Alaska.)



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





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

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

What does IPaC use to generate the 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 to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, 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](#).

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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B.2 - Species Tables

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Table 1: Special-status Plant Species Evaluated

Scientific Name Common Name	Status			Habitat Description ⁴	Potential to Occur and Rationale ⁵
	USFWS ¹	CDFW ²	CNPS ³		
Dicots					
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	—	—	1B.2	Alkali playa, valley and foothill grassland. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. Elevation: 0 – 168 m. Blooming period: March – June	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Calystegia purpurata</i> ssp. <i>saxicola</i> coastal bluff morning-glory	—	—	1B.2	Coastal dunes, coastal scrub, coastal bluff scrub, north coast coniferous forest. Elevation: 4 – 165 m. Blooming period: April – September	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i> Point Reyes salty bird's-beak	—	—	1B.2	Coastal salt marsh usually with <i>Salicornia</i> , <i>Distichlis</i> , <i>Jaumea</i> , <i>Spartina</i> , etc. Elevation: 0 – 115 m. Blooming period: June – November	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Collinsia multicolor</i> San Francisco collinsia	—	—	1B.2	Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus; sometimes grows on serpentine soils. Elevation: 10 – 275 m. Blooming period: March – May	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Dirca occidentalis</i> western leatherwood	—	—	1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. Elevation: 20 – 640 m. Blooming period: January – March	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Hoita strobilina</i> Loma Prieta hoita	—	—	1B.1	Chaparral, cismontane woodland, riparian woodland. Often found growing on serpentine soils, often on mesic sites. Elevation: 60 – 975 m. Blooming period: May – July	None: The project site is entirely developed and does not contain suitable habitat to support this species.

Scientific Name Common Name	Status			Habitat Description ⁴	Potential to Occur and Rationale ⁵
	USFWS ¹	CDFW ²	CNPS ³		
<i>Holocarpha macradenia</i> Santa Cruz tarplant	FT	SE	1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. On light, sandy soil or sandy clay; found often with non-natives. Elevation: 10 – 275 m. Blooming period: June – October	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Polemonium carneum</i> Oregon polemonium	—	—	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation: 15 – 1525 m. Blooming period: April – September	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Spergularia macrotheca</i> var. <i>longistyla</i> long-styled sand-spurrey	—	—	1B.2	Alkaline marshes and swamps, meadows and seeps. Elevation: 0 – 220 m. Blooming period: February – May	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Stebbinsoseris decipiens</i> Santa Cruz microseris	—	—	1B.2	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Open areas in loose or disturbed soil, usually derived from sandstone, shale or serpentine, on seaward slopes. Elevation: 90 – 750 m. Blooming period: April – May	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Suaeda californica</i> California seabite	FE	—	1B.1	Marshes and swamps. Commonly found on coastal salt marshes. Elevation: 0 – 5 m. Blooming period: July – October	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Symphyotrichum lentum</i> Suisun Marsh aster	—	—	1B.2	Marshes and swamps (brackish and freshwater). Most often seen along sloughs with <i>Phragmites</i> , <i>Scirpus</i> , blackberry, <i>Typha</i> , etc. Elevation: 0 – 15 m. Blooming period: May – November	None: The project site is entirely developed and does not contain suitable habitat to support this species.
<i>Trifolium hydrophilum</i> saline clover	—	—	1B.2	Mesic, alkaline sites such as marshes and swamps, valley and foothill grassland, vernal pools. Elevation: 1 – 335 m. Blooming period: April – June	None: The project site is entirely developed and does not contain suitable habitat to support this species.

Scientific Name Common Name	Status			Habitat Description ⁴	Potential to Occur and Rationale ⁵
	USFWS ¹	CDFW ²	CNPS ³		
Monocots					
Carex praticola northern meadow sedge	—	—	2B.2	Wet meadows and seeps. Elevation: 15 – 3200 m. Blooming period: May – July	None: The project site is entirely developed and does not contain suitable habitat to support this species.
Fritillaria liliacea fragrant fritillary	—	—	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often grows on serpentine soils. Can grow on other soil types such as clay soils in grassland habitats. Elevation: 3 – 385 m. Blooming period: February – April	None: The project site is entirely developed and does not contain suitable habitat to support this species.
Code Designations					
¹ Federal Status: 2020 USFWS Listing				² State Status: 2020 CDFW Listing	³ CNPS: 2020 CNPS Listing
ESU = Evolutionary Significant Unit is a distinctive population. FE = Listed as endangered under the FESA. FT = Listed as threatened under the FESA. FC = Candidate for listing (threatened or endangered) under FESA. FD = Delisted in accordance with the FESA. FPD = Federally Proposed to be Delisted. MBTA = protected by the Migratory Bird Treaty Act — = Not federally listed				SE = Listed as endangered under the CESA. ST = Listed as threatened under the CESA. SSC = Species of Special Concern as identified by the CDFW. FP = Listed as fully protected under FGC. CFG = FGC =protected by FGC 3503.5 CR = Rare in California. — = Not state listed	Rank 1A = Plants species that presumed extinct in California. Rank 1B = Plant species that are rare, threatened, or endangered in California and elsewhere. Rank 2 = Plant species that are rare, threatened, or endangered in California, but more common elsewhere. Rank 3 = Plants about which we need more information—A Review List Rank 4 = Plants of limited distribution—A Watch List Blooming period: Months in parentheses are uncommon.
⁴ Habitat Description: Habitat description adapted from CNDDDB and CNPS online inventory or other specified source.					
⁵ Potential to Occur and Rationale: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source*.					
Sources: California Department of Fish and Wildlife (CDFW). 2021. CNDDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx . Accessed July 19, 2021. California Native Plant Society (CNPS). 2021. California Native Plant Society Rare and Endangered Plant Inventory. Website: http://www.rareplants.cnps.org/ . Accessed July 19, 2021. California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/ . Accessed July 19, 2021.					

Table 2: Special-status Wildlife Species Evaluated

Scientific Name Common Name	Status		Habitat Description ³	Potential to Occur and Rationale ⁴
	USFWS ¹	CDFW ²		
Amphibians				
<i>Rana draytonii</i> California red-legged frog	FT	— SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	None. The project parcel does not contain suitable riparian habitat to support this species. Nearest suitable riparian/aquatic habitat is located approximately 0.5 mile to the southwest along Coyote Creek.
Birds				
<i>Accipiter cooperii</i> Cooper's hawk	— MBTA	— WL FGC	Prefers woodland habitat, chiefly of open, interrupted or marginal type, including cismontane woodlands, riparian forests/woodlands and upper montane coniferous forest. May also occur near parks and residential areas. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Low. Although unlikely, trees located on the project site have the potential to supporting nesting.
<i>Asio flammeus</i> short-eared owl	— MBTA	— SSC FGC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Needs tule patches/tall grass for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	None. The project does not contain suitable nesting habitat in the form of tule patches or tall grass.
<i>Athene cunicularia</i> burrowing owl	— MBTA	— SSC FGC	Found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. A subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	None. The project site is fully developed and lacks grassland habitats with burrows.
<i>Circus hudsonius</i> northern harrier	— MBTA	— SSC	Found in coastal salt and freshwater marshes. Ground nester in shrubby vegetation usually at marsh edge.	None. The project site lacks coastal salt or freshwater marshes and suitable substrate for nesting.
<i>Elanus leucurus</i> white-tailed kite	— MBTA	— FP	Often found near foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland or isolated dense-topped trees for nesting and perching. Forages in open grasslands, meadows, or marshes.	Low. The project parcel contains suitable nesting trees along its northern boundary. Suitable grassland foraging habitat can be found nearby. Nearest recorded BIOS occurrences are located approximately 5.5 miles southeast of the project parcel.
<i>Falco peregrinus anatum</i> American peregrine falcon	FD MBTA	SD FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	None. The project site does not contain cliffs or tall man-made structures suitable for nesting.

Scientific Name Common Name	Status		Habitat Description ³	Potential to Occur and Rationale ⁴
	USFWS ¹	CDFW ²		
<i>Laterallus jamaicensis coturniculus</i> California black rail	— MBTA	ST FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	None. The project site lacks marsh or meadow habitat to support this species.
<i>Melospiza melodia pusillula</i> Alameda song sparrow	— MBTA	— SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits <i>Salicornia</i> marshes; nests low in <i>Grindelia</i> bushes (high enough to escape high tides).	None. The project site lacks suitable salt marsh habitat to support this species.
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	— MBTA	— SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the <i>Salicornia</i> marshes; nests in <i>Grindelia</i> bordering slough channels.	None. The project site lacks suitable salt marsh habitat to support this species.
<i>Phalacrocorax auratus</i> double-crested cormorant	— MBTA	— WL	Requires large water bodies big enough to support their mostly fish diet. However, they may roost and form breeding colonies on smaller lagoons or ponds. In addition to fishing waters, cormorants need high, airy perches to dry off and digest their meals (rocks, wires, tops of dead trees, ship masts). This species tend to form breeding colonies in clusters of trees in or near water. Nests can be on the ground, on rocks or reefs with no vegetation, or atop trees.	None. The project site lacks suitable aquatic habitat to support this species.
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	FE MBTA	SE FP	Salt and brackish marshes in the vicinity of the San Francisco Bay. Associated with abundant <i>Salicornia</i> .	None. The project site lacks suitable salt marsh habitat to support this species.
Fish				
<i>Spirinchus thaleichthys</i> longfin smelt	FC	ST	Bays, estuaries, and nearshore coastal areas, and migrate into freshwater rivers to spawn. Spawning occurs primarily from January through March.	None. The project site is fully developed and lacks suitable aquatic habitat to support this species.
<i>Thaleichthys pacificus</i> eulachon	FT	—	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	None. The project site is fully developed and lacks suitable aquatic habitat to support this species.
Insects				
<i>Bombus occidentalis</i> western bumble bee	—	CE	Formerly found in large parts of California but has been reduced in abundance and is now mostly restricted to high meadows or coastal environments. Species requires floral resources, and undisturbed nest and overwintering sites	None. The project site does not contain suitable high meadows or coastal environments, floral resources, and undisturbed nest sites to support this species.

Scientific Name Common Name	Status		Habitat Description ³	Potential to Occur and Rationale ⁴
	USFWS ¹	CDFW ²		
<i>Danaus plexippus</i> (pop. 1) monarch butterfly (California overwintering population)	FC	—	Roosts located in wind protected Eucalyptus, Monterey pine, and Cypress tree groves with nectar and water sources nearby.	None. The project site does not contain suitable tree groves to support this species.
Mammals				
<i>Antrozous pallidus</i> pallid bat	—	— SSC	Inhabits low elevation (below 1,830 m./6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forests (below 2,100 m./7,000 feet). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees, and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings.	Low. The project site does contain man-made structures and trees that may support roosting.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	—	— SSC	Found throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. This species is extremely sensitive to human disturbance.	Low. The project site does contain man-made structures and trees that may support roosting.
<i>Microtus californicus sanpabloensis</i> San Pablo vole	—	— SSC	Saltmarshes of San Pablo Creek, on the south shore of San Pablo Bay. Constructs burrow in soft soil. Feeds on grasses, sedges and herbs. Forms a network of runways leading from the burrow.	None. The project site does not contain saltmarsh habitat to support this species.
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	FE	SE FP	Saline emergent wetlands of San Francisco Bay and its tributaries. Salicornia is primary habitat but may occur in other marsh vegetation types.	None. The project site does not contain aquatic habitat with <i>Salicornia</i> present.
<i>Sorex vagrans halicoetes</i> salt-marsh wandering shrew	—	— SSC	Salt marshes of the southern portion of the San Francisco Bay. Marsh, wetland, or swamps with Salicornia and abundant driftwood	None: The project site does not contain aquatic habitat with <i>Salicornia</i> present.
Reptiles				
<i>Emys marmorata</i> western pond turtle	—	— SSC	Occurs in ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	None. The project parcel does not contain suitable aquatic to support this species.

Scientific Name Common Name	Status		Habitat Description ³	Potential to Occur and Rationale ⁴
	USFWS ¹	CDFW ²		
Code Designations				
¹ Federal Status: 2020 USFWS Listing			² State Status: 2020 CDFW Listing	
ESU = Evolutionary Significant Unit is a distinctive population. FE = Listed as endangered under the FESA. FT = Listed as threatened under the FESA. FC = Candidate for listing (threatened or endangered) under FESA. FD = Delisted in accordance with the FESA. FPD = Federally Proposed to be Delisted. MBTA = protected by the Migratory Bird Treaty Act — = Not federally listed			SE = Listed as endangered under the CESA. ST = Listed as threatened under the CESA. SSC = Species of Special Concern as identified by the CDFW. FP = Listed as fully protected under FGC. CFG = FGC =protected by FGC 3503.5 CE = Candidate endangered under the CESA. WL = Species monitored by CDFW “Watch List”. — = Not state listed	
³ Habitat Description: Habitat description adapted from CNDDDB or other specified source*.				
⁴ Potential to Occur and Rationale: Location of recorded species occurrences determined by geospatial information from BIOS 5 or other specified source*.				
Sources: California Department of Fish and Wildlife (CDFW). 2021. CNDDDB RareFind 5 California Natural Diversity Database Query for Special-Status Species. Website: https://map.dfg.ca.gov/rarefind/view/RareFind.aspx . Accessed July 19, 2021. California Department of Fish and Wildlife (CDFW). 2021. Biogeographic Information and Observation System (BIOS 5). Website: https://map.dfg.ca.gov/bios/ . Accessed July 19, 2021.				

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B.3 - Arborist Report

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DRAFT Arborist Report

**731 W. Cutting Blvd.
Richmond, CA**

**PREPARED FOR
Duke Realty
200 Spectrum Center Drive, Suite 1600
Irvine, CA 92618**

**PREPARED BY:
HortScience | Bartlett Consulting
325 Ray Street
Pleasanton, CA 94566**

December 2020

**DRAFT Arborist Report
731 W. Cutting Blvd.
Richmond, CA**

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Tree Assessment Map

DRAFT Arborist Report

731 W. Cutting Blvd.

Richmond, CA

Executive Summary

Duke Realty is involved in the redevelopment of the subject property in Richmond, CA. The site is currently industrial, with a warehouse, several storage tanks, an office building, parking, and perimeter landscaping. HortScience | Bartlett Consulting, divisions of The F.A. Bartlett Tree Expert Company, was asked to prepare an **Arborist Report** for the proposed project as part of the submittals to the City of Richmond.

Thirty (30) trees representing 5 species were evaluated at the site, including 8 on-site trees and 22 street trees along Canal Blvd. and W. Cutting Boulevard (Table 1). Descriptions of each tree are found in the **Tree Assessment Forms** and approximate locations are plotted on the **Tree Assessment Map** (see Exhibits).

Two species accounted for 26 of the 30 trees, including Chinese elm, with 7 trees, and Raywood ash, with 19 trees. Chinese elms included 4 on-site trees and 3 street trees along Canal Boulevard. All 19 Raywood Ash were street trees growing along W. Cutting Boulevard.

In total, tree conditions ranged from good (seven trees), to fair (22 trees), to poor (tree #451). Table 1, page 2, provides a summary of tree condition by species.

Only three (3) trees were considered highly suitable for preservation, eight (8) were moderately suitable, and 19 were poorly suited (Table 2, page 4). The low suitability for preservation of most of the Raywood ash street trees along W. Cutting Blvd was due to the extensive trunk damage associated with sunscald on most of their lower trunks.

Based on my review of the preliminary plans, it is clear that all eight (8) on-site trees would be removed to accommodate the new development (Table 3, page 6).

While it appears that all 22 street trees can be preserved, 17 of the street trees on W. Cutting Blvd. were of low suitability for preservation due to the extensive sunscald and trunk damage. While none of these trees pose an immediate risk to public safety, I do not expect their condition to improve. I would recommend Duke Realty consider the removal and replacement of the street trees along W. Cutting Blvd. with a species more tolerant of the site conditions and need to raise their crowns.

Introduction and Overview

Duke Realty is involved in the redevelopment of the subject property in Richmond, CA. The site is currently industrial, with a warehouse, several storage tanks, an office building, parking, and perimeter landscaping. HortScience | Bartlett Consulting, divisions of The F.A. Bartlett Tree Expert Company, was asked to prepare an Arborist Report for the proposed project as part of the submittals to the City of Richmond.

This report provides the following information:

1. Assessment of the health, structural condition, and suitability for preservation of the trees located within and adjacent to the proposed project area based on a visual inspection from the ground.
2. An evaluation of anticipated impacts to trees from construction and recommendations for removal and preservation.
3. Tree preservation guidelines during the design, construction, and maintenance phases of construction.
4. **Tree Assessment Form** and **Tree Assessment Map** with descriptions of individual trees and their approximate locations.

Tree Assessment Methods

Trees were assessed on November 30, 2020. The assessment included all trees measuring 4" and larger in trunk diameter within and adjacent to the proposed work area. The assessment procedure consisted of the following steps:

1. Identifying the tree species;
2. Tagging each tree with a numerically coded metal tag and recording its location on a map.
3. Measuring the trunk diameter of each tree 4" in trunk diameter and larger at a point 54" above grade;
4. Evaluating health and structure based on a visual inspection from the ground:
 - Good (4-5)** A healthy tree that may have a slight decline in vigor, small amount of twig dieback, and minor structural defects that could be corrected.
 - Fair (3)** Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, and moderate structural defects that might be mitigated with regular care.
 - Poor (1-2)** Tree in decline, epicormic growth, extensive dieback of medium to large branches, and significant structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate", or "low". Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.
 - High** Trees with good health and structural stability that have the potential for longevity at the site.
 - Moderate** Trees with somewhat declining health and/or structural defects that can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.
 - Low** Tree in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes and generally are unsuited for use areas.

Description of Trees

Thirty (30) trees representing 5 species were evaluated at the site, including 8 on-site trees and 22 street trees along Canal Blvd. and W. Cutting Boulevard (Table 1). Descriptions of each tree are found in the **Tree Assessment Forms** and approximate locations are plotted on the **Tree Assessment Map** (see Exhibits).

**Table 1. Condition ratings and frequency of occurrence of trees
731 W. Cutting Blvd., Richmond CA**

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
Silver dollar gum	<i>Eucalyptus polyanthemos</i>	-	2	-	2
Raywood ash	<i>Fraxinus oxycarpa</i> 'Raywood'	-	17	2	19
Monterey pine	<i>Pinus radiata</i>	-	1	-	1
Chinese pistache	<i>Pistacia chinensis</i>	-	-	1	1
Chinese elm	<i>Ulmus parvifolia</i>	1	2	4	7
Total		1	22	7	30

The 22 street trees included:

- Three (3) Chinese elms growing along Canal Blvd. (#453-455). These were young to semi-mature, with trunk diameters between 11" and 17". Chinese elm #453 was in fair condition and had displaced the adjacent sidewalk ~2". Chinese elms #454 and 455 were in good condition.
- Nineteen (19) Raywood ash were growing along W. Cutting Blvd. (#456-474). Diameters ranged from 6" to 14", with an average of 10". Condition was fair for 17 of the 19 trees. Every tree had experienced sunscald on the southwest side of the lower trunk, and for 17 of the Raywood ash, the sunscald had resulted in large trunk wounds (**Photo 1**, following page).

The 8 on-site trees included:

- Four (4) Chinese elms growing along the Canal Blvd. frontage (#447, 448, 450 and 451). They were all multi-stemmed, with trunk diameters from 4" to 8". Condition was variable, with #447 and 450 in good condition, #448 in fair and #451 in poor.
- Monterey pine #449 was growing among the Chinese elms along Canal Boulevard. It was semi-mature (17") and in fair condition. Several of the Monterey pines in the landscape had already died.



Photo 1 – Looking west along W. Cutting Blvd. and Raywood ash #467. The tree was typical of the Raywood ash planted along W. Cutting Blvd., it was young (8" in trunk diameter) and in fair condition. Also typical was the large trunk wound associated with sunscald of the lower trunks (inset below).



- Chinese pistache #452 was a new planting in the landscape along the W. Cutting Blvd. frontage. It was in excellent condition.
- Silver dollar gums #475 and 476 were in a small landscape island just inside the eastern gate along W. Cutting Boulevard. These were semi-mature at 18" and 16" in trunk diameter, respectively. They were both in fair condition, although #475 had poor form and structure and the form and structure of #476 was only slightly better.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment. Where development will not occur, the normal life cycles of decline, structural failure and death should be allowed to continue.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.
- **Structural integrity**
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.
- **Species response**
There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, Raywood ash and Chinese elm have moderate tolerance of construction impacts.
- **Tree age and longevity**
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.
- **Species invasiveness**
Species that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database <http://www.cal-ipc.org/plants/inventory/> lists species identified as being invasive. Richmond is part of the Central West Floristic Province. None of the species assessed at the 731 W. Cutting Blvd. site were listed as invasive.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (see **Tree Assessment** exhibit). Table provides a summary of the suitability for preservation for each tree.

We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

**Table 2. Tree suitability for preservation
731 W. Cutting Blvd., Richmond CA**

High	These are trees with good health and structural stability that have the potential for longevity at the site. Chinese elms #450 and 455 and Chinese pistache #452 are the only trees considered highly suitable for preservation.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the “high” category. Eight (8) trees, including Chinese elms #447, 448, 453 and 454, Monterey pine #447, Raywood ash #456 and 462 and silver dollar gum #476, were of moderate suitability for preservation.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Nineteen (19) trees, including Chinese elm #451, Raywood ash #457-461 and 463-474 and silver dollar gum #475, were of low suitability for preservation.

Evaluation of Impacts and Recommendations

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The **Tree Assessment Form** was the reference point for tree condition and quality. Potential impacts from construction were evaluated using the Preliminary Site Plan, prepared by HPA Architecture (dated November 17, 2020).

The plan was preliminary in nature and depicted the layout for a new warehouse, with office space on the west side of the building and parking along the north and east sides. Cargo bays and semi-truck parking would be on the east side of the building. The driveway on Canal Blvd. and the eastern driveway on W. Cutting Blvd. would be retained. New perimeter landscaping would be installed across the site.

Neither accurate trunk locations, nor grading, drainage or utility information was provided on the plan. However, it is clear from the plans that all eight on-site trees would be removed to accommodate the new development (Table 3, following page).

Based on my review of the preliminary plans, all 22 street trees can be preserved. If retained, street tree #453 will require pruning of the canopy to address dead and broken branches and root pruning if the sidewalk is to be replaced/repared in this area.

Seventeen (17) of the street trees on W. Cutting Blvd. were of low suitability for preservation due to the extensive sunscald and trunk damage. While none of these trees pose an immediate risk to public safety, I do not expect their condition to improve. I would recommend Duke Reality consider the removal and replacement of the street trees along W. Cutting Blvd. with a species more tolerant of the site conditions and need to raise their crowns.

**Table 3: Recommendations for Action
731 W. Cutting Blvd., Richmond CA**

Tree No.	Common Name	Trunk Diameter	Recommendation for Action
447	Chinese elm	7,7	Remove, within parking
448	Chinese elm	6,4	Remove, within parking
449	Monterey pine	17	Remove, within parking
450	Chinese elm	7,5,4,3	Remove, within parking
451	Chinese elm	8,6,5,3	Remove, within parking
452	Chinese pistache	6	Remove, within building
453	Chinese elm	17	Preserve , root prune
454	Chinese elm	12	Preserve , outside impacts
455	Chinese elm	11	Preserve , outside impacts
456	Raywood ash	12	Preserve , outside impacts
457	Raywood ash	12	Consider for removal
458	Raywood ash	11	Consider for removal
459	Raywood ash	8	Consider for removal
460	Raywood ash	14	Consider for removal
461	Raywood ash	11	Consider for removal
462	Raywood ash	11	Consider for removal
463	Raywood ash	11	Consider for removal
464	Raywood ash	9	Consider for removal
465	Raywood ash	10	Consider for removal
466	Raywood ash	7	Consider for removal
467	Raywood ash	8	Consider for removal
468	Raywood ash	8	Consider for removal
469	Raywood ash	7	Consider for removal
470	Raywood ash	6	Consider for removal
471	Raywood ash	6	Consider for removal
472	Raywood ash	11	Consider for removal
473	Raywood ash	10	Consider for removal
474	Raywood ash	10	Consider for removal
475	Silver dollar gum	18	Remove, within landscape
476	Silver dollar gum	16	Remove, within landscape

Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations

1. Any plan affecting trees should be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans and demolition plans.

2. **Tree Preservation Guidelines** prepared by the Consulting Arborist should be included on all plans.
3. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**. To minimize impacts to trees, locate underground services to provide as much room as possible from trees identified for preservation.
4. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.
5. Irrigation systems must be designed to avoid trenching within the **TREE PROTECTION ZONE**.
6. A **TREE PROTECTION ZONE** must be established for trees to be preserved, in which no disturbance is permitted. **TREE PROTECTION ZONES** for street trees shall be at the limit of the landscape bed they are planted in. No grading, excavation, construction or storage of materials shall occur within that zone without the prior approval of and under direct supervision by the Consulting Arborist.
7. Do not apply lime to soil for stabilization within 25' of trees to be preserved. Lime is toxic to tree roots.

Pre-construction treatments and recommendations

1. The demolition contractor and construction superintendent shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Where fencing is not an option, such as with street trees, in the minimum wrap the trunks of those trees adjacent to proposed demolition and construction work to a height of 8' with straw wattle and orange snow fencing to provide a visual cue and protection from incidental contact.
3. Any grading within the **TREE PROTECTION ZONE** specified in the above table shall be performed by hand and under direct supervision of the Consulting Arborist.
4. Prune trees to be preserved to provide adequate clearance and correct any existing defects in structure. Any pruning of off-site trees must be performed with the property owner's permission. All pruning shall be done by Certified Arborist or Certified Tree Worker in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300).
5. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. To the extent feasible tree pruning and removal should be scheduled outside of the breeding season. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.

Recommendations for tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.

2. No grading, construction, demolition or other work shall occur within the **TREE PROTECTION ZONE**. Any modifications must be approved and monitored by the Consulting Arborist.
3. Any excavation within the **TREE PROTECTION ZONE** or other work that is expected to encounter tree roots should be approved and monitored by the Consulting Arborist. Roots shall be cut by manually digging a trench and cutting exposed roots with a sharp saw. The Consulting Arborist will identify where root pruning is required and monitor all root pruning activities.
4. All underground utilities, drain lines or irrigation lines shall be routed outside the **TREE PROTECTION ZONE**. If lines must traverse through the protection area, they shall be tunneled or bored under the tree as directed by the Consulting Arborist.
5. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
6. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
7. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

Maintenance of impacted trees

Trees preserved at the 731 W. Cutting Blvd. site may experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required.

HortScience | Bartlett Consulting



John Leffingwell
Board Certified Master Arborist WE-3966B
Registered Consulting Arborist #442



Exhibits

Tree Assessment Form

Tree Assessment Map



Tree Assessment

731 W. Cutting Blvd.
Richmond, California
November 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
447	Chinese elm	7,7	4	Moderate	Codominant trunks at base; good form; dead branches to 2".
448	Chinese elm	6,4	3	Moderate	Codominant trunks at base; upright and one sided S.; dieback.
449	Monterey pine	17	3	Moderate	Multiple attachments at 6'; small crown.
450	Chinese elm	7,5,4,3	4	High	Codominant trunks at base; good form; minor dieback.
451	Chinese elm	8,6,5,3	2	Low	Partial failure at base; large branch failure in crown; one sided
452	Chinese pistache	6	5	High	Good young tree; a little bowed N.
453	Chinese elm	17	3	Moderate	Street tree; central branches broken and hanging in crown; corrected lean NW.; displacing sidewalk 2".
454	Chinese elm	12	4	Moderate	Street tree; codominant at 7'; a little one sided S.
455	Chinese elm	11	4	High	Street tree; multiple attachments at 8'; good form.
456	Raywood ash	12	4	Moderate	Street tree; multiple attachments at 7'; a little one sided N.; sunscald on lower trunk S.
457	Raywood ash	12	3	Low	Street tree; multiple attachments at 8'; large trunk wound from sunscald on lower trunk S.
458	Raywood ash	11	3	Low	Street tree; multiple attachments at 8'; a little one sided N.; large trunk wound from sunscald on lower trunk S.
459	Raywood ash	8	3	Low	Street tree; multiple attachments at 8'; a little one sided N.; large trunk wound from sunscald on lower trunk S.
460	Raywood ash	14	3	Low	Street tree; multiple attachments at 7'; one sided N.; broken/dead branches.
461	Raywood ash	11	3	Low	Street tree; multiple attachments at 7"; a little one sided N.; large trunk wound from sunscald on lower trunk S.
462	Raywood ash	11	4	Moderate	Street tree; multiple attachments at 8'; a little one sided N.; sunscald on lower trunk S.
463	Raywood ash	11	3	Low	Street tree; multiple attachments at 7"; a little one sided N.; large trunk wound from sunscald on lower trunk S.

Tree Assessment

731 W. Cutting Blvd.
Richmond, California
November 2020



TREE No.	SPECIES	SIZE DIAMETER (in inches)	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
464	Raywood ash	9	3	Low	Street tree; multiple attachments at 7"; large trunk wound from sunscald on lower trunk S.; dead branches to 2".
465	Raywood ash	10	3	Low	Street tree; multiple attachments at 7"; large trunk wound from sunscald on lower trunk S.; moderate dieback.
466	Raywood ash	7	3	Low	Street tree; multiple attachments at 7"; slight lean N.; large trunk wound from sunscald on lower trunk S.
467	Raywood ash	8	3	Low	Street tree; multiple attachments at 7"; large trunk wound from sunscald on lower trunk S.
468	Raywood ash	8	3	Low	Street tree; multiple attachments at 7"; large trunk wound from sunscald on lower trunk S.
469	Raywood ash	7	3	Low	Street tree; codominant trunks at 7"; large trunk wound from sunscald on lower trunk S.
470	Raywood ash	6	3	Low	Street tree; multiple attachments at 7"; large trunk wound from sunscald on lower trunk S.
471	Raywood ash	6	3	Low	Street tree; multiple attachments at 7"; large trunk wound from sunscald on lower trunk S.
472	Raywood ash	11	3	Low	Street tree; multiple attachments at 8"; large trunk wound from sunscald on lower trunk S.
473	Raywood ash	10	3	Low	Street tree; multiple attachments at 8"; large trunk wound from sunscald on lower trunk S.
474	Raywood ash	10	3	Low	Street tree; multiple attachments at 8"; slight lean N.; large trunk wound from sunscald on lower trunk S.
475	Silver dollar gum	18	3	Low	Codominant trunks at 7"; leans N.; poor form and structure.
476	Silver dollar gum	16	3	Moderate	Codominant trunks at 10'; crook below attachments; one sided SE.

Tree Assessment Map

731 West Cutting Blvd.
Richmond, CA

Prepared for:
Duke Realty
Irvine, CA

December 2020

No Scale

Notes

- Base map provided by:
Google Earth
- Numbered tree locations are approximate.



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