

## Special-Status Species with Potential to Occur in the Study Area

**Table 12A-1. Special-Status Plants Identified as Potentially Occurring in the Study Area**

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Large-flowered fiddleneck <i>Amsinckia grandiflora</i>	E/E/1B.1	Cismontane woodland, valley and foothill grassland slopes; 902–1,804 feet. Historically known from Mount Diablo foothills in Contra Costa, Alameda, and San Joaquin Counties; currently known from three natural occurrences	Species does not occur in study area.	N	N
Slender silver moss <i>Anomobryum julaceum</i>	-/-/2B.2	On damp rock and soil on outcrops, usually on roadcuts in broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest; 328–3,281 feet. Scattered occurrences in California from Humboldt and Shasta Counties south to Los Angeles County; Oregon and elsewhere	Species does not occur in study area.	N	N
Mt. Diablo manzanita <i>Arctostaphylos auriculata</i>	-/-/1B.3	Chaparral and oak woodland in canyons and on slopes on sandstone; 443–2,132 feet. Endemic to Contra Costa County especially Mt Diablo area, San Francisco Bay area	Species does not occur in study area.	N	N
Contra Costa manzanita <i>Arctostaphylos manzanita</i> subsp. <i>laevigata</i>	-/-/1B.2	Rocky sites in chaparral; 1,640–3,609 feet. Eastern San Francisco Bay region, Mount Diablo, southern Inner North Coast Range, Vaca Mountains in Contra Costa County	Species does not occur in study area.	N	N
Ferris's milk vetch <i>Astragalus tener</i> var. <i>ferrisiae</i>	-/-/1B.1	Seasonally wet areas in meadows and seeps, subalkaline flats in valley and foothill grassland; 6–246 feet. Historical range included the Central Valley from Butte to Alameda County but currently only occurs in Butte, Glenn, Colusa, and Yolo Counties.	Occurrences reported in or abutting CZ 1 and CZ 2.	N	Y
Alkali milk vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B.2	Playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils; 3–197 feet. Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay area.	Occurrences reported in or abutting CZ 1, CZ 2, CZ 6, CZ 8, and CZ 11.	Y	Y
Heartscale <i>Atriplex cordulata</i> var. <i>cordulata</i>	-/-/1B.2	Saline or alkaline soils in chenopod scrub, meadows and seeps, sandy areas in valley and foothill grassland; below 1,837 feet. Western Central Valley and valleys of adjacent foothills.	Occurrences reported in or abutting CZ 1, CZ 6, CZ 8, CZ 11.	Y	Y

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Crownscale <i>Atriplex coronata</i> var. <i>coronata</i>	-/-/4.2	Alkaline clay soils in chenopod scrub, playas, valley and foothill grasslands; 1–516 feet. Southern Sacramento Valley, eastern San Joaquin Valley, eastern San Francisco Bay area, Inner South Coast Ranges.	Occurrences reported in CZ 7, CZ 8, CZ 9, CZ 11.	N	Y
Brittlescale <i>Atriplex depressa</i>	-/-/1B.2	Alkaline clay soils in chenopod scrub, playas, valley and foothill grasslands; 3–1,049 feet Western and eastern Central Valley and adjacent foothills on west side of Central Valley	Occurrences reported in or abutting CZ 1, CZ 8, and CZ 11.	Y	Y
San Joaquin spearscale <i>Atriplex joaquiniana</i>	-/-/1B.2	Alkaline soils in chenopod scrub, meadows and seeps, playas, valley and foothill grassland; 3–2,739 feet. Western edge of the Central Valley from Glenn to Tulare Counties.	Occurrences reported in or abutting CZ 1, CZ 5, CZ 6, CZ 8, CZ 9, and CZ 11.	Y	Y
Lesser saltscale <i>Atriplex minuscula</i>	-/-/1B.1	Sandy alkaline soils in chenopod scrub, playas, valley and foothill grassland; 49–656 feet. Sacramento Valley and San Joaquin Valley: Butte County and from Merced County to Kern County.	Species does not occur in study area.	N	N
Vernal pool smallscale <i>Atriplex persistens</i>	-/-/1B.2	Dry beds of vernal pools on alkaline soils; 33–377 feet. Central Valley, from Glenn to Tulare County.	Occurrences reported in CZ 1 and CZ 11.	N	Y
Big-scale balsamroot <i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	-/-/1B.2	Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 295–5,102 feet. Scattered occurrences in the Coast Ranges and Sierra Nevada foothills.	Species does not occur in study area.	N	N
Big tarplant <i>Blepharizonia plumosa</i>	-/-/1B.1	Valley and foothill grassland; 98–1,657 feet. San Francisco Bay area, with occurrences in Alameda, Contra Costa, San Joaquin*, Stanislaus, and Solano Counties.	Occurrences reported in and abutting CZ 6, CZ 7, and CZ 10	N	Y
Watershield <i>Brasenia schreberi</i>	-/-/2B.3	Freshwater marshes; 98–7,218 feet. Scattered occurrences in northern and central California; widespread across US.	Occurrences reported in and abutting CZ 4, CZ 5, and CZ 6.	N	Y
Round-leaved filaree <i>California macrophylla</i>	-/-/1B.1	Clay soils in cismontane woodland, valley and foothill grassland; 49–3,937 feet. Scattered occurrences in the Central Valley, southern North Coast Ranges, San Francisco Bay area, South Coast Ranges, Channel Islands, Transverse Ranges, and Peninsular Ranges.	Occurrences reported in and abutting CZ 6, CZ 7, and CZ 10.	N	Y
Mt. Diablo fairy-lantern <i>Calochortus pulchellus</i>	-/-/1B.2	Cismontane woodland; chaparral, riparian woodland, valley and foothill grassland; 98–2,756 feet. Alameda, Contra Costa, and Solano Counties.	Species does not occur in study area.	N	N

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Bristly sedge <i>Carex comosa</i>	-/-/2B.1	Coastal prairie, marshes and swamps at lake margins, valley and foothill grassland; below 2,050 feet. Scattered occurrences throughout California; Oregon, Washington, and elsewhere.	Occurrences reported in CZ 4, CZ 5, and CZ 6.	N	Y
Tiburon paintbrush <i>Castilleja affinis</i> subsp. <i>neglecta</i>	E/T/1B.2	Serpentine grasslands; 197–1,312 feet. San Francisco Bay area: Marin, Napa, and Santa Clara Counties.	Species does not occur in study area.	N	N
Lemmon's jewel-flower <i>Caulanthus lemmonii</i>	-/-/1B.2	Dry, exposed slopes in grasslands and pinyon-juniper woodland; 262– 4,003 feet. Southeast San Francisco Bay area, south through the South Coast Ranges and adjacent San Joaquin Valley to Ventura County.	Species does not occur in study area.	N	N
Congdon's tarplant <i>Centromadia parryi</i> subsp. <i>congdonii</i>	-/-/1B.2	Alkaline soils in annual grassland, on lower slopes, flats, and swales, sometimes on saline soils; below 754 feet. East San Francisco Bay area, Salinas Valley, Los Osos Valley	Species does not occur in study area.	N	N
Pappose tarplant <i>Centromadia parryi</i> subsp. <i>parryi</i>	-/-/1B.2	Coastal prairie, meadows and seeps, coastal salt marshes and swamps, alkaline soils in vernal mesic valley and foothill grassland; 6–1,378 feet. North and Central Coast Ranges, the southern Sacramento Valley; occurrences in Butte, Colusa, Glenn, Lake, Napa, San Mateo, and Solano Counties.	Occurrences reported in and abutting CZ 11.	N	Y
Parry's rough tarplant <i>Centromadia parryi</i> subsp. <i>rudis</i>	-/-/4.2	Grassland habitats, often on clay or alkaline soils; 0–300 feet. Inner North Coast Ranges, Sacramento Valley, northern San Joaquin Valley.	Occurrences reported in CZ 2, CZ 3, adjacent to and likely to occur in CZ 1, CZ 11	N	Y
Hispid bird's-beak <i>Chloropyron molle</i> subsp. <i>hispidum</i>	-/-/1B.1	Meadow and seeps, valley and foothill grassland, playas, on alkaline soils; 3–508 feet. Central Valley in Alameda, Fresno, Kern, Merced, Placer, and Solano Counties.	Species does not occur in study area.	N	N
Soft bird's-beak <i>Chloropyron molle</i> subsp. <i>molle</i>	E/R/1B.2	Tidal salt marsh; below 10 feet. San Francisco Bay region: Suisun Marsh, Contra Costa, Marin*, Napa, Solano, Sacramento*, and Sonoma* Counties.	Occurrences reported in or abutting CZ 10 and CZ 11.	Y	Y
Palmate-bracted bird's-beak <i>Chloropyron palmatum</i>	E/E/1B.1	Alkaline sites in grassland and chenopod scrub; 16–508 feet. Livermore Valley and scattered locations in the Central Valley from Colusa County to Fresno County.	A single occurrence was reported adjacent to CZ 6 but was last observed in 1881 and is possibly extirpated.	N	Y

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Bolander's water-hemlock <i>Cicuta maculata</i> var. <i>bolanderi</i>	-/-/2.1	Marshes and swamps, coastal, fresh or brackish water; 0–656 feet. Contra Costa, Los Angeles*, Marin, Sacramento, Santa Barbara*, San Luis Obispo*, Solano Counties; also Arizona, New Mexico, Washington.	Occurrences reported in and abutting CZ 1, CZ 5, CZ 10, and CZ 11.	N	Y
Slough thistle <i>Cirsium crassicaule</i>	-/-/1B.1	Chenopod scrub, riparian scrub, sloughs in swamps and marshes; 10–328 feet. San Joaquin Valley: San Joaquin, Kings and Kern Counties.	Occurrences reported in CZ 7.	Y	Y
Suisun thistle <i>Cirsium hydrophilum</i> var. <i>hydrophilum</i>	E/-/1B.1	Salt marshes and swamps; below 3 feet. Suisun Marsh, Solano County.	Occurrences reported in CZ 11.	Y	Y
Small-flowered morning-glory <i>Convolvulus simulans</i>	-/-/4.2	Grassland, coastal sage scrub, chaparral, on clay soils, occasionally on serpentine, 100–2,870 feet. Southern Sierra Nevada foothills, San Joaquin Valley, San Francisco Bay area, South Coast Ranges, coastal Southern California.	Occurrences reported in CZ 7 and CZ 10.	N	Y
Hoover's cryptantha <i>Cryptantha hooveri</i>	-/-/1A	Inland dunes and coarse, sandy soil in valley and foothill grassland; 29–492 feet. Northern and central San Joaquin Valley: Contra Costa*, Kern, Madera*, and Stanislaus* Counties.	Historic collection in Antioch in CZ 10 but last seen in 1908 and possibly extirpated due to development.	N	Y
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	-/-/2B.2	Freshwater marshes and swamps; 49–919 feet. Not seen since 1948; occurrences in Butte, Los Angeles, Merced, Sacramento(?), San Bernardino*, and Sonoma Counties; Baja California and elsewhere.	Species does not occur in study area. Nearest occurrence is mapped as best guess by CNDDDB ~2.5 miles east of CZ 4.	N	N
Hospital Canyon larkspur <i>Delphinium californicum</i> subsp. <i>interius</i>	-/-/1B.2	Openings in chaparral, mesic cismontane woodland, on moist slopes and ravines; 754–3,592 feet. Inner South Coast Ranges, eastern San Francisco Bay: Alameda, Contra Costa, Merced, San Benito, Santa Clara, San Joaquin, San Luis Obispo, and Stanislaus Counties.	Species does not occur in study area.	N	N
Recurved larkspur <i>Delphinium recurvatum</i>	-/-/1B.2	Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; 10–2,460 feet. Central Valley from Colusa* to Kern Counties.	Occurrences reported in CZ 8.	N	Y
Western leatherwood <i>Dirca occidentalis</i>	-/-/1B.2	Moist areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland; 82–1,296 feet. San Francisco Bay region, Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma Counties.	Species does not occur in study area.	N	N

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Dwarf downingia <i>Downingia pusilla</i>	-/-/2B.2	Wet areas in valley and foothill grassland, vernal pools; 3–1,460 feet. Inner North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley.	Occurrences reported in or abutting CZ 1, CZ 4, and CZ 11.	Y	Y
Streamside daisy <i>Erigeron biolettii</i>	-/-/3	Moist, rocky areas in broadleaved upland forest, cismontane woodland, North Coast coniferous forest, and ledges along rivers; 98–3,609 feet. North Coast, from Humboldt County to Marin County.	Occurs on west side of CZ 11.	N	Y
Tiburon buckwheat <i>Eriogonum luteolum</i> var. <i>caninum</i>	-/-/1B.2	On sandy to gravelly serpentinite soils in chaparral, coastal prairie, oak woodland, valley and foothill grassland; below 2,296 feet. Central Inner North Coast Range, northern Central coast, and northern San Francisco Bay area: Alameda, Contra Costa, Marin, and Sonoma(?*) Counties	Species does not occur in study area.	N	N
Antioch Dunes buckwheat <i>Eriogonum nudum</i> var. <i>psychicola</i>	-/-/1B.1	Inland dunes; below 66 feet. Known from a single occurrence in the Antioch Dunes, Contra Costa County.	A single occurrence is located in CZ 10.	N	Y
Mt. Diablo buckwheat <i>Eriogonum truncatum</i>	-/-/1B.1	Coarse, sandy soils in chaparral, coastal scrub, valley and foothill grassland; 10–1,148 feet. Historically known from Alameda, Contra Costa, and Solano Counties; recently rediscovered on Mt. Diablo.	Two occurrences reported in CZ 10 and CZ 11.	N	Y
Delta button-celery <i>Eryngium racemosum</i>	-/E/1B.1	Riparian scrub in seasonally inundated depressions on clay soils; 10–98 feet. San Joaquin River delta, floodplains, and adjacent Sierra Nevada Foothills: Calaveras, Contra Costa, Merced, San Joaquin*, and Stanislaus Counties.	Occurrences reported in or abutting CZ 7 and CZ 9.	Y	Y
Contra Costa wallflower <i>Erysimum capitatum</i> var. <i>angustatum</i>	E/E/1B.1	Inland dunes; 10–66 feet. Known only from the Antioch Dunes in Contra Costa County.	Occurrences reported in CZ 10.	Y	Y
Diamond-petaled California poppy <i>Eschscholzia rhombipetala</i>	-/-/1B.1	On alkaline clay soils in grassland, chenopod scrub, where grass cover is sparse enough to allow growth of low annuals; below 3,199 feet. Interior foothills of South Coast Ranges from Alameda County to Stanislaus Counties, Carrizo Plain in San Luis Obispo County.	Two occurrences—one overlaps with CZ 7 and CZ 8 and the other falls within CZ 10.	N	Y

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Stinkbells <i>Fritillaria agrestis</i>	-/-/4.2	Chaparral, cismontane woodland, pinyon-juniper woodland, valley and foothill grassland, on clay or serpentinite substrate; 33–5,102 feet. Alameda, Contra Costa, Fresno, Kern, Mendocino, Monterey, Merced, Monterey, Mariposa, Placer, Sacramento, Santa Barbara, San Benito, San Luis Obispo, San Mateo, Stanislaus, and Tuolumne Counties.	Occurrence reported in CZ 10, other locations adjacent to CZ 7, CZ 8, CZ 9.	N	Y
Fragrant fritillary <i>Fritillaria liliacea</i>	-/-/1B.2	Adobe soils of interior foothills, coastal prairie, coastal scrub, valley and foothill grassland, often on serpentinite; 10–1,345 feet. Coast Ranges from Marin County to San Benito County.	Occurrences reported in CZ 1 and CZ 11.	N	Y
Adobe-lily <i>Fritillaria pluriflora</i>	-/-/B.2	Chaparral, cismontane woodland, valley and foothill grassland, often on adobe soils; 197–2,313 feet. Northern Sierra Nevada foothills, Inner North Coast Ranges, edges of Sacramento Valley.	Species does not occur in study area.	N	N
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	-/E/1B.2	Clay soils in areas of shallow water, lake margins of swamps and marshes, vernal pool margins; 33–7,792 feet. Inner North Coast Ranges, Central Sierra Nevada foothills, Sacramento Valley and Modoc Plateau in Fresno, Lake, Lassen, Madera, Merced, Modoc, Placer, Sacramento, Shasta, Siskiyou, San Joaquin, Solano, and Tehama Counties; also Oregon.	A single occurrence has been reported in CZ 1.	Y	Y
Diablo helianthella <i>Helianthella castanea</i>	-/-/1B.2	At chaparral/oak woodland ecotone, often in partial shade, on rocky soils, also coastal scrub, riparian woodland, broadleafed upland forest, valley and foothill grassland; 197–4,265 feet. San Francisco Bay area: Alameda, Contra Costa, Marin*, San Francisco*, and San Mateo Counties; also reported from San Diego County.	Species does not occur in study area.	N	N
Hogwallow starfish <i>Hesperovax caulescens</i>	-/-/4.2	Vernal pools, clay flats, in grasslands; 0–985 feet. Broadly ranging in California, primarily in Great Valley and adjacent foothills, also in South Coast Ranges, Peninsular Ranges.	Historically collected in CZ 10 in Antioch, also adjacent to or present in CZ 1, CZ 2, CZ 11.	N	Y
Brewer's western flax <i>Hesperolinon breweri</i>	-/-/1B.2	Chaparral, cismontane woodland, valley and foothill grassland usually on soils derived from serpentinite; 98–2,953 feet. Southern North Inner Coast Ranges, northeast San Francisco Bay region, especially Mt. Diablo: Contra Costa, Napa, and Solano Counties.	Species does not occur in study area.	N	N

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Woolly rose-mallow <i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	-/-/1B.2	Freshwater marshes and swamps; below 394 feet. Scattered locations in the Central Valley, including the Delta, from Butte County to San Joaquin County.	Occurrences reported in and abutting CZ 1, CZ 3, CZ 4, CZ 5, CZ 6, CZ 7, CZ 8, and CZ 9.	N	Y
Santa Cruz tarplant <i>Holocarpha macradenia</i>	T/E/1B.1	Coastal terrace grasslands, coastal scrub, often on light sandy to sandy clay soils; 33–722 feet. Coastal slope of the Santa Cruz Mountains, Monterey and Santa Cruz Counties.	Species does not occur in study area.	N	N
Central Coast iris <i>Iris longipetala</i>	-/-/4.2	North and Central Coast, outer North Mesic areas in coastal prairie, lower montane coniferous forest, meadows; 0–2,000 feet. Coast Ranges, San Francisco Bay area.	Species adjacent to but not in study area.	N	N
Carquinez goldenbush <i>Isocoma arguta</i>	-/-/1B.1	Annual grassland on alkaline soils and flats; 3–66 feet. Deltaic Sacramento Valley, Suisun Slough, Contra Costa and Solano Counties.	Occurrences reported in or abutting CZ 1 and CZ 11.	Y	Y
Northern California black walnut <i>Juglans hindsii</i>	-/-/1B.1	Riparian forest, riparian woodland; below 1,443 feet. Last two native stands in Napa and Contra Costa Counties; historically more widespread through southern Inner North Coast Ranges, southern Sacramento Valley, northern San Joaquin Valley, and San Francisco Bay region.	Native stands, which are protected, have been extirpated in study area	N	Y
Contra Costa goldfields <i>Lasthenia conjugens</i>	E/-/1B.1	Wet areas in cismontane woodland, valley and foothill grassland, vernal pools, alkaline playas or saline vernal pools and swales; below 1,542 feet. Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley: Alameda, Contra Costa, Mendocino*, Monterey, Marin, Napa, Santa Barbara*, Santa Clara*, Solano and Sonoma Counties.	Occurrences reported in and abutting CZ 10 and CZ 11.	N	Y
Ferris' goldfields <i>Lasthenia ferrisiae</i>	-/-/4.2	Alkaline vernal pools, wet saline flats; 0–2,300 feet. San Joaquin Valley and valleys of adjacent foothills.	Occurrences reported in CZ 8.	N	Y
Delta tule pea <i>Lathyrus jepsonii</i> subsp. <i>jepsonii</i>	-/-/1B.2	Coastal and estuarine marshes (freshwater and brackish); below 13 feet. San Francisco Bay region, also part of Central Valley in Alameda, Contra Costa, Napa, Santa Clara*, San Joaquin, Solano, and Sonoma Counties.	Occurrences reported in or abutting CZ 1, CZ 3, CZ 4, CZ 5, CZ 6, CZ 10, and CZ 11.	Y	Y
Legenere <i>Legenere limosa</i>	-/-/1B.1	Vernal pools; 3–2,887 feet. Primarily in the lower Sacramento Valley, also from North Coast Ranges, northern San Joaquin Valley and the Santa Cruz mountains.	Occurrences reported in or abutting CZ 1, CZ 4, and CZ 11.	Y	Y

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>heckardii</i>	-/-/1B.2	On margins of alkali scalds in annual grassland; 6–656 feet. Southern Sacramento Valley in Glenn, Merced, Sacramento, Solano, and Yolo Counties.	Occurrences reported in CZ 1, CZ 2, and CZ 4.	Y	Y
Woolly-headed lessingia <i>Lessingia hololeuca</i>	-/-/3	Clay or serpentinite soils of broadleaved upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; 49–1,001 feet. Southern North Coast Ranges, southern Sacramento Valley, northern San Francisco Bay region, Alameda, Monterey, Marin, Napa, Santa Clara, San Mateo, Solano, Sonoma, and Yolo Counties.	Species adjacent to but not in study area.	N	N
Mason's lilaepsis <i>Lilaeopsis masonii</i>	-/-/1B.1	Freshwater or brackish marsh, riparian scrub, in tidal zone; below 33 feet. Southern Sacramento Valley, Sacramento-San Joaquin River Delta, northeast San Francisco Bay area in Alameda, Contra Costa, Marin, Napa, Sacramento, San Joaquin, Solano, and Yolo Counties.	Occurrences reported in or abutting all CZs (CZ 1–CZ 11).	Y	Y
Delta mudwort <i>Limosella subulata</i>	-/-/2B.1	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub; generally at sea level (i.e., below 10 feet). Deltaic Central Valley: Contra Costa, Sacramento, San Joaquin, and Solano Counties; Oregon.	Occurrences reported in or abutting CZ 1, CZ 3, CZ 5, CZ 6, CZ 8, CZ 10, and CZ 11.	Y	Y
Showy madia <i>Madia radiata</i>	-/-/1B.1	Oak woodland, valley and foothill grassland, slopes; 82–3,986 feet., Scattered populations in the interior foothills of the South Coast Ranges: Contra Costa*, Fresno, Kings*, Kern, Monterey*, Santa Barbara*, San Benito, Santa Clara, San Joaquin*, San Luis Obispo, and Stanislaus Counties	Mar–May Species does not occur in study area.	N	N
Hall's bush-mallow <i>Malacothamnus hallii</i>	-/-/1B.2	Chaparral and coastal scrub; 22–2,493 feet. Alameda, Contra Costa, Mendocino, Merced, Santa Clara, San Mateo, and Stanislaus Counties.	Species does not occur in study area.	N	N
Little mouseltail <i>Myosurus minimus</i> subsp. <i>apus</i>	-/-/3.1	Valley and foothill grassland, alkaline vernal pools; 66–2,100 feet. Central Valley and South Coast from Butte County south to San Diego County; Baja California, Oregon.	One occurrence in CZ 8 but no longer considered a valid taxon.	N	N
Cotula-leaf navarretia <i>Navarretia cotulifolia</i>	-/-/4.2	Grassland, oak woodland, openings in chaparral, on adobe clay soils; 0–1,640 feet. Inner North Coast Ranges, western Sacramento Valley, San Francisco Bay area, Inner South Coast Ranges.	Occurrences in CZ 1, CZ 2, and CZ 8.	N	Y



Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Baker's navarretia <i>Navarretia leucocephala</i> subsp. <i>bakeri</i>	-/-/1B.1	Vernal pools and swales in woodland, lower montane coniferous forest, mesic meadows, and grassland; 16–5,709 feet. Inner North Coast Range, western Sacramento Valley: Colusa, Glenn, Lake, Mendocino, Marin, Napa, Solano, Sonoma, Tehama, and Yolo Counties.	Two occurrences—one abuts CZ 1 and the other is in CZ 2.	N	Y
Shining navarretia <i>Navarretia nigelliformis</i> subsp. <i>radians</i>	-/-/1B.2	Mesic areas with heavy clay soils, in swales and clay flats; in oak woodland, grassland; 249–3,281 feet. Interior foothills of South Coast Ranges from Merced County to San Luis Obispo County.	Species does not occur in study area.	N	N
Colusa grass <i>Neostapfia colusana</i>	T/E/1B.1	Adobe soils of large vernal pools; 16–656 feet. Central Valley with scattered occurrences from Colusa to Merced Counties.	One occurrence in CZ 1; species is in a vernal pool that overlaps CZ 1 boundary.	N	Y
Antioch Dunes evening-primrose <i>Oenothera deltoides</i> subsp. <i>howellii</i>	E/E/1B.1	Inland dunes; below 98 feet. Northeast San Francisco Bay region, known from 3 native occurrences; Contra Costa and Sacramento Counties.	Occurrences reported in CZ 5 and CZ 10.	N	Y
Gairdner's yampah <i>Perideridia gairdneri</i> subsp. <i>gairdneri</i>	-/-/4.2	Coastal prairie, grasslands, and grassy openings in coniferous forest; 0–1,150 feet. Widely scattered localities, primarily in coastal California and the North Coast Ranges.	Species adjacent to and potentially present in CZ 11.	N	Y
Bearded popcorn-flower <i>Plagiobothrys hystriculus</i>	-/-/1B.1	Mesic grassland, vernal pools; below 899 feet. Montezuma Hills in Napa, Solano, and Yolo Counties.	Occurrences reported in CZ 1, CZ 2, CZ 11.	N	Y
Eel-grass pondweed <i>Potamogeton zosteriformis</i>	-/-/2B.2	Assorted freshwater marshes, ponds, lakes and streambanks; below 6,102 feet. Scattered locations in northern California: Contra Costa, Lake, Lassen, Modoc, and Shasta Counties; Oregon, Utah, Washington and elsewhere.	A single occurrence is known from CZ 6.	N	Y
Delta woolly marbles <i>Psilocarphus brevissimus</i> var. <i>multiflorus</i>	-/-/4.2	Vernal pools and swales; 30–1,640 feet. Widely scattered occurrences in the Sacramento Valley, northern San Joaquin Valley, San Francisco Bay area.	Species in or adjacent to and likely present in CZ 1, CZ 4 and CZ 11.	N	Y
Sanford's arrowhead <i>Sagittaria sanfordii</i>	-/-/1B.2	Freshwater marshes, sloughs, canals, and other slow-moving shallow water habitats; below 2,132 feet. Scattered locations in Central Valley and Coast Ranges.	Occurrences reported in and abutting CZ 2, CZ 3, CZ 4, CZ 5, and CZ 6.	N	Y

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Marsh skullcap <i>Scutellaria galericulata</i>	-/-/2B.2	Marshes, mesic meadows, seeps, lower montane coniferous forest; below 6,890 feet. Northern High Sierra Nevada, Modoc Plateau in El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Shasta, and Siskiyou Counties. Also known from the Delta in San Joaquin County, Oregon and elsewhere.	Occurrences reported in CZ 4, CZ 5, and CZ 6.	N	Y
Side-flowering skullcap <i>Scutellaria lateriflora</i>	-/-/2B.2	Mesic meadows, marshes and swamps; below 1,640 feet. Known in CA from occurrences in Northern San Joaquin Valley in Sacramento and San Joaquin Counties and east of the Sierra Nevada in Inyo County; New Mexico, Oregon, and elsewhere.	Occurrences reported in CZ 4 and CZ 5.	Y	Y
Chaparral ragwort <i>Senecio aphanactis</i>	-/-/2B.2	Oak woodland, coastal scrub, chaparral, open sandy or rocky areas, on alkaline soils; 49–2,625 feet. Scattered locations in central western and southwestern California, from Alameda County to San Diego County.	Species adjacent to but not in study area.	N	N
Keck's checkerbloom <i>Sidalcea keckii</i>	E/-/1B.1	Serpentine clay soils in cismontane woodland, valley and foothill grassland; 394 feet–1,394 feet. Known historically from only three occurrences in Fresno, Merced, and Tulare Counties; similar plants from Inner North Coast Ranges in Colusa, Napa, Solano, and Yolo Counties treated as this species until further studies completed.	Species adjacent to and possibly in study area.	N	Y
Suisun Marsh aster <i>Symphotrichum lentum</i>	-/-/1B.2	Brackish and freshwater marshes and swamps; below 10 feet. Sacramento - San Joaquin Delta, Suisun Marsh, Suisun Bay: Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties.	Occurrences reported in or abutting CZ 1, CZ 2, CZ 3, CZ 4, CZ 5, CZ 6, CZ 7, CZ 10, and CZ 11.	Y	Y
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	-/-/2B.1	On alkaline soils in floodplains, meadows and seeps, marshes and swamps, riparian forest, vernal pools; 16–1,427 feet. Scattered locations in the Central Valley and Southern Coast; Texas.	A single occurrence has been reported in CZ 7 but was last seen in 1914.	N	Y
Showy rancheria clover <i>Trifolium amoenum</i>	E/-/1B.1	Low elevation grasslands, including swales and disturbed areas, sometimes on serpentinite soils; 16– 1,361 feet. Coast Range foothills in the San Francisco Bay region, currently known from only two recent occurrences in Marin County.	Species adjacent historically to CZ 1 and CZ 11 but not in study area	N	N

Table 12A-1. Continued

Common and Scientific Names	Legal Status <sup>a</sup>		Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State/CRPR	Habitat and Distribution in California			
Saline clover <i>Trifolium hydrophilum</i>	-/-/1B.2	Salt marsh, mesic alkaline areas in valley and foothill grasslands, vernal pools, marshes and swamps; below 984 feet. Sacramento Valley, central western California.	Occurrences reported in CZ 1, CZ 2, CZ 4, and CZ 11.	N	Y
Caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>	-/-/1B.1	Grasslands on alkaline hills; below 1,493 feet. Historically known from the northwest San Joaquin Valley and adjacent Coast Range foothills; currently known from Fresno, Monterey, and San Luis Obispo Counties.	Occurrences reported in or abutting CZ 7, CZ 8, and CZ 9.	N	Y
Solano grass <i>Tuctoria mucronata</i>	E/E/1B.1	Vernal pools, mesic grassland; 16–33 feet. Southwestern Sacramento Valley in Solano and Yolo Counties.	Two occurrences—one reported in CZ 1, the other adjacent to CZ 1 and CZ 11.	N	Y
Oval-leaved viburnum <i>Viburnum ellipticum</i>	-/-/2B.3	Chaparral, cismontane woodland, and lower montane coniferous forest; 705–4,593 feet. Northwest California, San Francisco Bay area, northern and central Sierra Nevada foothills in Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Mendocino, Napa, Placer, Shasta, and Sonoma Counties; Oregon, Washington.	Species does not occur in study area.	N	N

1

**Table 12A-1. Continued**

<sup>a</sup> Status explanations:

**Federal**

- E = listed as endangered under the federal Endangered Species Act.
- T = listed as threatened under the federal Endangered Species Act.
- = no listing.

**State**

- E = listed as endangered under the California Endangered Species Act.
- T = listed as threatened under the California Endangered Species Act.
- R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
- = no listing.

**California Rare Plant Rank<sup>1</sup>**

- 1A = presumed extinct.
  - 1B = rare, threatened, or endangered in California and elsewhere.
  - 2B = rare, threatened, or endangered in California only.
  - 3 = plants about which more information is needed to determine their status.
  - 4 = plants of limited distribution.
  - .1 = seriously endangered in California
  - .2 = fairly endangered in California
  - .3 = not very endangered in California
  - ? = population status within that County uncertain.
  - \* = known populations believed extirpated from that County
- 

<sup>1</sup> In March, 2010, CDFW changed the name of “CNPS List” or “CNPS Ranks” to “California Rare Plant Rank” (or CRPR). This was done to reduce confusion over the fact that CNPS and CDFW jointly manage the Rare Plant Status Review groups (300+ botanical experts from government, academia, non-governmental organizations, and the private sector) and that the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

1 **Table 12A-2. Special-Status Wildlife Species Considered for Analysis [in the Study Area]**

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
<b>Invertebrates</b>						
Ciervo aegilian scarab beetle <i>Aegialia concinna</i>	-/-	G1 S1	Flightless beetle that only occurs in loose sands and sand dunes. Only known to occur in Fresno County.	Not expected to be affected by covered activities	N	N
Blennosperma vernal pool andrenid bee <i>Andrena blennospermatis</i>	-/-	G2 S2	Upland areas near vernal pools. Occurs in central California between Lake and San Joaquin counties; known from locations east and west of the study area	Could occur in vernal pool grasslands in the study area.	N	Y
Antioch Dunes anthicid beetle <i>Anthicus antiochensis</i>	-/-	G1 S1	Loose sand on sand bars and sand dunes. Likely extirpated in Antioch Dunes; also known from near Rio Vista .....	Could occur in dune or sandbar habitat in the study area.	N	Y
Sacramento anthicid beetle <i>Anthicus sacramento</i>	-/-	G1 S1	Sand/slip faces in willows; associated with riparian and other aquatic habitat. On Sacramento and lower San Joaquin rivers and tributaries from Butte County to San Joaquin County	Could occur in sandy riparian habitat in the study area.	N	Y
Lange's metalmark butterfly <i>Apodemia mormo langei</i>	E/-	G5T1 S1	Stabilized sand dunes along the San Joaquin River; endemic to the Antioch Dunes; host plant is nude buckwheat. Distribution limited to Antioch Dunes, in Contra Costa County	Could occur in dune habitat in the BDCP study area	N	Y
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/-	G1 S1	Found in large turbid vernal pools. Occurs from Butte and Tehama counties to Ventura County	Known to occur in the study area.	Y	Y
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>	E/-	G1 S1	Typically found in small pools of relatively short ponding duration and pools with alkali soils. Known to occur in Alameda, Contra Costa, Merced, and San Luis Obispo counties.	Could occur in small, shallow pools associated with alkali soils in the BDCP study area.	Y	Y
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/-	G3 S2S3	Occurs in the Central Valley from Shasta County to Tulare County and the central and southern Coast Ranges from northern Solano County to Ventura County	Known to occur in the study area.	Y	Y
Midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	-/-	G2 S2	Vernal pools. Occurs in Central Valley from Sacramento and Solano counties south to Fresno County;	Known to occur in the study area.	Y	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
San Bruno elfin butterfly <i>Callophrys mossii bayensis</i>	E/-	G4T1 S1	Species is found in the fog-belt of steep north facing slopes in the coastal mountains and is associated with its larval food plant, stonecrop ( <i>Sedum spathulifolium</i> ). All known locations are restricted to San Mateo County.	study area is outside the known range of this species	N	N
Sacramento Valley tiger beetle <i>Cicindela hirticollis abrupta</i>	-/-	G5 TH SH	Required fine to medium sand on terraced floodplains or low sandy water edge flats. Sandy floodplain habitat in the Sacramento Valley. Historic records for Sutter, Colusa and Yolo Counties. Presumed extinct.	Not expected to occur in the BDCP study area because the species is believed to be extinct.	N	N
San Joaquin dune beetle <i>Coelus gracilis</i>	-/-	G1 S1	Species is a flightless beetle that burrows in sand dunes. Occurred historically from Kings County north to Antioch Dunes; presumed extirpated from Antioch Dunes	Unlikely to occur in the BDCP study area because species is believed to be extirpated from the Antioch Dunes.	N	N
Monarch butterfly <i>Danaus plexippus</i>	-/-	G5 S3	Wind-protected tree groves with nearby nectar and water sources. Winter roosts along the coasts from northern Mendocino County to Baja California.	Not likely to occur in the Study area because species wintering habitat is largely restricted to the coastal regions. An historic record for near Fairfield appears to be an anomaly.	N	N
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/-	G3T2 S2	Elderberry shrubs, typically in riparian habitats. Central Valley, including the BDCP Study area, below approximately 3,000 feet elevation	Known to occur in the study area.	Y	Y
Hairy water flea <i>Dumontia oregonensis</i>	-/-	G1G3 S1	Described in 2003 from a specimen taken from a vernal pool in southern Oregon; little is known about its natural history; subsequently detected in vernal pools located in Mather Field and Travis Air Force Base in California.	Known to occur in a vernal pool less than 1 mile outside the BDCP Study area; Could occur in vernal pools throughout the BDCP study area.	N	Y
Antioch efferian robberfly <i>Efferia antiochi</i>	-/-	G1G3 S1S3	No specific habitat information is available; robberfly larvae usually develop in the ground or in rotting wood, where they prey on other insect larvae. Known to occur in the Antioch Dunes, near Danville in Contra Costa County, and in Fresno County.	The BDCP study area is within the range of this species.	N	Y
Delta green ground beetle <i>Elaphrus viridis</i>	T/-	G1S1	Species is only known to occur in south-central Solano County, near Jepson Prairie Preserve. Habitat requirements not well developed, believed that the species prefers more open habitats in the grassland-playa pool matrix.	Jepson Prairie is within the western portion of Conservation Zone 1 of the study area, where the species is known to occur.	N	Y
Redheaded sphecid wasp <i>Eucerceris ruficeps</i>	-/-	G1G3 S1S2	Occur in hard-packed sand. Known from Interior dunes in Western Central Valley from Contra Costa County to Fresno County.	Potential to occur in the BDCP study area.	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Bridges' Coast Range shoulderband <i>Helminthoglypta nickliniana bridgesi</i>	-/-	G2T1 S1	Terrestrial species. Inhabits open hillsides in grasses and weeds. Central and western Contra Costa and Alameda counties.	Species known distribution is outside of the BDCP study area.	N	N
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	-/-	G1G2 S1S2	Aquatic, known to occur in vernal pools l. Recorded in central coastal California and southern Sacramento Valley, known to occur in Solano County near Jepson Prairie	Potential to occur in the BDCP study area.	N	Y
Curved-foot hygrotus diving beetle <i>Hygrotus curvipes</i>	-/-	G1 S1	Small seasonal pools; associated with alkaline plant communities. East Contra Costa and Alameda counties.	Potential to occur in the southern part of the BDCP study area, in Contra Costa County.	N	Y
Middlekauff's shieldback katydid <i>Idiostatus middlekauffi</i>	-/-	G1G2 S1	Interior dunes. Known only from Antioch Dunes	Could occur in dune habitat in the BDCP study area.	N	Y
Vernal pool tadpole shrimp <i>Lepidurus packardi</i>	E/-	G3 S2S3	Occupies a variety of vernal pool habitats Central Valley of California and San Francisco Bay Area	Known to occur at several locations in the study area.	Y	Y
California linderiella <i>Linderiella occidentalis</i>	-/-	G3 S2S3	Vernal pools, swales, and other ephemeral wetlands. Central Valley and central coastal California	Known to occur in the study area.	Y	Y
Moestan blister beetle <i>Lytta moesta</i>	-/-	G2 S2	Associated with flowering plants. Currently found in central California from Stanislaus to Kern County.	Not expected to occur in the BDCP study area because it is outside the species known range.	N	N
Molestan blister beetle <i>Lytta molesta</i>	-/-	G2 S2	Has been collected on <i>Lupinus</i> , <i>Trifolium</i> , and <i>Eriodium</i> . Often associated with dried vernal pools. Occurs in the Central Valley of California	Known to occur in the study area	N	Y
Hurd's metapogon robberfly <i>Metapogon hurdi</i>	-/-	G1G3 S1S3	Sand dunes. Antioch Dunes and historically near Fresno.	Known to occur at Antioch Dunes in the study area.	N	Y
Antioch multilid wasp <i>Myrmosula pacifica</i>	-/-	GH SH	Possibly extinct. Known historically from Antioch Dunes, near the City of Davis, and Inyo County. CNDDDB reports Inyo and Antioch site extant.	Could occur in the study area	N	Y
San Francisco lacewing <i>Nothochrysa californica</i>	-/-	G1G3 S1S3	Occurs in moist oak woodland Possibly extirpated from these locations. Historically occurred from Lake, Napa, Sonoma, and Solano Counties.	Not expected to occur in the BDCP Study area because very little oak woodland occurs in the study area.	N	N

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Antioch andrenid bee <i>Perdita scitula antiochensis</i>	-/-	G1T1 S1	Ground nesting bee that has been collected from <i>Eriogonum</i> , <i>Gutierrezia californica</i> , <i>Heterotheca grandiflourm</i> , and <i>Lessingia gladulifera</i> . Currently known only from Antioch Dunes; formerly occurred in Oakley.	Known to occur in the study area at Antioch Dunes.	N	Y
Antioch specid wasp <i>Philanthus nasalis</i>	-/-	G1 S1	Sand dunes and sand hills. Extirpated from Antioch Dunes, extant in sand hills in Santa Cruz County.	Low potential to occur in the BDCP study area.	N	Y
Callippe silverspot butterfly <i>Speyeria callippe callippe</i>	E/-	G5T1 S1	Grasslands in the hills in the San Francisco Bay Area where the host plant <i>Viola pedunculata</i> is present. Known to primarily occur in the San Francisco peninsula near San Bruno and in the Cordelia Hills.	Documented occurrences in the Study area in the hills west of Interstate 680 (LSA 2009)	N	Y
California freshwater shrimp <i>Syncaris pacifica</i>	E/E	G1 S1	Low-gradient streams with moderate to heavy riparian cover and undercut banks with exposed roots, often in shallow pools or areas away from main flow. Endemic to Marin, Sonoma, and Napa counties	Not expected to occur in the BDCP study area.	N	N
Antioch Dunes halictid bee <i>Sphecodogastra antiochensis</i>	-/-	G1 S1	Nests in stabilized sand dunes, host plant is <i>Oenothera deltoids howelli</i> . Species is restricted to the Antioch Dunes.	Known to occur in the Study area.	N	Y
<b>Amphibians</b>						
California tiger salamander <i>Ambystoma californiense</i>	T/T	G2G3 S2S3	In winter, breeds in vernal pools and seasonal wetlands with a minimum 10-week inundation period; in summer, aestivates in grassland habitat, primarily in rodent burrows. Occurs from Yolo County to Kern County in the Central Valley and up to 2,000 feet elevation in the Sierra Nevada foothills, and from Sonoma County to Santa Barbara County on the coast	There are 23 records for CTS in the study area CNDDDB (2013 and Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report) Most are near Clifton Court Forebay in CZ 7 and 8. DWR observed CRLF in the same. Also known to occur in the western portion north of Suisun Bay in the Potrero Hills and at Jepson Prairie (CZ 1 and 11); could occur elsewhere in vernal pools near the eastern conveyance.	Y	Y



Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
California red-legged frog <i>Rana draytonii</i>	T/SSC	G4T2T3 S2S3	Foothill ponds and streams with none to dense shrubby or emergent riparian vegetation, minimum 11–20 weeks of water for larval development, and upland refugia for aestivation. Occurs primarily in the foothills of the central Coast Ranges, with isolated populations in the Sierra Nevada	There are 29 occurrences (CNDDDB 2013 and Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report); most in CZ 7 and CZ 8 near Clifton Court Forebay, one south of Antioch in CZ 10, and 3 west of I-680 in CZ 11. Unlikely to occur in most areas because it has been extirpated from most of the study area and valley floor.	Y	Y
Western spadefoot <i>Spea hammondi</i>	–/SSC	G3 S3	In winter, breeds in vernal pools and seasonal wetlands with a minimum 3-week inundation period; in summer, aestivates in grassland habitat, in soil crevices and rodent burrows. Range includes the Central Valley and southern Coast Ranges and foothills.	Not expected to occur in the study area.	N	N
<b>Reptiles</b>						
Western pond turtle <i>Emys marmorata</i>	–/SSC	G3G4 S3	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands with low, sparse vegetation. Range spans across California west of the Sierra-Cascade crest, below 5,000 feet in elevation.	There are 62 CNDDDB (2013) occurrences throughout the study area.	Y	Y
Silvery legless lizard <i>Anniella pulchra pulchra</i>	–/SSC	G3G4T3 T4Q	Associated with a variety of vegetation types on sandy soils with accessible moisture, primarily but not exclusively in semistabilized dunes. Patchily distributed from Antioch south along the coast, foothills, San Joaquin Valley, and southern Sierra Nevada.	Could occur in dunes and tailings around Antioch Dunes NWR in the study area. There are 8 occurrences near Antioch and Oakley in the study area (CNDDDB 2013).	N	Y
San Joaquin coachwhip <i>Coluber flagellum ruddocki</i>	–/SSC	G5T2T3 S2?	Open habitats—grasslands, savannas, deserts, open-canopy scrub, and chaparral—with available rodent burrows for cover. Ranges across the San Joaquin Valley and associated foothills to the west.	Could occur in southern upland portion of the study area. There are 3 occurrences within 2 to 5 miles of the study area (CNDDDB 2013)	N	Y
Blaniville's horned lizard <i>Phrynosoma blainvilli</i>	–/SSC		Variety of open habitats, including chaparral, oak savanna, and grassland; found primarily in areas with sandy, friable soils, scattered shrubs, and abundant ant colonies. Range includes most of west-central and southwestern California below 8,000 feet elevation.	Could occur in the stabilized dunes along the western conveyance and the grasslands near Clifton Court Forebay and north of Stone Lake. There are 18 occurrences within 1.3 to 15 miles of the study area (CNDDDB 2013).	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Giant garter snake <i>Thamnophis gigas</i>	T/T	G2G3 S2S3	Forages in slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation/drainage ditches; also requires upland refugia not subject to flooding during the snake's inactive season. Range spans the southern Sacramento and northern San Joaquin valleys.	Documented in the Coldani Marsh/White Slough and Yolo Basin/Willow Slough and several other locations throughout the study area. There are 49 occurrences within the study area (CNDDDB 2013).	Y	Y
<b>Birds</b>						
Cooper's hawk <i>Accipiter cooperii</i>	-/WL (nesting)	G5 S3	Nests and forages primarily in riparian woodlands and other wooded habitats. Year-round range spans most of the wooded portions of California.	Could occur throughout the study area where patches of suitable wooded habitat are present; One nest was detected during DHCCP surveys in CZ 5.	N	Y
Tricolored blackbird <i>Agelaius tricolor</i>	BCC/SSC (nesting)	G2G3 S2	Nests colonially in large, dense stands of freshwater marsh, riparian scrub, and other shrubs and herbs; forages in grasslands and agricultural fields. year-round resident throughout the Central Valley and the central and southern coasts, with additional scattered locations throughout California.	High potential to occur throughout the Study area; There are 3 CNDDDB occurrences - one in CZ 1, and two in CZ 7. In addition, there are 48 occurrences from other surveys including DHCCP surveys.	Y	Y
Grasshopper sparrow <i>Ammodramus savannarum</i>	-/SSC (nesting)	G5 S2	Nests and forages in dense grasslands; favors a mix of native grasses, forbs, and scattered shrubs. Breeding range spans much of the Central Valley and California coast, but populations are typically localized and disjunct; most individuals migrate, although some may be present year-round.	Known to occur in the Yolo Bypass Wildlife Area and the northeast and southeast portions of the study area including Cosumnes River Preserve and the grasslands surrounding Clifton Court Forebay; There is one CNDDDB occurrence in CZ 11. In addition, five active nests were detected during DHCCP surveys in CZ 4 and CZ 8. The species may also occur in other portions of the study area.	N	Y
Tule greater white-fronted goose <i>Anser albifrons elgasi</i>	-/SSC (wintering)	G5T2T3 S2S3	Forages primarily in marshes dominated by tules, bulrushes, and cattails; forages to a lesser extent in rice and other grain fields. Breeding range is outside of California; wintering populations are concentrated primarily in Sacramento Valley wildlife refuges and surrounding rice fields; Suisun Marsh uplands in Grizzly Island Wildlife Area, and nearby duck clubs; and marginally the Napa Marshes.	Occurs primarily in Suisun Marsh in the western portion of the study area. Impacts are discussed in the shorebirds and waterfowl sections of Chapter 12.	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Golden eagle <i>Aquila chrysaetos</i>	BCC/ FP, WL (nesting, wintering)	G5 S3	Nests and forages in a variety of open habitats, including grassland, shrubland, and cropland; most common in foothill habitats; rare foothill breeder; nests in cliffs, rock outcrops, and large trees. Winter range spans most of California; breeding range excludes the Central Valley floor	Low potential for nesting pairs to occur in the Study area due to lack of suitable habitat; One CNDDDB record on the western border of the study area; non breeding individuals may forage throughout the area's uplands and have a high potential to occur in the scrub and grasslands of the southern portion near Clifton Court Forebay	N	Y
Great egret <i>Ardea alba</i>	-/CFGC, rookeries (nesting colony)	G5 S4	Nests colonially in tall trees; forages in freshwater and saline marshes, shallow open water, and occasionally cropland or low, open upland habitats, such as pastures. Year-round range spans the Central Valley, central coast, and portions of southern California; winter range expands to include the remainder of the coast	May nest and forage throughout the Study area; rookeries have been documented throughout the Study area, especially on protected lands and instream islands; There are two CNDDDB records of great egret rookeries in CZ 4. DHCCP surveys detected 11 rookeries that contained great egret throughout the central study area.	N	Y
Great blue heron <i>Ardea herodias</i>	-/CFGC, rookeries	G5 S4	Nests colonially in tall trees; forages in freshwater and saline marshes, shallow open water, and occasionally cropland or low, open upland habitats, such as pastures. Year-round range spans most of California except the eastern portion of the State and the highest elevations; winter range expands to include eastern California	Nests and forages throughout the Study area, especially on protected lands and instream islands. There are two CNDDDB records of great blue heron rookeries in CZ 4 and CZ 5. In addition, DHCCP surveys detected 19 great blue heron rookeries.	N	Y
Short-eared owl <i>Asio flammeus</i>	-/SSC (nesting)	G5 S3	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes. Breeding range is patchily distributed throughout the State, including portions of the Sacramento and San Joaquin valleys, northeastern California, and a few scattered coastal sites.	Grizzly Island in Suisun Marsh supports the only known breeding population in the Study area, although small numbers have been documented episodically at the Cosumnes River Preserve and in Byron in Contra Costa County. There is one CNDDDB occurrence which encompasses Grizzly Island.	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Long-eared owl <i>Asio otus</i>	-/SSC (nesting)	BDCP List G5 S3	Uses riparian deciduous forest, conifer forests, mixed forests. Uncommon yearlong resident throughout California except the Central Valley, some coastal areas, and Coachella and Imperial Valleys of Southern California.	Does not nest in the Study area	N	N
Burrowing owl <i>Athene cunicularia</i>	BCC/SSC (nesting)	G4 S2	Nests and forages in grasslands, agricultural fields, and low scrub habitats, especially where ground squirrel burrows are present; occasionally inhabits artificial structures and small patches of disturbed habitat. Year-round range includes the Central Valley and Delta and portions of the central coast, eastern California, and southern California	May occur throughout the Study area where habitat is suitable; documented on Brannan Island and near Suisun Bay and Clifton Court Forebay; There are 144 CNDDDB occurrences, in addition, DHCCP and other surveys have documented 27 occurrences of the species, primarily in CZ 8.	Y	Y
Redhead <i>Aythya americana</i>	-/SSC (nesting)	G5 S3?	Nests in freshwater emergent wetlands with dense patches of tules or cattails interspersed with open water more than 1 meter deep; forages by diving in deep open water. Year-round range is patchily distributed through portions of the Central Valley, northeastern California, and southern California	Known to nest in the Yolo Bypass, but no recent nesting records occur elsewhere in the Study area; No CNDDDB or DHCCP records of nesting; potential to nest at freshwater duck clubs that maintain summer water at depths greater than 3 feet with suitable surrounding marsh; Impacts are discussed in the shorebirds and waterfowl sections	N	Y
Ferruginous hawk <i>Buteo regalis</i>	BCC/WL (wintering)	G4 S3S4	Forages most commonly in grasslands and shrublands; also forages in agricultural fields. Winter range spans most of California except the higher elevations of the Sierra Nevada and northern Coast Ranges; does not nest in California	No potential for nesting individuals in the Study area, because outside of breeding range; individuals may forage in winter throughout the uplands of the Study area; most likely to occur foraging in the scrub and grasslands of the southern portion near Clifton Court Forebay and in the west tail of the study area; there are 3 CNDDDB occurrences in CZs 4, 8, and 11.	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Swainson's hawk <i>Buteo swainsoni</i>	BCC/T (nesting)	G5 S2	Nests in isolated trees, open woodlands, and woodland margins; forages in grasslands and agricultural fields. Breeding range spans the Central Valley and Delta west of Suisun Marsh, northeastern California, and a few additional scattered sites; most of the population migrates south of California in fall/winter, although a small number winters in the Delta	There are 456 extant CNDDDB occurrences of Swainson's hawk in the study area. In addition, DHCCP and other surveys have detected 306 Swainson's hawk nests in the study area.	Y	Y
Western snowy plover <i>Charadrius alexandrinus nivosus</i>	T, BCC/SSC (nesting)	G4T3 S2	Nests and forages on sandy and gravelly beaches along the coast and the shores of inland alkali lakes. Breeds in coastal California and near alkali lakes in eastern California and remnant alkali playas in the southern San Joaquin Valley	Not expected to occur in the Delta or Suisun Marsh because these areas are outside of the species' known range; Only 3 nesting records for the species in Yolo County since 1945: the Yolo Bypass, Davis Sewage Ponds, and Woodland Sugar Ponds; no other recent records exist for the Delta or Sacramento Valley	N	N
Mountain plover <i>Charadrius montanus</i>	PT, BCC/SSC (wintering)	G2 S2	Forages in short grasslands and plowed agricultural fields where vegetation is sparse and trees are absent. Winter range spans the western Central Valley, including areas of the Delta east of Suisun Marsh, and portions of southern California; does not breed in California.	Potential to occur throughout the Study area where habitat is suitable. There are two CNDDDB occurrences of mountain plover in the west tail of the study area along Flannery Road, which is also a traditional wintering area for the species.	N	Y
Black tern <i>Chlidonias niger</i>	-/SSC (nesting colony)	BDCP List G4 S2	Nests in emergent vegetation along the shoreline periphery of freshwater lakes, wetlands, and marshes along rivers and ponds; forages in wet meadows, pastures, agricultural fields, and water. Breeding range is in northeastern California, north of Lake Tahoe. In the Central Valley, breeding primarily occurs in rice fields in the Sacramento Valley, but also includes small areas of rice in the San Joaquin and Yolo Basins. Suitable habitat in the study area includes rice in CZ 2.	This species has been documented in the study area in rice fields in the Yolo Basin in CZ 2.	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Northern harrier <i>Circus cyaneus</i>	-/SSC (nesting)	G5 S3	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes. Breeding range encompasses much of lowland California; winter range expands to include the remaining lowland areas.	but suitable nesting and foraging habitat occurs throughout the study area. There are no CNDDDB occurrences of northern harrier in the study area. However, 38 northern harrier nests were detected during DHCCP surveys. Nesting has been documented in the eastern portion of Suisun Marsh and near Clifton Court Forebay but suitable nesting and foraging habitat occurs throughout the study area.	N	Y
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	PT, BCC/E	G5 S3	Nests in valley, foothill, and desert riparian forest with densely foliated deciduous trees and shrubs, especially willows; other associated vegetation includes cottonwood trees, blackberry, nettle, and wild grape. Historically common but now a rare summer resident at isolated sites in Sacramento Valley in northern California and along Kern and Colorado River systems in southern California; occasionally documented in Colusa, Glenn, Butte, Sutter, and Yolo counties within the last 20 years.	Present, but unconfirmed breeding within the study area during 2009 BDCP surveys at a location north of Walnut Grove, California. There is one CNDDDB occurrence along the Stanislaus River in the south-eastern corner of the study area.	Y	Y
Yellow warbler <i>Dendroica petechia brewsteri</i>	BCC/SSC (nesting)	G5T3? S2	Nests and forages in early successional riparian habitats. Range includes coastal and northern California and the Sierra Nevada below approximately 7,000 feet; mostly extirpated from the southern Sacramento and San Joaquin valleys	A single breeding pair was recorded in 2002 in the San Joaquin National Wildlife Refuge and nesting territories there have increased to up to 25 territories in 2011 in the San Joaquin Wildlife Refuge during the breeding season.	N	Y
Snowy egret <i>Egretta thula</i>	-/CFGC, rookeries	G5 S4	Nests colonially in dense marshes and low trees; forages in freshwater and saline marshes, shallow open water, and occasionally irrigated cropland or wet upland habitats. Year-round range spans the Central Valley, Delta, entire coast, central Coast Ranges, and southeastern California; winter range expands to include northeastern California	May nest and forage throughout the Study area where suitable habitat exists. Four snowy egret rookeries (representing eight individuals) were detected in the north Delta in riparian trees on preserved lands adjacent to or in marsh complexes.	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
White-tailed kite <i>Elanus leucurus</i>	-/FP (nesting)	G5 S3	Forages in ponds, marshes, slow-moving streams, sloughs, and irrigation/drainage ditches; nests in nearby uplands in valley/foothill riparian or other trees associated with compatible foraging habitat. Year-round range spans the Central Valley, Coast Ranges and coast, Sierra Nevada foothills, and Colorado River	May nest and forage throughout the study area. There are seven CNDDDB occurrences in the study area. Nine nests were recorded in 2009 and one in 2011 during DHCCP surveys documented in the Delta along the Sacramento River west of Stone Lake, and in the north-central and east-central Delta.	Y	Y
California horned lark <i>Eremophila alpestris actia</i>	-/WL	G4T3Q S3	Nests and forages in open habitats with sparse vegetation, including grasslands and fallow agricultural fields. Year-round range spans most of lowland California	May nest and forage in the study area where habitat is suitable, particularly in the grasslands and alkali sink habitat in the southern portion near Clifton Court Forebay and the western tail of the study area.	N	Y
Merlin <i>Falco columbarius</i>	-/WL (wintering)	G5 S3	Forages in a wide variety of habitats, but in the Central Valley is most common around agricultural fields and grasslands. Winter range encompasses most of California except the highest elevations; does not breed in California	May forage in winter throughout the study area, but would not be significantly impacted by BDCP activities.	N	N
Prairie falcon <i>Falco mexicanus</i>	BCC/WL (nesting)	G5 S3	Forages most commonly in grasslands and low shrublands; also forages in agricultural fields. Year-round range includes eastern California, the Coast Ranges, and much of southern California; winter range expands to include the Delta, Central Valley, and coastal California	Low potential for nesting pairs to occur in the study area due to lack of suitable habitat. May forage in suitable habitats during post-breeding dispersal, migration, or winter, particularly in grassland surrounding the Clifton Court Forebay	N	N
American peregrine falcon <i>Falco peregrinus anatum</i>	BCC/FP, E (nesting)	G4T3 S2	Forages in a wide variety of habitats, but is most common near water, where shorebirds and waterfowl are abundant. Year-round range includes the Sierra Nevada, Cascade Range, northeastern California, Coast Ranges, and coast; winter range expands to include the Central Valley and the Delta and additional portions of eastern and southern California	Not expected to nest in the study area because these areas are outside of the published breeding range; may forage in winter throughout these areas	N	N

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	BCC/SSC	G5T2 S2	Primarily brackish marsh with dense and continuous wetland or riparian vegetation down to the water surface; however, to a lesser degree, also uses woody swamp/riparian and freshwater marsh; often found in rush, tall grass, and willow-dominated communities. Endemic to the greater San Francisco Bay Area with boundaries being Santa Clara County to the south, Carquinez Straight to the east, the Napa Marsh in southern Sonoma County to the north, and western Marin County to the west.	Not expected to occur in the study area with the exception of Suisun Marsh and Sherman Island where CNDDDB documents 17 occurrences, some nesting. However, subspecies identification may be suspect (Gardali and Evens 2008)	N	Y
Lesser sandhill crane <i>Grus canadensis canadensis</i>	-/SSC (wintering)	G5T4 S3S4	Forages primarily in croplands with waste grain; also frequents grasslands and emergent wetlands. Does not breed in California; Winter range is concentrated in Merced County and the Sacramento-San Joaquin Delta. Cranes also winter regularly in Sacramento Valley, San Joaquin River NWR, Tulare Basin, Carrizo Plain, and in smaller numbers in southern California south of the Salton Sea	May forage during winter throughout the study area.	N	Y
Greater sandhill crane <i>Grus canadensis tabida</i>	-/T, FP (nesting, wintering)	G5T4 S2	Forages primarily in croplands with waste grain; also frequents grasslands and emergent wetlands. Winter range includes the Central Valley and Delta, Carrizo Plain, southern California south of the Salton Sea, and Colorado River; breeds in northeastern California	May forage during winter throughout the study area	Y	Y
Bald eagle <i>Haliaeetus leucocephalus</i>	BCC/E, FP (nesting, wintering)	G5 S2	Forages primarily in large inland fish-bearing waters with adjacent large trees or snags, and occasionally in uplands with abundant rabbits, other small mammals, or carrion. Breeding range includes the Sierra Nevada, Cascade Range, and portions of the Coast Ranges; winter range expands to include most of the State except southeastern California (although the species occurs along the Colorado River)	Not expected to nest in the study area; in winter, could forage in the study area along large rivers and in areas managed for waterfowl.	N	N



Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Yellow-breasted chat <i>Icteria virens</i>	-/SSC (nesting)	G5 S3	Nests and forages in riparian thickets of willow and other brushy tangles near water and thick understory in riparian woodland. Breeding range includes the northern Sacramento Valley, Cascade Range, Sierra Nevada foothills, northwestern California, most of the Coast Ranges, the Colorado River, and other scattered sites, migrates south of California in fall/winter	Nests in patches of the study area where habitat is suitable. There are no CNDDDB occurrences of yellow-breasted chat from the study area. However, DHCCP surveys documented 13 occurrences in 2009 surveys, nine in 2010, and 29 in 2011 during the breeding season (although no nests were confirmed).	Y	Y
Least bittern <i>Ixobrychus exilis</i>	BCC/SSC (nesting)	G5 S1	Nests and forages in cattail and bulrush marshes. Current breeding range is scattered in patches of the Sacramento and San Joaquin valleys, Clear Lake, marshes around several large lakes in eastern California, and portions of southern California, where they also winter	Known to occur on Joice Island in Suisun Marsh; low probability of occurrence in other portions of the study area, particularly the marshes in the southeast and central Delta, and potentially in private duck clubs; a few individuals have been documented in the Yolo Bypass, Freeport in Sacramento County, and Palm Tract in Contra Costa County, but the Delta is no longer a major population center for the species. DHCCP surveyors recorded one Least Bittern in a tule marsh at Stone Lakes National Wildlife Refuge in 2010.	N	Y
Loggerhead shrike <i>Lanius ludovicianus</i>	BCC/SSC (nesting)	G4 S4	Nests in isolated shrubs and trees and woodland/scrub edges of open habitats; forages in grasslands, agricultural fields, and low scrub habitats. Breeding range spans much of lowland California, and winter range includes most lowland areas south of Glenn County	May occur throughout the study area, especially in the Clifton Court Forebay area.	N	Y
California gull <i>Larus californicus</i>	-/WL (nesting colony)	G5 S2	Annual grasslands, perennial grasslands, emergent wetlands, pastures, and irrigated hayfields; fairly common nester at alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades, and an abundant visitor to coastal and interior lowlands in nonbreeding season	Does not nest in the study area with the possible exception of small colonies in the far western end.	N	N

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
California black rail <i>Laterallus jamaicensis coturniculus</i>	BCC/T, FP	G4T1 S1	Nests and forages in saline, freshwater, or brackish emergent marshes with gently grading slopes and upland refugia with vegetative cover beyond the high-water line. Year-round range includes Suisun Marsh, San Pablo Bay, Morro Bay, a few patches in the Sierra Nevada foothills, and portions of southern California; winter range expands to include San Francisco Bay and the Marin County coast	There are 40 CNDDDB occurrences within the study area. Most are from Suisun Marsh in CZ 11, though several occurrences have been reported in the central Delta. DHCCP surveys in the Delta detected two presumed nest sites in 2009, 24 presumed nest sites in 2010 and three presumed nest sites in 2011, most of which occurred in CZ 6.	Y	Y
Lewis' woodpecker <i>Melanerpes lewis</i>	BCC/- (nesting)	BDCP List G5 SNR	Associated with oak woodlands and mixed oak conifer habitat, but also can be found in a variety of open forest stands including ponderosa pine and cottonwood-dominated riparian areas; range is throughout most of California except the desert regions.	Does not nest in the study area	N	N
Song sparrow ("Modesto" population) <i>Melospiza melodia</i>	-/SSC	G5 S3?	Nests and forages primarily in emergent marsh, riparian scrub, and early successional riparian forest habitats, and infrequently in mature riparian forest and sparsely vegetated ditches and levees. Year-round range includes the Delta east of Suisun Marsh, the Sacramento Valley, and the northern San Joaquin Valley	Known to forage in the Delta, along Threemile Slough ;nests and forages throughout the study area.	N	Y
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	BCC/SSC	G5T2 S2	Nests and forages in brackish water marshes dominated by cattails, tules, and pickleweed. Year-round range includes the marshes surrounding Suisun Bay, from the confluence of the Sacramento and San Joaquin rivers to the Carquinez Strait;	There are 25 CNDDDB occurrences in Suisun Marsh. However, not expected in the remainder of the Delta or study area.	Y	Y
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	BCC/SSC	G5T2? S2?	Coastal salt marshes dominated by pickleweed; nests in gumplant bordering slough channels. Year-round range includes the marshes surrounding San Pablo Bay and northern San Francisco Bay	The species range does not extend into the study area. Unlikely to occur in the study area.	N	N
Long-billed curlew <i>Numenius americanus</i>	BCC/WL (nesting)	BDCP List G5 S2	Breeds on grazed, mixed-grass and shortgrass prairies. Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands; breeds in northeastern California; winters along the California coast and in the Central and Imperial valleys.	Does not nest in the study area.	N	N

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Black-crowned night-heron <i>Nycticorax nycticorax</i>	-/- (nesting colony)	G5 S3	Nests colonially in dense marshes, groves of low trees, and dense shrubs; forages in freshwater and saline marshes and in shallow open water at the edge of marsh vegetation. Year-round range includes much of lowland California	Four black-crowned night heron rookeries (representing 12 herons) were recorded during DHCCP surveys. Two were located in riparian scrub in the south Delta near Clifton Court Forebay. The other two were located in riparian trees north and south of Walnut Grove.; may nest and forage throughout the study area.	N	Y
Osprey <i>Pandion haliaetus</i>	-/WL (nesting)	G5 S3	Forages exclusively in fish-bearing waters; nests in nearby trees or tall, constructed platforms. Breeding range includes most of northern California, the central Coast Ranges, and the southern Sierra Nevada; winter range also includes the central coast and additional portions of southern California	Nests in the study area and could forage throughout the study area in winter.	N	Y
Bryant's savannah sparrow <i>Passerculus sandwichensis alaudinus</i>	-/SSC	G5T2T3 S2S3	Nests on the ground in open-cup nests near bunched grasses or under matted plants. Endemic to California. Species range centers around the San Francisco Bay but extends along the coast between Morro Bay and Humboldt Bay.	BDCP study area is outside of the range of the species; few nesting records in Suisun Marsh but low potential to be impacted by Plan activities.	N	N
Double-crested cormorant <i>Phalacrocorax auritus</i>	-/WL (rookeries) (nesting colony)	G5 S3	Forages in open water; breeds colonially in rock ledges and trees. Breeding range spans the Study area, the coast and offshore islands, Clear Lake, the Salton Sea, the Colorado River, and portions of northeastern California; winter range expands to include the Central Valley and additional portions of southern California	May nest and forage throughout the study area. There are 4 CNDDDB occurrences in CZ 4 and 5. Eight rookeries (representing over 300 individuals) were detected throughout the Delta in riparian trees primarily on instream islands or existing preserves.	N	Y
White-faced ibis <i>Plegadis chihi</i>	-/WL (rookeries) (nesting colony)	G5 S1	Forages in wetlands and irrigated or flooded croplands and pastures; breeds colonially in dense freshwater marsh. Year-round resident in scattered locations in the Central Valley and southern California; also nests in northeastern California	Breeds in the Yolo Basin Wildlife Area, but there is a low likelihood of nesting in the remainder of the study area; may forage there during winter and migration	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Purple martin <i>Progne subis</i>	-/SSC (nesting)	G5 S3	Nests in tree cavities, bridges, utility poles, lava tubes, and buildings; forages in foothill and low montane oak and riparian woodlands, and less frequently in coniferous forests and open or developed habitats. Breeding range includes the Sierra Nevada, Cascade Range, portions of the Coast Ranges and coast, and parts of southern California; extirpated from the Delta, and nesting in the Central Valley has been reduced to transportation structures in and around the city of Sacramento	Not expected in the study area except small numbers during migration.	N	N
California clapper rail <i>Rallus longirostris obsoletus</i>	E/E, FP	G5T1 S1	Nests and forages in dense cordgrass and cattail marshes with vegetated refugia during the highest tides. Year-round near coastal range, surrounds San Francisco and San Pablo bays, and documented at several locations in Suisun Bay	Range does not include the study area with the exception of Suisun Marsh.	Y	Y
Bank swallow <i>Riparia riparia</i>	-/T (nesting)	G5 S2S3	Nests in vertical banks or bluffs, typically adjacent to water, devoid of vegetation, and with friable, eroding soils; forages in a wide variety of habitats. Breeds in much of lowland and riparian California, with 75 percent nesting colonies along the Sacramento and Feather rivers and their tributaries; additional breeding locations are scattered throughout the northern and central portions of the State; migrates south of California in fall/winter	Low probability of nesting in much of the study area because suitable bank conditions are rare; however, one nesting colony has been documented in the Delta in Brannan Island State Recreation Area and two colonies have been recorded in Yolo County at the north end of the study area.	N	Y
California least tern <i>Sternula antillarum browni</i>	E/E, FP	G4T2T3 Q S2S3	Prefers undisturbed nest sites on open or sparsely vegetated, sandy, or gravelly shores on beaches or near shallow-water estuaries where it often feeds; has reportedly also nested on landfills and paved areas. The Pacific Coast from San Francisco to Baja California; winters in Mexico; when feeding, follows schools of fish and is sometimes seen as far north as southern Oregon	Documented nesting in the western portion of study area in CZ 11 in Suisun Marsh and at the Pittsburgh Generating Plant.	N	Y
Least Bell's vireo <i>Vireo bellii pusillus</i>	E/E (nesting)	G5T2 S2	Nests and roosts in low riparian thickets of willows and shrubs, usually near water but sometimes along dry, intermittent streams; other associated vegetation includes cottonwood trees, blackberry, mulefat, and mesquite (in desert). Formerly a common and widespread summer resident throughout Sacramento and San Joaquin valleys, and in the coastal valleys and foothills from Santa Clara County south, but its numbers have drastically declined, and the species has vanished from much of its California range;	A recent sighting in April 2010 of two singing males in the Yolo Bypass Wildlife Area, and a second sighting of least Bell's vireo in the spring of 2011 suggests the species may have the potential to re-establish within the study area; could expand range with riparian restoration.	Y	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	-/SSC (nesting)	G5 S3S4	Nests in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Breeding range includes primarily the Central Valley, northeastern California, and portions of southern California; most individuals migrate south of California in winter.	May occur in freshwater marshes throughout the study area, particularly in the southern half, but also known to occur in the northern portion of the study area, south of the city of Sacramento.	N	Y
Bell's sage sparrow <i>Amphispiza belli belli</i>	BCC/WL	G5T2T4 S2?	Occurs in coastal scrub and chaparral habitats; uncommon to common resident in the Coast Ranges of California from Marin County and Trinity County to Baja California; also uncommon but localized resident along the western slope of the central Sierra Nevada from El Dorado County to Mariposa County.	Not expected to occur in the study area due to lack of suitable habitat.	N	N
Cackling (Aleutian Canada) goose <i>Branta hutchinsii leucopareia</i>	-/- (wintering)	G5T4 S2	Feeds in fields near safe roosting areas on open water or lakes or ponds; primary wintering grounds are in Central Valley, including the Yolo Basin and various locations in the delta.	Could potentially be affected by restoration activities. Impacts are discussed in the shorebirds and waterfowl sections.	N	Y
<b>Mammals</b>						
Pallid Bat <i>Antrozous pallidus</i>	-/SSC	H G5 S3	Deserts, grasslands, shrublands, woodlands, and forests; most common in open, dry habitats; typically roosts in rock crevices, also in tree hollows, bridges, and buildings, in colonies ranging from 1 to more than 200 individuals. Year-round range spans nearly all of California	May roost and forage throughout the Delta, with the highest likelihood in the uplands that surround Clifton Court Forebay Potential call identified during acoustic surveys in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report)	N	Y
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	-/C	H G4 S2S3	This species may use several alternate roost sites (Woodruff and Ferguson 2005). Typically roosts in colonies of fewer than 100 individuals in caves or mines; occasionally roosts in buildings or bridges, and rarely, hollow trees; forages in all habitats except alpine and subalpine, although most commonly in mesic forests and woodlands. Year-round range spans most of California except the highest elevations of the Sierra Nevada south of Lake Tahoe.	May occur in the Delta but suitable roosting habitat is limited. The nearest record is approximately 6.4 miles (CNDDDB 2013). Possible Townsend's big-eared bat guano found under two bridges during bridge surveys in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report)	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Berkeley kangaroo rat <i>Dipodomys heermanni berkeleyensis</i>	-/-	G3G4 T1 S1	Limited distribution; known primarily from short grass prairies west of the planning area	Unlikely to occur in the study area	N	N
Western mastiff bat <i>Eumops perotis californicus</i>	-/SSC	H G4T4 S3	Typically roosts in crevices in cliffs and rocky outcrops, in colonies of fewer than 100 individuals. May also roost in bridges, caves and buildings that allow sufficient height and clearance for dropping into flight. There is at least one record of this species roosting in an untrimmed palm tree. Forages in a variety of grassland, shrub, and wooded habitats, including riparian and urban areas, although most commonly in open, arid lands. Year-round range spans most of California, with records absent from the northwest and northeast portions of the State	May occur throughout the Delta but suitable roosting habitat is limited. Not detected during DWR acoustic surveys in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report	N	Y
Silver-haired bat <i>Lasionycteris noctivagans</i>	-/-	M G5 S3S4	Typically roosts in tree cavities, crevices and under loose bark. May also use leaf litter, buildings, mines and caves. Breeds in coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats; may occur in any habitat during migration. Breeding range does not include the Delta; only a few scattered breeding locations are known in the San Francisco Bay Area, Central Valley, or central coast, all outside of the legal Delta, which lacks suitable habitat.	May occur throughout California during migration. This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report). Documented occurrence in the Montezuma Hills, adjacent to planning area (Curry et al 2010).	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Western red bat <i>Lasiurus blossevillii</i>	-/SSC	H G5 S4?	Mature riparian broadleaf forest in the Central Valley is primary summer breeding habitat for the species in California (females and pups). Riverside orchards may also be used as maternity roosts. Roosts alone or in small family groups in tree foliage, occasionally shrubs; prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging, including grasslands, shrublands, and open woodlands. Unsubstantiated records of hibernation in leaf litter during the winter. Year-round range spans the Central Valley, Sierra Nevada foothills, Coast Ranges, and coast except Humboldt and Del Norte counties.	There are six reported occurrences in the study area (CNDDDB 2013). Documented foraging in most habitat types in the Delta; roosting documented in the Delta in Brannan Island State Recreation Area near the central portion of the western conveyance in 2009 (Appendix 12C, <i>2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report</i> ). Occurrence documented in the fall in the Montezuma Hills (SMUD 2010). Acoustical records during maternity season in riparian habitat along Sacramento River in West Sacramento. (ICF 2011 unpublished data) and at several locations within the planning area (Pierson 2006).	N	Y
Hoary bat <i>Lasiurus cinereus</i>	-/-	M G5 S4?	Ranges widely, but populations in the Central Valley are most likely non-reproductive or migratory. Typically roosts alone in a variety of broadleaf tree species such as cottonwood and sycamore; also found roosting in conifers. May be found in a range of vegetation and roost substrates during migration.	There are 4 reported occurrences in the study area (CNDDDB 2013). This species was detected in the study area in 2009 (Appendix 12C, <i>2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report</i> and CNDDDB 2012). Documented occurrence during migration in the Montezuma Hills, adjacent to Planning Area (SMUD 2010).	N	Y
Riparian woodrat <i>Neotoma fuscipes riparia</i>	E/SSC	G5 T1	Riparian forest, particularly dense willow thickets with an oak overstory. Extirpated from most of historic range and now restricted to Caswell Memorial State Park on the Stanislaus River, at the confluence with the San Joaquin River and an historic occurrence from 1970s near Vernalis.	There is one reported occurrence near Vernalis from 1935 near the study area (CNDDDB 2013). Two extant populations, the one documented at Caswell Memorial State Park and the other unconfirmed near Vernalis, suggests there is potential for the riparian woodrat to occur in CZ 7.	Y	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Big free-tailed bat <i>Nyctinomops macrotis</i>	-/SSC	MH G5 S2	Roosts on high cliffs or rocky outcrops in low-lying, arid areas in southern California. Rare and not thought to breed in California; more common in New Mexico, southern Arizona, and Texas; one female specimen collected in Contra Costa County in 1979, but others are all located in south and southeastern California; also 1916 CNDDDB record from Suisun City.	This species' typical range does not include central and northern California. Not expected to occur in the study area	N	N
San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>	-/-	G4 T2T3 S2S3	Inhabits grassland and scrub habitats with friable soils. Year-round range spans the San Joaquin Valley, Delta, Sacramento Valley through Colusa County, and portions of the southern Coast Ranges.	May occur in grasslands in the Delta, particularly the grassland-vernal pool complex northeast of Stone Lake; documented in the southern portion of the Delta near Clifton Court Forebay.	N	Y
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	E/E, FP	G1G2 S1S2	Saline emergent marshes with low, dense cover of vegetation (especially pickleweed) and higher elevation refugia. Year-round range includes the marshes surrounding Suisun, San Pablo, and San Francisco bays, with the Collinsville-Antioch area forming the eastern limit of the range.	Within the study area, salt marsh harvest mouse occurs in the Suisun Marsh as far east as Collinsville, although patches of suitable habitat may exist along the western edge of Sherman Island.	Y	Y
Suisun shrew <i>Sorex ornatus sinuosus</i>	-/SSC	G5T1 S1	Suisun shrew is endemic to tidal wetlands of Solano, Napa, and eastern Sonoma counties. It is currently restricted to isolated remnants of natural tidal wetlands along the northern borders of San Pablo and Suisun Bays.	The only reported occurrences of Suisun shrew within the study area are from Suisun Marsh in Conservation Zone 11, though it is possible that portions of Kimble and Sherman Islands support some suitable habitat.	Y	Y
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	E/E	G5T1 S1	Dense thickets of brush associated with riparian habitats. Extirpated from most of historic range and now restricted to Caswell Memorial State Park on the Stanislaus River, at the confluence with the San Joaquin River, and an adjacent portion of an overflow channel and Paradise Cut, Tom Paine Slough, and channels of the San Joaquin River.	The Caswell Memorial State Park population is approximately one mile east of CZ 7, the other population occupying approximately 270 acres in several small, isolated or semi-isolated patches along Paradise Cut and Tom Paine Slough and channels of the San Joaquin River in CZ 7.	Y	Y



Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
American badger <i>Taxidea taxus</i>	-/SSC	G5 S4	Drier open shrub, forest, and herbaceous habitats with friable soils. Year-round range spans all of California except the Humboldt and Del Norte coasts.	There are 5 reported occurrences in the study area (CNDDDB 2013). An old record from 1938 documented in the Delta, north of Stone Lake; may occur elsewhere in the Delta, particularly in the southern portion near Clifton Court Forebay; most of the Delta, however, is too highly modified for this species.	N	Y
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T	G4T2T3 S2S3	Grasslands and oak savannas with friable soils; home range sizes of 600–1,300 acres. Year-round range is fragmented throughout the San Joaquin Valley.	There are 12 reported occurrences in the study area (CNDDDB 2013). Breeding documented in May 2000 in the Delta near Clifton Court Forebay; not expected elsewhere in Delta because of lack of suitable habitat.	Y	Y
Yuma myotis <i>Myotis yumanensis</i>	-/-	LM G5 S4	Widely distributed in California. Strongly associated with water sources. Roosts in a variety of structures including bridges, buildings, caves, mines, trees and rock crevices. Has been known to roost in cliff swallow nests. Typically forages low over water.	This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report).	N	Y
Ringtail <i>Bassariscus astutus</i>	-/FP		Large acreages of oak woodland, riparian, and other dense brush habitats with rock recesses or hollow snags for cover. Year-round range spans much of California except the San Joaquin Valley, northeastern California, and portions of southern California.	Not expected in the Delta or Suisun Marsh because of lack of suitable habitat.	N	N
Canyon bat <i>Parastrellus hesperus</i>	-/-	L	Found in arid habitats throughout California and in lower elevation montane forests with significant rocky areas. Typically roosts in or under rocks, in crevices in cliffs, rocky slopes or scattered boulders. Unsubstantiated records of roosting in burrows.	Could occur in the Delta but not expected in significant numbers due to limited suitable habitat. Potential calls identified during DWR 2009 acoustic surveys (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report).	N	Y

Table 12A-2. Continued

Common Name Scientific Name	Status <sup>a</sup>		Habitat and Distribution in California	Potential for Occurrence in the Study Area	Covered in BDCP	Analyzed in EIR/EIS
	Federal/State	Other				
Mexican free-tailed bat <i>Tadarida brasiliensis</i>	-/-	L	Widely distributed throughout California during the breeding season. Roosts in large colonies in bridges and buildings in the Central Valley; breeding colonies may be concentrated in relatively few sites. Also roosts in caves, rock crevices, mines and tunnels. Forages over a range of habitats.	One of the larger known breeding colonies in California occurs under the I-80 bridge in the Yolo Bypass. This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report).	N	Y
California myotis <i>Myotis californicus</i>	-/-	L	Wide ranging species in California. Roosts singly or in small groups in crevices and cavities in trees and rocks; occasionally roosts in human structures. Maternity colonies of up to 52 individuals have been documented in large snags and under tree bark. Forages over a variety of habitats, including arid habitats, open lands, forest canopies, forest margins, and water.	This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report)	N	Y
Western small-footed myotis <i>Myotis ciliolabrum</i>	-/-	M G5 S2S3	Occurs through much of California, except the northwest and coastal areas. Particularly associated with coniferous forests and rocky xeric habitats. Typically roosts in rock crevices in mines, caves and occasionally in buildings, bridges and other human structures. Forages over a variety of habitats.	This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report).	N	Y
Little brown bat <i>Myotis lucifugus</i>	-/-	M G5 S2S3	Wide ranging species in California. Roosts opportunistically in a variety of structures from trees to buildings. Forages in a range of habitats, but typically over water. Likely fall latitudinal or elevational migrant to colder areas with caves of suitable temperature regime for hibernation.	This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report).	N	Y
Big brown bat <i>Eptesicus fuscus</i>	-/-	L	Occurs throughout California. Roosts opportunistically in buildings, bridges, palm thatch, snags, tree hollows and in rock crevices. Forages over wide range of habitats.	This species was detected in the study area in 2009 (Appendix 12C, 2009 to 2011 Bay Delta Conservation Plan EIR/EIS Environmental Data Report).	N	Y

1

**Table 12A-2. Continued**

Sources: U.S. Fish and Wildlife Service 2008c, 2008d; California Department of Fish and Game 2009; California Department of Fish and Wildlife 2013.

<sup>a</sup> Status

**Federal Listing Categories:**

- E = Listed as endangered under the federal Endangered Species Act (ESA)
- T = Listed as threatened under the ESA
- PT = Proposed for listing as threatened under the ESA
- BCC = U.S. Fish and Wildlife Service bird of conservation concern
- C = Candidate for listing under the ESA
- = No status

**State Listing Categories:**

- E = Listed as endangered under the California Endangered Species Act (CESA)
- T = Listed as threatened under CESA
- C = Candidate for protection under CESA
- FP = Fully protected under the California Fish and Game Code
- SSC = California species of special concern
- WL = California Department of Fish and Wildlife watch list
- CFGC = Rookeries protected under the California Fish and Game Code
- = No status

**Other:****Western Bat Working Group ([http://www.wbwg.org/spp\\_matrix.html](http://www.wbwg.org/spp_matrix.html))**

- H = High priority: Species is imperiled or at high risk of imperilment
- M = Moderate priority: This designation indicates a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats. A lack of meaningful information is a major obstacle in adequately assessing these species' status and should be considered a threat
- L = Low priority: While there may be localized concerns, the overall status of the species is believed to be secure.

**NatureServe Conservation Status** (shown only for species without legal status):

- GH = Possibly Extinct (species)—Missing; known from only historical occurrences but still some hope of rediscovery
- G1 = Critically Imperiled—At very high risk of extinction because of extreme rarity (often 5 or fewer populations), very steep declines, or other factors
- G2 = Imperiled—At high risk of extinction because of very restricted range, very few populations (often 20 or fewer), steep declines, or other factors
- G3 = Vulnerable—At moderate risk of extinction because of a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors
- G4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern because of declines or other factors
- G5 = Secure—Common; widespread and abundant
- G#G# = Range Rank—A numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty in the status of a species or community
- G#? = Question mark indicated uncertainty as to status of a species

**Table 12A-2. Continued**

SH	=	Possibly Extirpated (Historical)—Species or community occurred historically in the State, and there is some possibility that it may be rediscovered
S1	=	Critically Imperiled—Critically imperiled in the State because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the State
S2	=	Imperiled—Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State
S3	=	Vulnerable—Vulnerable in the State because of a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation
S4	=	Apparently Secure—Uncommon but not rare; some cause for long-term concern because of declines or other factors
S#S#	=	Range Rank—A numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty in the status of a species or community
S#?	=	Question mark indicates uncertainty as to status of a species
T	=	Infraspecific Taxon (trinomial)—The status of infraspecific taxa (subspecies or varieties) are indicated by a “T-rank” following the species’ global rank State Rank Lower numbers equate to higher vulnerability
Q	=	Q following the T-rank denotes the taxon’s information taxonomic status

---

1