APPENDIX D

Biological Resources Supporting Information

This appendix includes complex tables that are not accessible using an assistive device such as a screen reader. For additional assistance please contact CPUC.

This page intentionally left blank.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
Phone: (805) 644-1766 Fax: (805) 644-3958

In Reply Refer To: November 18, 2020
Consultation Code: 08EVEN00-2019-SLI-0752
Event Code: 08EVEN00-2021-E-00129
Project Name: Estrella Substation and Paso Robles Area Reinforcement Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
(805) 644-1766

Project Summary

Consultation Code: 08EVEN00-2019-SLI-0752

Event Code: 08EVEN00-2021-E-00129

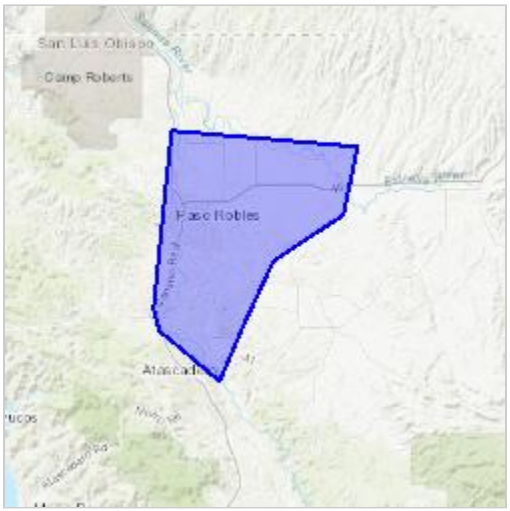
Project Name: Estrella Substation and Paso Robles Area Reinforcement Project

Project Type: TRANSMISSION LINE

Project Description: Electric transmission infrastructure upgrade.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/35.59582677868773N120.64578674311021W



Counties: San Luis Obispo, CA

Endangered Species Act Species

There is a total of 17 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Giant Kangaroo Rat *Dipodomys ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Insects

NAME	STATUS
Kern Primrose Sphinx Moth *Euproserpinus euterpe* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7881	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
California Jewelflower *Caulanthus californicus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4599	Endangered
Chorro Creek Bog Thistle *Cirsium fontinale var. obispoense* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5991	Endangered
Marsh Sandwort *Arenaria paludicola* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Purple Amole *Chlorogalum purpureum* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5531	Threatened
Salt Marsh Bird's-beak *Cordylanthus maritimus ssp. maritimus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6447	Endangered
Spreading Navarretia *Navarretia fossalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1334	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* https://ecos.fws.gov/ecp/species/498#crithab	Final

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Adelaida (3512067) OR Paso Robles (3512066) OR Estrella (3512065) OR York Mountain (3512057) OR Templeton (3512056) OR Creston (3512055) OR Morro Bay North (3512047) OR Atascadero (3512046) OR Santa Margarita (3512045))

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Abies bracteata	bristlecone fir	Gymnosperms	PGPIN01030	80	1	None	None	G2G3	S2S3	1B.3	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Lower montane coniferous forest, Oldgrowth, Riparian woodland, Ultramafic
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	3	None	Threatened	G2G3	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Agrostis hooveri	Hoover's bent grass	Monocots	PMPOA040M0	31	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Valley & foothill grassland
Ammodramus savannarum	grasshopper sparrow	Birds	ABPBXA0020	27	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Valley & foothill grassland
Anniella pulchra	Northern California legless lizard	Reptiles	ARACC01020	375	10	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Coastal dunes, Coastal scrub
Antirrhinum ovatum	oval-leaved snapdragon	Dicots	PDSCR2K010	16	1	None	None	G3	S3	4.2	null	Chaparral, Cismontane woodland, Pinon & juniper woodlands, Valley & foothill grassland
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	2	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Aquila chrysaetos	golden eagle	Birds	ABNKC22010	323	2	None	None	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland

Arctostaphylos luciana	Santa Lucia manzanita	Dicots	PDERI040N0	10	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCSC-UC Santa Cruz, USFS_S-Sensitive	Chaparral, Cismontane woodland
Arctostaphylos pilosula	Santa Margarita manzanita	Dicots	PDERI042Z0	58	4	None	None	G2?	S2?	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest
Ardea herodias	great blue heron	Birds	ABNGA04010	156	1	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Astragalus didymocarpus var. milesianus	Miles' milk-vetch	Dicots	PDFAB0F2X3	16	3	None	None	G5T2	S2	1B.2	null	Coastal scrub
Atractelmis wawona	Wawona riffle beetle	Insects	IICOL58010	80	1	None	None	G3	S1S2	null	null	Aquatic
Batrachoseps minor	lesser slender salamander	Amphibians	AAAAD02170	8	7	None	None	G1	S1	null	CDFW_SSC-Species of Special Concern, IUCN_DD-Data Deficient, USFS_S-Sensitive	Broadleaved upland forest
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	1	None	None	G4?	S1S2	null	IUCN_VU-Vulnerable	null
Bombus crotchii	Crotch bumble bee	Insects	IIHYM24480	312	3	None	Candidate Endangered	G3G4	S1S2	null	null	null
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	791	6	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland, Vernal pool, Wetland
Buteo regalis	ferruginous hawk	Birds	ABNKC19120	107	1	None	None	G4	S3S4	null	CDFW_WL-Watch List, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Great Basin scrub, Pinon & juniper woodlands, Valley & foothill grassland
Calochortus obispoensis	San Luis mariposa-lily	Monocots	PMLIL0D110	46	3	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub, Ultramafic, Valley & foothill grassland
Calochortus simulans	La Panza mariposa-lily	Monocots	PMLIL0D170	105	14	None	None	G2	S2	1B.3	SB_CRES-San Diego Zoo CRES Native Gene Seed Bank, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland
Calycadenia villosa	dwarf calycadenia	Dicots	PDAST1P0B0	59	4	None	None	G3	S3	1B.1	SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Chaparral, Cismontane woodland, Meadow & seep, Valley & foothill grassland
Camissoniopsis hardhamiae	Hardham's evening-primrose	Dicots	PDONA030N0	22	7	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Limestone
Carex obispoensis	San Luis Obispo sedge	Monocots	PMCYP039J0	29	3	None	None	G3?	S3?	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Chaparral, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Ultramafic, Valley & foothill grassland

Castilleja densiflora var. obispoensis	San Luis Obispo owl's-clover	Dicots	PDSCR0D453	69	7	None	None	G5T2	S2	1B.2	null	Meadow & seep, Ultramafic, Valley & foothill grassland
Caulanthus lemmonii	Lemmon's jewelflower	Dicots	PDBRA0M0E0	91	4	None	None	G3	S3	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Pinon & juniper woodlands, Valley & foothill grassland
Charadrius alexandrinus nivosus	western snowy plover	Birds	ABNNB03031	138	2	Threatened	None	G3T3	S2S3	null	CDFW_SSC-Species of Special Concern, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters, Sand shore, Wetland
Chorizanthe breweri	Brewer's spineflower	Dicots	PDPGN04050	45	7	None	None	G3	S3	1B.3	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Ultramafic
Chorizanthe rectispina	straight-awned spineflower	Dicots	PDPGN040N0	38	10	None	None	G2	S2	1B.3	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Cicindela hirticollis gravida	sandy beach tiger beetle	Insects	IICOL02101	34	2	None	None	G5T2	S2	null	null	Coastal dunes
Cirsium fontinale var. obispoense	Chorro Creek bog thistle	Dicots	PDAST2E162	22	1	Endangered	Endangered	G2T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Cismontane woodland, Coastal scrub, Ultramafic, Valley & foothill grassland
Cirsium occidentale var. lucianum	Cuesta Ridge thistle	Dicots	PDAST2E1Z6	7	1	None	None	G3G4T2	S2	1B.2	null	Chaparral, Ultramafic
Coelus globosus	globose dune beetle	Insects	IICOL4A010	50	2	None	None	G1G2	S1S2	null	IUCN_VU-Vulnerable	Coastal dunes
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	None	None	G3G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Danaus plexippus pop. 1	monarch - California overwintering population	Insects	IILEPP2012	383	2	None	None	G4T2T3	S2S3	null	USFS_S-Sensitive	Closed-cone coniferous forest
Delphinium parryi ssp. blochmaniae	dune larkspur	Dicots	PDRAN0B1B1	27	1	None	None	G4T2	S2	1B.2	null	Chaparral, Coastal dunes
Delphinium parryi ssp. eastwoodiae	Eastwood's larkspur	Dicots	PDRAN0B1B2	15	2	None	None	G4T2	S2	1B.2	null	Chaparral, Ultramafic, Valley & foothill grassland
Delphinium umbraculorum	umbrella larkspur	Dicots	PDRAN0B1W0	95	3	None	None	G3	S3	1B.3	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland
Dudleya abramsii ssp. bettinae	Betty's dudleya	Dicots	PDCRA04011	14	7	None	None	G4T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Coastal scrub, Ultramafic, Valley & foothill grassland

Dudleya abramsii ssp. murina	mouse-gray dudleya	Dicots	PDCRA04012	36	3	None	None	G4T2	S2	1B.3	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	Dicots	PDCRA04051	81	8	None	None	G3T2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Coastal bluff scrub, Coastal scrub, Ultramafic, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	180	2	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1398	27	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriastrum luteum	yellow-flowered eriastrum	Dicots	PDPLM03080	34	12	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Cismontane woodland
Erigeron blochmaniae	Blochman's leafy daisy	Dicots	PDAST3M5J0	36	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Coastal scrub
Eucyclogobius newberryi	tidewater goby	Fish	AFCQN04010	127	1	Endangered	None	G3	S3	null	AFS_EN-Endangered, IUCN_VU-Vulnerable	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Extriplex joaquinana	San Joaquin spearscale	Dicots	PDCHE041F3	127	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Valley & foothill grassland
Fritillaria ojaiensis	Ojai fritillary	Monocots	PMLIL0V0N0	49	1	None	None	G3	S3	1B.2	SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Ultramafic
Fritillaria viridea	San Benito fritillary	Monocots	PMLIL0V0L0	24	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Ultramafic
Helminthoglypta walkeriana	Morro shoulderband (=banded dune) snail	Mollusks	IMGASC2510	14	1	Endangered	None	G1	S1S2	null	IUCN_CR-Critically Endangered	Coastal dunes, Coastal scrub
Horkelia cuneata var. puberula	mesa horkelia	Dicots	PDROS0W045	103	3	None	None	G4T1	S1	1B.1	USFS_S-Sensitive	Chaparral, Cismontane woodland, Coastal scrub
Horkelia cuneata var. sericea	Kellogg's horkelia	Dicots	PDROS0W043	58	3	None	None	G4T1?	S1?	1B.1	SB_UCSC-UC Santa Cruz, USFS_S-Sensitive	Chaparral, Closed-cone coniferous forest, Coastal dunes, Coastal scrub
Juncus luciensis	Santa Lucia dwarf rush	Monocots	PMJUN013J0	37	3	None	None	G3	S3	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Great Basin scrub, Lower montane coniferous forest, Meadow & seep, Vernal pool, Wetland
Layia jonesii	Jones' layia	Dicots	PDAST5N090	25	8	None	None	G2	S2	1B.2	USFS_S-Sensitive	Chaparral, Ultramafic, Valley & foothill grassland
Lepidium jaredii ssp. jaredii	Jared's pepper-grass	Dicots	PDBRA1M0G1	12	1	None	None	G2G3T1T2	S1S2	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden	Valley & foothill grassland

Linderiella occidentalis	California linderiella	Crustaceans	ICBRA06010	508	5	None	None	G2G3	S2S3	null	IUCN_NT-Near Threatened	Vernal pool
Malacothamnus palmeri var. palmeri	Santa Lucia bush-mallow	Dicots	PDMAL0Q0B5	10	2	None	None	G3T2Q	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Chaparral
Meconella oregana	Oregon meconella	Dicots	PDPAP0G030	9	1	None	None	G2G3	S2	1B.1	null	Coastal prairie, Coastal scrub
Monardella palmeri	Palmer's monardella	Dicots	PDLAM180H0	24	2	None	None	G2	S2	1B.2	BLM_S-Sensitive, USFS_S-Sensitive	Chaparral, Cismontane woodland, Ultramafic
Monolopia gracilens	woodland woollythreads	Dicots	PDAST6G010	68	1	None	None	G3	S3	1B.2	null	Broadleaved upland forest, Chaparral, Cismontane woodland, North coast coniferous forest, Ultramafic, Valley & foothill grassland
Navarretia fossalis	spreading navarretia	Dicots	PDPLM0C080	78	1	Threatened	None	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Alkali playa, Chenopod scrub, Marsh & swamp, Vernal pool, Wetland
Navarretia nigelliformis ssp. radians	shining navarretia	Dicots	PDPLM0C0J2	102	12	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Cismontane woodland, Valley & foothill grassland, Vernal pool, Wetland
Neotoma macrotis luciana	Monterey dusky-footed woodrat	Mammals	AMAFF08083	8	3	None	None	G5T3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_DD-Data Deficient	Broadleaved upland forest, Chaparral
Northern Interior Cypress Forest	Northern Interior Cypress Forest	Forest	CTT83220CA	22	1	None	None	G2	S2.2	null	null	Closed-cone coniferous forest
Oncorhynchus mykiss irideus pop. 9	steelhead - south-central California coast DPS	Fish	AFCHA0209H	41	3	Threatened	None	G5T2Q	S2	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters, South coast flowing waters
Perognathus inornatus psammophilus	Salinas pocket mouse	Mammals	AMAFD01062	9	3	None	None	G4T2?	S1	null	CDFW_SSC-Species of Special Concern	Valley & foothill grassland
Phrynosoma blainvillii	coast horned lizard	Reptiles	ARACF12100	784	1	None	None	G3G4	S3S4	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Chaparral, Cismontane woodland, Coastal bluff scrub, Coastal scrub, Desert wash, Pinon & juniper woodlands, Riparian scrub, Riparian woodland, Valley & foothill grassland
Plagiobothrys uncinatus	hooked popcornflower	Dicots	PDBOR0V170	14	1	None	None	G2	S2	1B.2	USFS_S-Sensitive	Chaparral, Cismontane woodland, Valley & foothill grassland
Plebejus icarioides moroensis	Morro Bay blue butterfly	Insects	IILEPG801B	12	2	None	None	G5T2	S2	null	null	Coastal dunes
Polyphylla nubila	Atascadero June beetle	Insects	IICOL68040	4	3	None	None	G1	S1	null	null	Interior dunes

Progne subis	purple martin	Birds	ABPAU01010	71	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Broadleaved upland forest, Lower montane coniferous forest
Pyrgulopsis taylori	San Luis Obispo pyrg	Mollusks	IMGASJ0A50	5	1	None	None	G1	S1	null	null	null
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2468	1	None	Endangered	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFS_S-Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters
Rana draytonii	California red-legged frog	Amphibians	AAABH01022	1577	21	Threatened	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable	Aquatic, Artificial flowing waters, Artificial standing waters, Freshwater marsh, Marsh & swamp, Riparian forest, Riparian scrub, Riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Senecio aphanactis	chaparral ragwort	Dicots	PDAST8H060	98	1	None	None	G3	S2	2B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_CRES-San Diego Zoo CRES Native Gene Seed Bank	Chaparral, Cismontane woodland, Coastal scrub
Sidalcea hickmanii ssp. anomala	Cuesta Pass checkerbloom	Dicots	PDMAL110A1	4	1	None	Rare	G3T1	S1	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden, USFS_S-Sensitive	Chaparral, Closed-cone coniferous forest, Ultramafic
Spea hammondii	western spadefoot	Amphibians	AAABF02020	1409	21	None	None	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Cismontane woodland, Coastal scrub, Valley & foothill grassland, Vernal pool, Wetland
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	Dicots	PDBRA2G012	103	2	None	None	G2T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley, USFS_S-Sensitive	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Suaeda californica	California seablite	Dicots	PDCHE0P020	18	1	Endangered	None	G1	S1	1B.1	null	Freshwater marsh, Marsh & swamp, Wetland
Taricha torosa	Coast Range newt	Amphibians	AAAAF02032	88	9	None	None	G4	S4	null	CDFW_SSC-Species of Special Concern	null
Taxidea taxus	American badger	Mammals	AMAJF04010	594	16	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, lone formation, Joshua

												tree woodland, Limestone, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub, Valley & foothill grassland
Trimerotropis occulens	Lompoc grasshopper	Insects	IIORT36310	8	1	None	None	G1G2	S1S2	null	IUCN_EN-Endangered	null
Valley Oak Woodland	Valley Oak Woodland	Woodland	CTT71130CA	91	6	None	None	G3	S2.1	null	null	Cismontane woodland
Vireo bellii pusillus	least Bell's vireo	Birds	ABPBW01114	503	2	Endangered	Endangered	G5T2	S2	null	IUCN_NT-Near Threatened, NABCI_YWL-Yellow Watch List	Riparian forest, Riparian scrub, Riparian woodland
Vulpes macrotis mutica	San Joaquin kit fox	Mammals	AMAJA03041	1018	17	Endangered	Threatened	G4T2	S2	null	null	Chenopod scrub, Valley & foothill grassland

This page intentionally left blank.

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

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

Plant List

61 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3512067, 3512066, 3512065, 3512055, 3512047, 3512046, 3512045 3512056 and 3512057;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Abies bracteata	bristlecone fir	Pinaceae	perennial evergreen tree		1B.3	S2S3	G2G3
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	Feb-Nov	4.2	S3?	G4
Agrostis hooveri	Hoover's bent grass	Poaceae	perennial herb	Apr-Jul	1B.2	S2	G2
Amsinckia douglasiana	Douglas' fiddleneck	Boraginaceae	annual herb	Mar-May	4.2	S4	G4
Antirrhinum ovatum	oval-leaved snapdragon	Plantaginaceae	annual herb	May-Nov	4.2	S3	G3
Arctostaphylos luciana	Santa Lucia manzanita	Ericaceae	perennial evergreen shrub	Dec-Mar	1B.2	S2	G2
Arctostaphylos obispoensis	Bishop manzanita	Ericaceae	perennial evergreen shrub	Feb-Jun	4.3	S3	G3
Arctostaphylos pilosula	Santa Margarita manzanita	Ericaceae	perennial evergreen shrub	Dec-May	1B.2	S2?	G2?
Astragalus didymocarpus var. milesianus	Miles' milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G5T2
Astragalus macrodon	Salinas milk-vetch	Fabaceae	perennial herb	Apr-Jul	4.3	S4	G4

Calochortus obispoensis	San Luis mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	1B.2	S2	G2
Calochortus simulans	La Panza mariposa lily	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.3	S2	G2
Calycadenia villosa	dwarf calycadenia	Asteraceae	annual herb	May-Oct	1B.1	S3	G3
Calystegia subacaulis ssp. episcopalis	Cambria morning-glory	Convolvulaceae	perennial rhizomatous herb	(Mar)Apr-Jun(Jul)	4.2	S2?	G3T2?
Camissoniopsis hardhamiae	Hardham's evening-primrose	Onagraceae	annual herb	Mar-May	1B.2	S2	G2
Carex obispoensis	San Luis Obispo sedge	Cyperaceae	perennial herb	Apr-Jun	1B.2	S3?	G3?
Castilleja densiflora var. obispoensis	San Luis Obispo owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Mar-May	1B.2	S2	G5T2
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	1B.2	S3	G3
Ceanothus cuneatus var. fascicularis	Lompoc ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	4.2	S4	G5T4
Chorizanthe breweri	Brewer's spineflower	Polygonaceae	annual herb	Apr-Aug	1B.3	S3	G3
Chorizanthe douglasii	Douglas' spineflower	Polygonaceae	annual herb	Apr-Jul	4.3	S4	G4
Chorizanthe palmeri	Palmer's spineflower	Polygonaceae	annual herb	Apr-Aug	4.2	S4	G4
Chorizanthe rectispina	straight-awned spineflower	Polygonaceae	annual herb	Apr-Jul	1B.3	S2	G2
Cirsium fontinale var. obispoense	San Luis Obispo fountain thistle	Asteraceae	perennial herb	Feb-Jul(Aug-Sep)	1B.2	S2	G2T2
Cirsium occidentale var. lucianum	Cuesta Ridge thistle	Asteraceae	perennial herb	Apr-Jun	1B.2	S2	G3G4T2
Clarkia exilis	slender clarkia	Onagraceae	annual herb	Apr-May	4.3	S3	G3
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	S4	G4
Delphinium gypsophilum ssp. parviflorum	small-flowered gypsum-loving larkspur	Ranunculaceae	perennial herb	(Mar)Apr-Jun	3.2	S2S3	G4T2T3Q
Delphinium parryi ssp. blochmaniae	dune larkspur	Ranunculaceae	perennial herb	Apr-Jun	1B.2	S2	G4T2
Delphinium parryi ssp. eastwoodiae	Eastwood’s larkspur	Ranunculaceae	perennial herb	(Feb)Mar-Mar	1B.2	S2	G4T2
Delphinium umbraculorum	umbrella larkspur	Ranunculaceae	perennial herb	Apr-Jun	1B.3	S3	G3
Dudleya abramsii ssp. bettinae	Betty's dudleya	Crassulaceae	perennial herb	May-Jul	1B.2	S2	G4T2
Dudleya abramsii ssp. murina	mouse-gray dudleya	Crassulaceae	perennial leaf succulent	May-Jun	1B.3	S2	G4T2
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	Crassulaceae	perennial herb	Apr-Jun	1B.1	S2	G3T2

Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	4.3	S3	G5
Eriastrum luteum	yellow-flowered eriastrum	Polemoniaceae	annual herb	May-Jun	1B.2	S2	G2
Erigeron blochmaniae	Blochman's leafy daisy	Asteraceae	perennial rhizomatous herb	Jun-Aug	1B.2	S2	G2
Fritillaria ojaiensis	Ojai fritillary	Liliaceae	perennial bulbiferous herb	Feb-May	1B.2	S3	G3
Fritillaria viridea	San Benito fritillary	Liliaceae	perennial bulbiferous herb	Mar-May	1B.2	S2	G2
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	4.2	S3	G3
Horkelia cuneata var. puberula	mesa horkelia	Rosaceae	perennial herb	Feb-Jul(Sep)	1B.1	S1	G4T1
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.1	S1?	G4T1?
Juncus luciensis	Santa Lucia dwarf rush	Juncaceae	annual herb	Apr-Jul	1B.2	S3	G3
Layia jonesii	Jones' layia	Asteraceae	annual herb	Mar-May	1B.2	S2	G2
Lepidium jaredii ssp. jaredii	Jared's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1S2	G2G3T1T2
Malacothamnus jonesii	Jones' bush-mallow	Malvaceae	perennial deciduous shrub	(Mar)Apr-Oct	4.3	S4	G4
Malacothamnus palmeri var. involucratus	Carmel Valley bush-mallow	Malvaceae	perennial deciduous shrub	Apr-Oct	1B.2	S2	G3T2Q
Malacothamnus palmeri var. palmeri	Santa Lucia bush-mallow	Malvaceae	perennial deciduous shrub	May-Jul	1B.2	S2	G3T2Q
Meconella oregana	Oregon meconella	Papaveraceae	annual herb	Mar-Apr	1B.1	S2	G2G3
Monardella palmeri	Palmer's monardella	Lamiaceae	perennial rhizomatous herb	Jun-Aug	1B.2	S2	G2
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	1B.1	S2	G2
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	1B.2	S2	G4T2
Nemacladus secundiflorus var. secundiflorus	large-flowered nemacladus	Campanulaceae	annual herb	Apr-Jun	4.3	S3?	G3T3?
Plagiobothrys uncinatus	hooked popcornflower	Boraginaceae	annual herb	Apr-May	1B.2	S2	G2
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Senecio astephanus	San Gabriel ragwort	Asteraceae	perennial herb	May-Jul	4.3	S3	G3
Sidalcea hickmanii ssp. anomala	Cuesta Pass checkerbloom	Malvaceae	perennial herb	May-Jun	1B.2	S1	G3T1

Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	1B.2	S2	G2T2
Suaeda californica	California seablite	Chenopodiaceae	perennial evergreen shrub	Jul-Oct	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 18 November 2020].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

Table D-1. Sensitive Plant and Animal Species Considered but Not Expected to Occur in the Proposed Project, Reasonably Foreseeable Distribution Components, and Alternatives Vicinity

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Plants			
Bristlecone fir *Abies bracteata*	--/--/1B.3	Perennial evergreen tree. Occurs on steep, rocky, fire-resistant slopes, generally in canyon-live-oak phase of mixed-evergreen forest. Elevation: 210-1600 meters above mean sea level (amsl).	**None.** Suitable mixed-evergreen forest is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. No CNDDB records exist within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Santa Lucia manzanita *Arctostaphylos luciana*	--/--/1B.2	Perennial evergreen shrub found on shale soils. Blooming period: Dec-Mar. Elevation: 350-850 meters amsl.	**Not expected.** Blue oak woodlands and chaparral on shale soil may provide habitat for this species; however, the species was not observed in the Proposed Project and alternative areas during surveys conducted in the appropriate season. There are no CNDDB records within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Marsh sandwort *Arenaria paludicola*	FE/SE/1B.2	Perennial stoloniferous herb with a shiny, angled or grooved stem and white flower. Occurs in wet meadows and marshes. Blooming period: May-Aug. Elevation: 3-170 meters amsl.	**None.** Suitable wet meadows and marshes are absent from the Proposed Project, reasonably foreseeable distribution components, and alternative areas. No CNDDB records exist within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Indian Valley spineflower *Aristocapsa insignis*	--/--/1B.2	Annual herb with a white/pink or rose-colored flower. Occurs in sand. Blooming period: May-Sep. Elevation: 300-600 meters amsl.	**None.** Suitable cismontane woodland and sand are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB records exist within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
San Luis mariposa lily *Calochortus obispoensis*	--/--/1B.2	Perennial bulbiferous herb found on serpentine soils. Blooming period: May-Jul. Elevation: 50-730 meters amsl.	**Not expected.** Suitable serpentine soils are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted during the appropriate season. No CNDDB records exist within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Santa Cruz Mountains pussypaws *Calyptridium parryi* var. *hesseae*	--/--/1B.1	Annual herb. Occurs in sandy or gravelly soils in vegetation openings. Blooming period: May-Aug. Elevation: 305-1530 meters amsl.	**Not Expected.** Blue oak woodlands may provide habitat; however, the Proposed Project, reasonably foreseeable distribution components, and alternatives areas appear to be out the range of this species. The species was not observed in the Proposed Project or alternatives areas during surveys conducted in the appropriate season, with the exception of the Creston and Estrella routes for which surveys were conducted outside of the blooming period. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
San Luis Obispo sedge *Carex obispoensis*	--/--/1B.2	Perennial herb found at serpentine seeps in clay or sometimes on gabbroic soils. Blooming period: Apr-Jun. Elevation: 10-820 meters amsl.	**Not expected.** Suitable serpentine soils are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted during the appropriate season. There is one CNDDB record (from a serpentine area southwest of Atascadero) within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Santa Lucia purple amole *Chlorogalum purpureum* var. *purpureum*	FE/--/1B.1	Perennial bulbiferous herb. Occurs in gravelly and clay soils in open woodland. Blooming period: Apr-Jun. Elevation: 205-385 meters amsl.	**Not Expected.** Gravelly and clay soils are largely absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Brewer's spineflower *Chorizanthe breweri*	--/--/1B.3	Annual herb found in serpentine soils in rocky or gravelly substrate. Blooms Apr-Aug. Elevation: 45-800 meters amsl.	**None.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternative areas during surveys conducted in the appropriate season. Three CNDDB occurrences (from serpentine outcrops southwest of Atascadero) are known within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Chorro Creek bog thistle *Cirsium fontinale* var. *obispoense*	FE/SE/1B.2	Perennial herb with nodding dark purple infloresence. Occurs in serpentine seeps and streams. Blooming period: Feb-Sep. Elevation: 35-385 meters amsl.	**None.** Suitable serpentine seeps and streams are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternative areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Cuesta Ridge thistle *Cirsium occidentale var. lucianum*	--/--/1B.2	Perennial herb found on serpentine soils, often on rocky slopes and disturbed roadsides. Blooms Apr-Jun. Elevation: 500-700 meters amsl.	**None.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. One CNDDB occurrence (from a serpentine outcrop southwest of Atascadero) is known within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
salt marsh bird's-beak *Cordylanthus maritimus* ssp. *maritimus* (=*Chloropyron maritimum* ssp. *maritimum*)	FE/SE/1B.1	Annual hemiparasitic (photosynthetic plant that consumes nutrients from host plant) found in salt marshes. Blooms May-Oct. Elevation 0-30 meters amsl.	**None.** Suitable salt marsh habitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in appropriate season. No CNDDB occurrences are known within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
dune larkspur *Delphinium parryi* ssp. *blochmaniae*	--/--/1B.2	Perennial herb that occurs on dunes and maritime chaparral. Blooms Apr-Jun. Elevation: 0-200 meters amsl.	**None.** Suitable dune and maritime chaparral habitat are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternative areas during surveys conducted in appropriate season. No CNDDB occurrences are known within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Eastwood's larkspur *Delphinium parryi* ssp. *eastwoodiae*	--/--/1B.2	Perennial herb. Occurs in coastal chaparral, grassland, on serpentine soils. Blooming period: Mar-May. Elevation: 75-500 meters amsl.	**None.** Suitable serpentine soils are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternative areas during surveys conducted in appropriate season. One CNDDB occurrence (from an observation near Atascadero) has been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
umbrella larkspur *Delphinium umbraculorum*	--/--/1B.3	Perennial herb with a purple flower. Occurs in moist oak forests. Blooming period: Apr-Jun. Elevation: 400-1,600 meters amsl.	**Not Expected.** Oak woodlands may provide habitat for this species, but habitat is not optimal (moist forest). The species was not observed in the Proposed Project and alternatives areas during surveys conducted in appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Betty's dudleya *Dudleya abramsii* ssp. *bettinae*	--/--/1B.2	Perennial succulent herb found on serpentine, rocky soils. Blooms May-Jul. Elevation: 20-180 meters amsl.	**None.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
mouse-gray dudleya *Dudleya abramsii* ssp. *murina*	--/--/1B.3	Perennial succulent herb found on serpentine soils. Blooms May-Jun. Elevation: 90-525 meters amsl.	**None.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Blochman's dudleya *Dudleya blochmaniae* ssp. *blochmaniae*	--/--/1B.1	Perennial herb found on rocky, clay, and serpentine soils. Blooms Apr-Jun. Elevation: 5-450 meters amsl.	**None.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Koch's cord moss *Entosthodon kockhii*	--/--/1B.3	Moss with small capsules and small pores that grows on riverbanks on newly exposed soils. Elevation: 180-1,000 meters amsl. Associated with cismontane woodlands.	**None.** Suitable riverbank soil is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas, as footprints will generally avoid disturbance of drainages. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Blochman's leafy daisy *Erigeron blochmaniae*	--/--/1B.2	Perennial rhizomatous herb found on Dunes and coastal scrub. Blooms Jun-Aug. Elevation: 3-45 meters amsl.	**None.** Suitable dune and coastal is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
San Joaquin spearscale *Extriplex joaquinana*	--/--/1B.2	Annual herb that occurs in seasonal alkali wetlands or alkali sink scrub with saltgrass (*Distichlis spicata*), alkali heath (*Frankenia*), and others. Blooms Apr-Oct. Elevation: 1-835 meters amsl.	**Not expected.** Suitable wetlands are present in the Proposed Project, reasonably foreseeable distribution components, and alternatives vicinity. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
San Benito fritillary *Fritillaria viridea*	--/--/1B.2	Perennial bulbiferous herb found on serpentine soils on slopes, and sometimes on streambanks, rocky soils, and roadsides. Blooms Mar-May. Elevation: 200-1,525 meters amsl.	**None.** Suitable serpentine soil is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
mesa horkelia *Horkelia cuneata* var. *puberula*	--/--/1B.1	Perennial herb with individually arranged white flowers. Occurs in dry, sandy to gravelly soil in coastal chaparral habitats. Blooming period: Feb-Jul. Elevation: 70-810 meters amsl.	**None.** Suitable coastal chaparral habitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. There are 2 CNDDB occurrences (near Templeton and north of Atascadero) that have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Kellogg's horkelia *Horkelia cuneata* var. *sericea*	--/--/1B.1	Perennial herb with a white flower. Occurs on old dunes and coastal sandy soils. Blooming period: Apr-Sep. Elevation: 10-200 meters amsl.	**None.** Suitable coastal dunes and coastal sandhills are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. There is 1 CNDDB occurrence (near San Miguel) recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Jones' layia *Layia jonesii*	--/--/1B.2	Annual herb found on clay or serpentine soils. Blooms Mar-May. Elevation: 5-400 meters amsl.	**Not expected.** Serpentine soils are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas, although clay soils in grassland may provide ostensibly suitable habitat. However, the species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Davidson's bushmallow *Malacothamnus davidsonii*	--/--/1B.2	Annual herb with a pale pink/white flower. Occurs in riparian areas and also on slopes and washes. Blooming period: Jun-Jan. Elevation: 185-1,140 meters amsl.	**None.** Suitable riparian woodland habitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternative areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Carmel Valley bushmallow *Malacothamnus palmeri* var. *involucratus*	--/--/1B.2	Perennial deciduous shrub typically in openings. Blooms Apr-Oct. Elevation: 30-1,100 meters amsl.	**Not expected.** Ostensibly suitable habitat occurs in the Proposed Project, reasonably foreseeable distribution components, and alternatives areas; however, the species was not observed in the Proposed Project and alternative areas during surveys conducted in the identifiable season. No CNDDB records of this species exist within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Carmel Valley malacothrix *Malacothrix saxatillis* var. *arachnoidea*	--/--/1B.2	Perennial rhizomatous herb with a white flower. Occurs on rocky, open banks, shale outcrops, and cliff faces. Blooming period: Mar-Dec. Elevation: 25-1035 meters amsl.	**None.** Suitable chaparral and coastal scrub are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Oregon meconella *Meconella oregana*	--/--/1B.1	Annual herb with a white flower. Occurs on sandy bluffs, meadows and partly sunny, moist banks. Blooming period: Mar-Apr. Elevation: 250-620 meters amsl.	**None.** Suitable coastal prairie and coastal scrub are absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Palmer's monardella *Monardella palmeri*	--/--/1B.2	Perennial herb typically found on serpentine soils. Blooms Jun-Aug. Elevation: 200-800 meters amsl.	**Not expected.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. There is one CNDDB occurrence (near a serpentine area southwest of Atascadero) within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
spreading navarretia *Navarretia fossalis*	FT/--/1B.1	Spreading (not prostrate) annual herb with long bracts and white flowers. Occurs in vernal pools and ditches. Blooming period: Apr-Jun. Elevation: 30-655 meters amsl.	**Not Expected.** Marginal habitat in the Proposed Project, reasonably foreseeable distribution components, and alternatives areas exists in ditches. The species was not observed in the Proposed Project and alternative areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
hooked popcornflower *Plagiobothrys uncinatus*	--/--/1B.2	Annual herb with stained pink flower and pale yellow appendanges. Fruit is an ovate nutlet with a rounded base (sometimes wrinkled). Occurs on canyon sides, rocky outcrops, and is sometimes a fire follower. Blooming period: Apr-May. Elevation: 300-600 meters amsl.	**Not Expected.** Suitable grassland habitat is present in the Proposed Project, reasonably foreseeable distribution components, and alternative areas; however, suitable microhabitat is absent. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
chaparral ragwort *Senecio aphanactis*	--/--/2B.2	Annual herb with an urn-shaped inflorescence and yellow ray flower. Occurs on alkaline flats, dry open rocky areas. Blooming period: Jan-May. Elevation: 15-800 meters amsl.	**None.** Suitable chaparral, cismontane woodland and coastal scrub habitat is absent in the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Cuesta Pass checkerbloom *Sidalcea hickmanii* ssp. *anomala*	--/SR/1B.2	Perennial herb that grows on strict serpentine soil. Blooms May-Jun. Elevation: 600-800 meters amsl.	**Not expected.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. There are no CNDDB occurrences within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Santa Cruz microseris *Stebbinsoseris decipiens*	--/--/1B.2	Annual herb with a yellow flower and hair-like bristles on the fruit. Occurs on open, sandy, shaly, or serpentine sites near the coast. Blooming period: Apr-May. Elevation: 10-500 meters amsl.	**Not Expected.** Suitable microhabitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas, and the region is out of the species' known range. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	--/--/1B.2	Annual herb that grows on serpentine outcrops, on ridges and slopes. Blooms Apr-Sep. Elevation: 90-1040 meters amsl.	**Not expected.** Suitable serpentine substrate is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. There are two CNDDB occurrences (from serpentine soils southwest of Atascadero) recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
California seablite *Suaeda californica*	FE/--/1B.1	Shrub that grows on margins of coastal salt marshes. Blooms Jul-Oct. Elevation: 0-5 meters amsl.	**Not expected.** Suitable salt marsh habitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Animals			
Invertebrates			
Wawona riffle beetle *Atractelmis wawona*	--/--/--	Found in small to medium mountain streams with clear water from 2,000-5,000 feet amsl. Strongly associated with submerged mosses.	**Not expected.** Suitable clear mountain stream habitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas. The species was not observed in the Proposed Project and alternatives areas during surveys conducted in the appropriate season. There is one CNDDB occurrence recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives immediately northeast of Whale Rock Reservoir near Cayucos.
monarch butterfly *Danaus plexippus* (California overwintering pop. 1)	--/--/--	Butterfly with orange wings laced with black lines and bordered with white dots. Suitable overwintering habitat is within 1.5 miles of Pacific Ocean or San Francisco Bay from 200-300 feet above msl in wind-protected stands, typically of Monterey pine (*Pinus radiata*), Monterey cypress (*Cupressus macrocarpa*), and blue gum eucalyptus (*Eucalyptus globulus*).	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives areas are out of the known overwintering range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Kern primrose sphinx moth *Euproserpinus euterpe*	FT/--/--	Medium-sized, stout-bodied moth with contrasting white band on the abdomen that occurs in sandy washes consisting of coarse to fine textured, decomposed granite soil in dominant vegetation such as: red-stemmed stork's beak (*Erodium cicutarium*), baby blue-eyes (*Nemophila menziesii*), rabbit brush (*Chyysothamnus nausseosus*), gold fields (*Lasthenia chrysostoma*), and brome grass (*Bromus Arenarius*).	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives are out of the known range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Morro shoulderband (=banded dune) snail *Helminthoglypta walkeriana*	FE/--/--	Small snail with a tightly coiled shell that is found in coastal dune scrub dominated by woody shrubs.	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives areas are out of the known range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Amphibians			
California tiger salamander *Ambystoma californiense*	FE or FT[1]/ST/--	Large, stocky, terrestrial salamander with a broad, rounded snout, and with white or pale yellow spots or bars on a black background on the back and sides of body. Found in grasslands and low foothill regions. They prefer natural ephemeral pools or ponds that mimic them (stock ponds that are allowed to go dry) (USFWS 2009).	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives areas are out of the known range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
lesser slender salamander *Batrachoseps minor*	--/SSC/--	Salamander that occurs in moist flats in mixed oak, tan oak (*Lithocarpus densiflorus*), California sycamore (*Platanus racemosa*), and California bay (*Umbellularia californica*) forests above 1,300 feet above msl. Endemic to the southern Santa Lucia Mountains in San Luis Obispo County.	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives areas are near, but outside, the known range of this species and there is a lack of suitable habitat. One CNDDB occurrence (west of Atascadero) has been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
foothill yellow-legged frog *Rana boylii*	--/CT, SSC/--	Frog that occurs in lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	**Not expected.** Ostensibly suitable habitat is present in the area; however, there are no CNDDB occurrences of the species within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Coast Range newt *Taricha torosa*	--/SSC/--	Stocky newt approximately 4.9-7.8 inches long and brown with orange undersides. Breeds and lays eggs in inundated wetlands that retain water for at least one month. Found up to two miles away from breeding habitat.	**Not expected.** Ostensibly suitable habitat is present. There are 3 CNDDB occurrences within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives; however, these records are all located in the Santa Lucia Mountains west of Highway 101.
San Joaquin whipsnake (=coachwhip) *Coluber* (=*Masticophis*) *flagellum ruddocki*	--/SSC/--	Slender snake with large head and eyes, typically brown, tan, or yellow-brown. Lacks neck bands and dark head seen in other subspecies of this genus. Active during the day and found in open, treeless areas.	**Not expected.** Open treeless areas within eastern San Luis Obispo County. There is one CNDDB record from an observation near Sandon in 1999, but the Proposed Project, reasonably foreseeable distribution components, and alternatives are outside of the species' range.
blunt-nosed leopard lizard *Gambelia silus*	FE/SE/--	Relatively large lizard with a long tail; short, blunt snout, and a yellowish or light gray-brown to dark brown body with rows of dark spots across the back, alternating with white, cream-colored or yellow bands. Typically found in open, sparsely vegetated areas of low relief on the San Joaquin Valley floor and in the surrounding foothills (USFWS 2010).	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives areas are out of the known range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
two-striped gartersnake *Thamnophis hammondii*	--/SSC/--	Snake that measures two-to-three feet long with an olive, brown, or dark gray colored body with a yellow stripe on each side (or no stripe at all). Occurs in streams and ponds in chaparral, oak woodland, and forest habitats, ideally in aquatic areas that are bordered by riparian vegetation with open spaces for basking (Los Padres Forest Watch 2013).	**Not Expected.** The Proposed Project, reasonably foreseeable distribution components, and alternatives construction activities would not take place in optimal habitat for this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Birds			
ferruginous hawk *Buteo regalis*	MBTA/--/--	Large hawk that forages for small rodents over grasslands and other open habitats. Found during winter over much of California except for the north coast and at high elevations Sierra Nevada Mountains.	**None.** While suitable foraging habitat is present and the species is known to occur in the region (ebird 2020e), the species does not nest in California.
western snowy plover *Charadrius alexandrines nivosus*	FT, MBTA/SSC/--	Seabird found at sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**None.** Suitable nesting habitat is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas, and there are no CNDDB records of the species within 5 miles.
Southwestern willow flycatcher *Empidonax traillii extimus*	FE, MBTA/SE/--	Small bird with light-colored wingbars. Body is brownish-olive to gray-green above. Breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands, including lakes and reservoirs (SWWF Recovery Team 2002).	**Not expected.** The Proposed Project, reasonably foreseeable distribution components, and alternatives area are out of the species core habitat range and only sporadic migrants are expected to occur within the region. No CNDDB or eBird occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives (eBird 2020i).
California Ridgway's rail *Rallus longirostris obsoletus*	FE, MBTA/SE, FP/--	Marsh-dwelling bird with short rounded wings, large feet, and long toes. Occurs only within the tidal salt and brackish marshes around San Francisco Bay.	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives area do not contain suitable habitat for this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Least bell's vireo *Vireo bellii pusillus*	FE, MBTA/SE/--	Small bird with short rounded wings and a short, straight bill. Faint white eye ring. Feathers are mostly gray above and pale below. Found in riparian vegetation along rivers of southern California. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite.	**Not Expected.** Suitable foraging and nesting habitat exist along the Salinas River, but outside of the direct footprint of the Proposed Project, reasonably foreseeable distribution components, and alternatives. Two CNDDB occurrences were recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives, the closest and most recent (2005) of which is approximately 0.6 mile north-northwest from the Proposed Project's 70 kV power line. Sightings of the species within the region are relatively rare (eBird 2020p).
Mammals			
Nelson's antelope squirrel *Ammospermophilus nelsoni*	--/ST/--	Burrowing squirrel found in sandy loam soils vegetated with widely spaced alkali scrub vegetation, typically interspersed with dry washes.	**Not expected.** Suitable habitat is present in the northeast extent of the Proposed Project, reasonably foreseeable distribution components, and alternatives region, but only one historic (1950) CNDDB occurrence of the species is known from north of the Estrella River near Shandon Valley. Significant agricultural development has occurred since the observation and the next nearest CNDDB occurrences of the species are from the San Joaquin Valley and immediately north of the Carrizo Plain.
Giant kangaroo rat *Dipodomys ingens*	FE/SE/--	Large rat with large, fur-lined cheek pouches, long tails, and five toes. They prefer annual grassland on gentle slopes with friable, sandy-loam soils. However, most remaining populations are on poorer, marginal habitats, which include shrub communities on a variety of soil types and on slopes (USFWS 2016).	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives are outside the known range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.

Common and Scientific Name	Legal Status Federal / State / CNPS	Description and Habitat	Potential to Occur
Tulare grasshopper mouse *Onychomys torridus tularensis*	--/SSC/--	Stout-bodied mouse with a short, relatively thick, club-like tail. Body is bicolored with the head and upperparts pale brown to gray or pinkish- cinnamon and the underparts white (N. L. Brown and D.F. Williams 2017). Occurs in arid shrubland communities in hot, arid grassland and shrubland associations, including blue oak woodlands.	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives areas are outside the known range of this species. No CNDDB occurrences have been recorded within 5 miles of the Proposed Project, reasonably foreseeable distribution components, and alternatives.
Fish			
tidewater goby *Eucyclogobius newberryi*	FE/SSC/--	Small, elongate, grey-brown fish rarely exceeding two inches in length, characterized by large pectoral fins. Requires full-strength sea water in coastal lagoons and brackish bays at freshwater stream mouths.	**None.** The Proposed Project, reasonably foreseeable distribution components, and alternatives are outside of the species' range.
steelhead (south-central California Distinct Population Segment – pop. 9) *Oncorhynchus mykiss irideus*	FT/--/--	Fish that is generally silver in color with pinkish cheeks, green backs, and silver, white or yellowish sides and back. Requires clean, cold water with near saturation dissolved oxygen levels over loose silt-free gravel beds with water temperatures between 15 and 24° C for spawning.	**None.** The Salinas River is listed as Critical Habitat for the species (see page 52578 in NOAA 2005), but the Proposed Project, reasonably foreseeable distribution components, and alternatives avoid the river. Suitable spawning, rearing, or migration habitat for the species is absent from the Proposed Project, reasonably foreseeable distribution components, and alternatives areas.

1. The Central Valley population is federally threatened, while the Sonoma and Santa Barbara populations are federally endangered.

List of Abbreviations for Federal and State Species-Status:

MBTA = Migratory Bird Treaty Act
DL = De-listed
FE = Federal endangered
FT = Federal threatened
FP = State fully protected species
SE = State endangered
ST = State threatened
CT = State candidate threatened
SSC = State species of special concern
SR = State rare
WL = Watch List
1B = plants are considered rare, threatened, or endangered in California and elsewhere.
2 = plants are rare, threatened, or endangered in California, but more common elsewhere.

Threat Ranks:

0.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

0.2 = Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

This page intentionally left blank.

Memorandums Supporting the Biological Resources Analysis

Note that memorandums discussing golden eagles in this appendix have been redacted to prevent disclosing nest location information publicly. This is a best practice to protect resources from possible harm.

This page is intentionally left blank.

Memorandum

Subject: **Golden Eagle Survey of Prior Nest Location in Paso Robles, CA for the Estrella Substation and Paso Robles Area Reinforcement Project**

Date: April 2, 2019

To: Robert Peterson, California Public Utilities Commission

From: Eric Christensen, B.S., Horizon Water and Environment
Viktoria Kuehn, M.S., Horizon Water and Environment

On March 14 and 15, 2019, Horizon Water and Environment, LLC. (Horizon) biologists (Eric Christensen and Viktoria Kuehn) surveyed the approximate location of a golden eagle (*Aquila chrysaetos*) nest observation reported [redacted] and numerous eBird[2] observations of golden eagle individuals. The survey location and approximate past nest location [redacted] Golden eagle is federally protected by the Bald and Golden Eagle Protection Act (16 U.S. Code § 668) and the Migratory Bird Treaty Act (16 U.S. Code § 703-712) administered by the U.S. Fish and Wildlife Service (USFWS). The species is also Fully Protected by California Department of Fish and Wildlife (CDFW). This summary describes the survey methods, location, and results.

Methods and Area Surveyed

Surveys were conducted on March 14 and 15, 2019, during the times listed in **Table 1**. The survey location was selected based on golden eagle observation records of a past nest location generally consistent with the *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (ground-based inventory and nesting habitat surveys) described by the USFWS[3]. Multiple surveys were conducted to maximize the potential of observing golden eagle while minimizing risk of potential nest disturbance. Weather conditions during the surveys were clear and sunny with temperatures ranging from 35 to 68 degrees Fahrenheit with minimal wind.

---

[1] California Department of Fish and Wildlife. 2019. California Natural Diversity Database. Available: https://www.wildlife.ca.gov/data/cnddb/maps-and-data.

[2] Audubon and Cornell Lab of Ornithology. 2019. eBird Species Explorer: Observation Data for Golden Eagle (*Aquila chrysaetos*). Available: https://ebird.org/map/goleag?neg=true&env.minX=&env.minY=&env.maxX=&env.maxY=&zh=false&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2019

[3] J.E. Pagel, D.M. Whittington, and G.T. Allen. 2010. Golden Eagle Inventory and Monitoring Protocols and Other Recommendations. U.S. Fish and Wildlife. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83940&inline.

Table 1. Survey Details

Survey Date and Time	Surveyors
March 14, 2019 4:00 P.M. to 5:00 P.M.	Eric Christensen, Viktoria Kuehn
March 15, 2019 8:30 A.M. to 9:15A.M., and 1:00 P.M. to 1:30 P.M.	Eric Christensen, Viktoria Kuehn

Survey methodology entailed visually searching approximately 120 acres around the location of previously reported golden eagle nest (CDFW 2019) for the nest and suitable nesting substrate, as well as adjacent foraging habitat near the project. The survey focused on the known previously occupied golden eagle territory within the Paso Robles area, and consisted of visually surveying from numerous publicly accessible locations where the approximate nest location could best be seen (e.g., top of a bluff overlooking focal area).

Survey Results

One golden eagle was observed within one mile of the proposed project's transmission line alignment during both survey days foraging over the oak woodlands and adjacent grasslands along the bank of Huerhuero Creek. The golden eagle was observed from a bluff south of the Huerohuero Creek meander bend (e.g., ox-bow), northeast of the intersection of Engine Street and Wisteria Lane. The eagle was observed perching in two different oak trees, and flying and foraging above the oak woodland, riparian corridor, and adjacent grasslands and open areas. [redacted] Suitable nesting substrate for golden eagle is present in trees within the riparian oak woodlands along Huerohuero Creek, and suitable foraging habitat is present in the surrounding grasslands. Numerous grasslands in the vicinity supported California ground-squirrels (*Spermophilus beecheyi*), which are suitable prey for golden eagle[4, 5]. Based on this information, the presence of the golden eagle observed during surveys, and past records of this species nesting in the area, it is expected that the golden eagle pair will continue to nest in the same area in the future. A list of all bird species observed during the survey is included in **Table 2.**

[4] Van Horne, B.; J. Kim; and L. Salas. No Date. Suitability of Ground Squirrels as Prey for Golden Eagles in a Changing Climate. U.S. Forest Service and Point Blue. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=132828

[5] Predatory Bird Research Group Long Marine Laboratory (University of California, Santa Cruz). 1999. Population Study of Golden Eagles in the Altamont Pass Wind Resource Area: Population Trend Analysis 1994-1997. June. National Renewable Energy Laboratory. Golden, CO. Available: https://www.nrel.gov/docs/fy99osti/26092.pdf

Table 2. Bird Species Observed

Common Name	Scientific Name	Common Name	Scientific Name
Golden eagle	*Aquila chrysaetos*	Yellow-billed magpie	*Pica nuttalli*
Turkey vulture	*Cathartes aura*	California scrub jay	*Aphelocoma californica*
Red-tailed hawk	*Buteo jamaicensis*	Northern mockingbird	*Mimus polyglottos*
American kestrel	*Falco sparverius*	Anna's hummingbird	*Calypte anna*
Common raven	*Corvus corax*	Acorn woodpecker	*Melanerpes formicivorus*
American crow	*Corvus brachyrhynchos*	Black phoebe	*Sayornis nigricans*
Eurasian collared-dove	*Streptopelia decaocto*	European starling	*Sturnus vulgarus*
Mourning dove	*Zenaida macroura*	Western meadowlark	*Sturnella neglecta*
Killdeer	*Charadrius vociferus*	White-crowned sparrow	*Zonotrichia leucophrys*
Double-crested cormorant	*Phalacrocorax auritus*	White-breasted nuthatch	*Sitta carolinensis*

This page is intentionally left blank.

Memorandum

Subject: **California Red-Legged Frog Habitat Assessment in Paso Robles, CA for the Estrella Substation and Paso Robles Area Reinforcement Project**

Date: July 10, 2019

To: Robert Peterson, California Public Utilities Commission

From: Eric Christensen, B.S., Horizon Water and Environment
Viktoria Kuehn, M.S., Horizon Water and Environment

On March 14 and 15, 2019, Horizon Water and Environment, LLC. (Horizon) biologists Eric Christensen and Viktoria Kuehn surveyed nine ponds and streams within the greater Paso Robles area to assess their suitability to support California red-legged frog (*Rana draytonii*) (CRLF). The survey was conducted in support of the California Public Utilities Commission (CPUC's) California Environmental Quality Act (CEQA) analysis for the proposed Estrella Substation and Paso Robles Area Reinforcement Project (Proposed Project). The Proposed Project, which would include a new electric substation and 7-mile-long 70 kilovolt (kV) power line, is located in the current and historical range of CRLF, a federally threatened species protected by the U.S. Fish and Wildlife Service (USFWS) and a Species of Special Concern by the California Department of Fish and Wildlife (CDFW). The Proposed Project is not located within Critical Habitat for CRLF. This memorandum report describes the CRLF site assessment survey methods, locations, and results.

Background, Areas Surveyed, and Methods

SWCA Environmental Consultants (SWCA) (i.e., environmental consultants for the Proposed Project applicants, Horizon West Transmission, LLC and Pacific Gas & Electric Company) conducted a CRLF Site Assessment (SWCA Assessment) in November 2016, in which 18 sites were identified as potential CRLF habitat and, due to property access restrictions, 10 of these sites were surveyed[1]. The 2016 SWCA Assessment did not result in any CRLF observations, and nine of the sites surveyed were determined to have either no potential or an unlikely potential to support a breeding population of CRLF[1]. One pond (S6) supported suitable breeding habitat for CRLF. The results of this assessment were documented in the Proponent's Environmental Assessment (PEA) submitted to CPUC as part of the application for the Proposed Project.

Horizon's 2019 CRLF site assessment supplements the 2016 SWCA Assessment, focusing on the areas that were not previously surveyed due to property access restrictions. Prior to performing the assessment, Horizon reviewed the SWCA Assessment and also conducted a desktop analysis to review CRLF locality information and recorded California Natural Diversity Database (CNDDB) occurrences

[1] SCWA Environmental Consultants. 2017. Appendix Q: Biological Resources Technical Report for the 70kV Power Line. Proponent's Environmental Assessment Estrella Substation Project and Paso Robles Area Reinforcement Project. May.

within five miles of the Proposed Project. The CNDDB record search resulted in no CRLF occurrences within five miles of the Proposed Project. The nearest occurrence records were located in the Salinas River and its tributary (Graves Creek) approximately six miles south (upstream) of the Proposed Project[2] (**Figure 1**). No new CNDDB occurrences have been recorded since the 2016 SCWA Assessment.

Of the 8 sites with potential CRLF habitat in the Project vicinity that were not surveyed in 2016, Horizon and CPUC were able to obtain access to three of these sites through contacts with local landowners (note: these three sites are broken out into 6 distinct survey locations for the purposes of this assessment: S4, S8a, S8b, S8c, S13a, and S13b). Horizon also surveyed two new locations (S3a and S3b) of Huerhuero Creek, which had been surveyed in a different location by SWCA in 2016. Finally, Horizon re-surveyed three sites and that had previously been surveyed by SWCA in 2016 (S1a, S1b, S2). **Figure 2** shows the sites assessed by Horizon in 2019 as well as those surveyed by SWCA in 2016. The sites surveyed by Horizon in 2019 generally fall into five main categories: Salinas River, Huerhuero Creek, Unmaintained Ponds, Maintained Ponds, and Irrigation Ponds.

Surveys were conducted based on habitat requirements described in the *USFWS Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frogs*[3]. The physical and biotic qualities of identified aquatic features and their adjacent uplands were assessed for their suitability to provide breeding and non-breeding (e.g., foraging, refugia, and satellite dispersal) habitat for CRLF within one mile of the Proposed Project. Data sheets describing the physical characteristics of aquatic habitat, hydrologic connectivity, and their respective uplands; biotic aspects (e.g., potential predators, vegetation strata and composition, nearby refugia), and other characteristics were completed for each site. Site photographs were also taken.

Habitat Requirements for Species

CRLF is a highly aquatic ranid[4] frog that ranges from 1.5 to 5.1 inches in length[5]. This species has a varied diet, including mainly invertebrates, as it is a gape-limited predator. CRLF primarily breeds in ponds, although it also breeds in slow-moving, pond-like parts of streams, marshes, and lagoons[3,4]. Tadpoles and pre-metamorphs are typically associated with emergent vegetation, such as cattails (*Typha* spp.), rushes (*Juncus* spp.), or willows (*Salix* spp.), where they and adults seek refuge from predators. Water depth in suitable breeding habitat is generally greater than three feet, but breeding activity has been documented in 1.5 feet of water[6].

Results

[2] California Department of Fish and Wildlife. 2019. California Natural Diversity Database (CNDDB). Accessed on March 13, 2019. Available: https://www.wildlife.ca.gov/data/cnddb/maps-and-data.
[3] US Fish and Wildlife Service. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-Legged Frog. August.
[4] Defined as "members of the amphibian family Ranidae", also known as "true frogs", which are semi-aquatic, possess relatively smooth moist skin, long hind legs, and typically extensively webbed hind feet.
[5] Stebbins, R.C. 1985. A Field Guide to Western Reptiles and Amphibians. Second Edition. Houghton Mifflin Company, Boston Mass.
[6] Lannoo, M. 2005. Amphibian Declines. University of California Press, Berkeley.

The results of the Horizon site assessment are categorized below, detailing the description of the aquatic feature and its ability to support CRLF habitat. Detailed descriptions of the habitat qualities at each site are recorded on individual data sheets (**Appendix A**) and correspond with the site names in Figure 2. Photographs of the assessed sites are included in **Appendix B**.

Salinas River

In the Paso Robles region, the Salinas River is the dominant aquatic feature that drains the Salinas Valley and generally flows south to north. The Salinas River is an intermittent braided river channel that has mean annual discharge of 1,178 cubic feet per second (cfs), with the highest flows in the winter to early spring wet season (February to May)[7]. It runs dry annually, typically in late spring, with low flows regulated by Santa Margarita Lake and, north of the Paso Robles region, by the San Antonio and Nacimiento reservoirs. Two locations along the Salinas River were assessed for their potential to support CRLF habitat (**S13a** and **S13b** in Figure 2) (see photographs 1-3 in Appendix B). The River stage was approximately bank-full height during the survey, and the main channels conveyed flow velocities too high to support CRLF egg disposition during the assessment.

The Salinas River supports a variety of microhabitats, including numerous degrees of side channels, discontinuous pools, and intermittently inundated riparian vegetation. Discontinuous pools in side channels that support standing water nearly year-round and over the summer provide suitable physical conditions for CRLF breeding habitat. However, the likely periodic introduction of predators into such discontinuous pools from the perennial portions of the River significantly reduces the potential for CRLF to successfully breed at such features. Aspects of the River that represented suitable non-breeding (i.e., movement) habitat for CRLF include the presence of late-season water, low flow velocity in backwater and side channels, and vegetation along stream margins. However, this River supports predatory fish (e.g., channel catfish [*Ictalurus punctatus*], largemouth bass [*Micropterus salmoides*], sunfish [*Lepomis* spp.], and mosquitofish [*Gambusia affinis*]) and American bullfrog (*Lithobates catesbeianus*), has high winter to early spring flow velocities, and is intermittently inundated over the year, all of which reduce the Salinas River's potential to represent suitable breeding habitat for CRLF. Overall, in spite of some adverse conditions in the Salinas River, it was determined that S13a and S13b provide suitable breeding and movement habitat for CRLF.

The Salinas River was not surveyed in the 2016 SWCA Assessment due to lack of access.

Huerhuero Creek

Huerhuero Creek is a sandy, ephemeral stream that remains predominantly dry aside from immediately following substantial rainfall events and associated runoff. Two locations along the Huerhuero Creek channel (**S3a** and **S3b** in Figure 2) (see photographs 4 and 5 in Appendix B) were assessed for their potential to support suitable CRLF habitat conditions. Aspects of these features that indicated suitable habitat conditions for CRLF included vegetation along stream margins, gradual banks, and undeveloped upland habitat. However, the stream lacks water throughout most of the year and emergent vegetation.

[7] U.S. Geological Survey. 2019. Water-Year Summary. Available: https://nwis.waterdata.usgs.gov/nwis/wys_rpt?

Therefore, it was determined that S3a and S3b provide suitable movement habitat for CRLF, but not suitable breeding habitat.

A segment of Huerhuero Creek south of Highway 46 was surveyed in the 2016 SWCA Assessment. Horizon's findings on Huerhuero Creek approximately 3 miles further downstream are generally consistent with SWCA's findings from their 2016 assessment.

Unmaintained Ponds

Two ponds are located in topographic valleys between hills vegetated with grassland and oak woodland on residential properties and retain intermittently ponded water due to earthen berms impeding flow at the downstream end (**S8b** and **S8c** in Figure 2) (see photographs 6-8 in Appendix B). These ponds hold water throughout the wet season and the larger one (S8c) retains water until August or September, according to the property owner. Both ponds have unconsolidated substrate, and are surrounded by annual grassland. Aspects of these features that indicate suitable habitat conditions for CRLF include ponded water, and unmaintained grassland uplands with partial shade from oak (*Quercus* spp.) trees. However, both features lack perennial water, lacked emergent vegetation, and exhibited algal growth (i.e., suggesting the presence of excess nutrients and low dissolved oxygen), which reduces the ability of the ponds to support breeding CRLF. As a result, it was determined that S8b and S8c provide suitable movement habitat for CRLF, but not breeding habitat.

These ponds were not surveyed in the 2016 SWCA Assessment due to lack of access.

Maintained Ponds

There are various ponds that are regularly maintained through vegetation removal along pond margins, including in the pond at Circle B HOA (**S8a** in Figure 1) (see photographs 9-11 in Appendix B) and at the Hunter Ranch Golf Course (**S4** in Figure 2) (see photographs 12 and 13 in Appendix B). Aspects of these features that indicate suitable habitat conditions for CRLF include the presence of perennial water, emergent vegetation, gradually sloped banks, and partial shading along pond margins. However, both features support an abundance of predatory species (crappie [*Pomoxis* spp.], carp [*Cyprinus carpio*], and American bullfrog), partially mowed/maintained pond margins and concrete-lined portions of the features, all of which significantly reduce the features' suitability for CRLF habitat. As a result, it was determined that S4 and S8a provide suitable movement habitat for CRLF, but not breeding habitat.

These ponds were not surveyed in the 2016 SWCA Assessment due to lack of access.

Irrigation Ponds

Three manmade perennial ponds (**S1a**, **S1b** and **S2** in Figure 2) (see respective photographs 14, 15, and 16 in Appendix B) located within vineyards were assessed. The ponds are used for vineyard irrigation and possess associated pump structures. Aspects of S1a and S1b features that indicate suitable CRLF habitat conditions included perennial water, emergent vegetation (bulrush [*Schoenoplectus* spp.], rush), gradually sloped banks, and partial shading from adjacent trees (i.e., willow, oak [*Quercus* spp.]). However, both features contain predatory fish (largemouth bass, bluegill), various waterfowl (American

coot and Clark's grebe), and limited upland habitat, which affect the ability to support CRLF breeding activity. It was determined that S1a and S1b provide suitable movement habitat for CRLF, but not breeding habitat.

Irrigation pond S2 is located behind an earthen berm that impedes water within a topographic valley surrounded by vineyards. This pond is plastic-lined and included an algal skimming arm, and a strong odor, which suggest that it is used for agricultural wastewater treatment. Based on these factors, this pond does not represent suitable habitat (i.e., movement or breeding) for CRLF.

These three sites were surveyed in the 2016 SWCA Assessment. Horizon's findings are generally consistent with SWCA's findings made in the 2016 assessment.

Conclusions/Summary

Similar to the 2016 SWCA Assessment, Horizon's 2019 survey did not identify any CRLF individuals, tadpoles, or egg masses. Of the 11 sites surveyed (8 of which were not surveyed during the 2016 SWCA Assessment), 10 provided suitable movement (i.e., non-breeding) habitat, while only two (Salinas River; S13a and S13b) provided suitable breeding habitat (see **Table 1**). Habitat aspects affecting the suitable habitat determinations for CRLF include the following:

- annually high winter/spring velocity and abundance of predators in the main channels of the Salinas River;
- degree of isolation from predators and non-native competitors;
- predominantly dry conditions in Huerhuero Creek during much of the year;
- lack of emergent vegetation and abundance of predators in the unmaintained ponds;
- the abundance of predatory fish and invasive competitors in maintained and irrigation ponds; and,

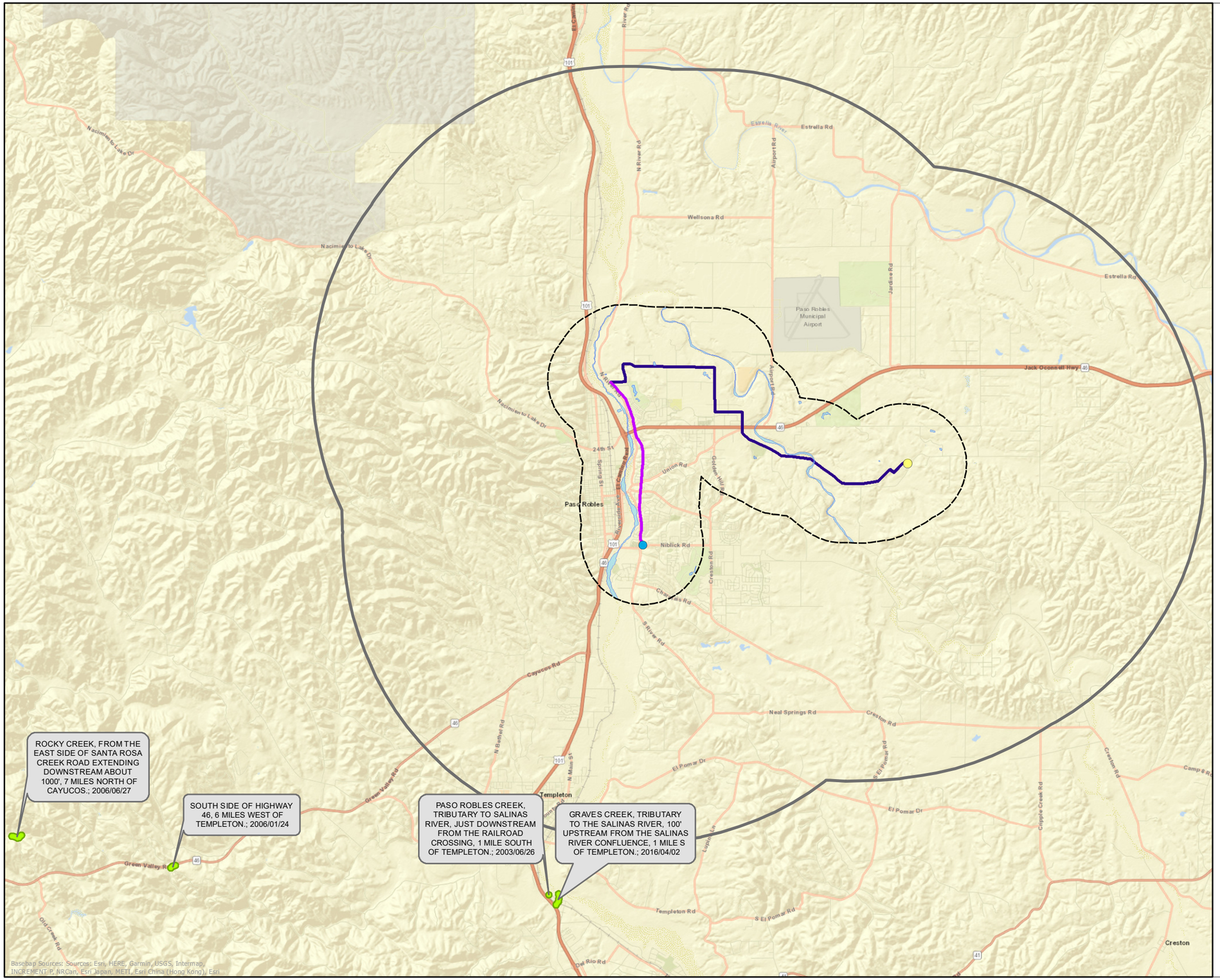
For the S2 site (the only site found to have neither suitable breeding nor movement habitat), the determination was based on poor water quality, ongoing use in vineyard management activities, plastic-lining, and actively maintained vineyards in the surrounding uplands of the site.

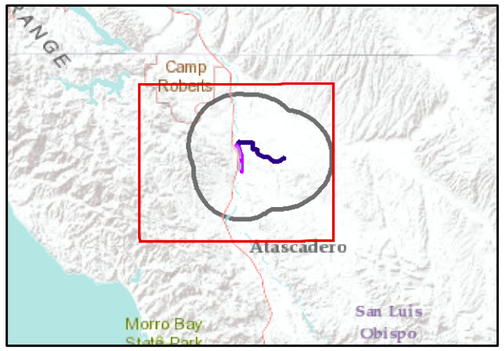
Overall, the likelihood for CRLF to occur in the Proposed Project area is considered low given the paucity of CRLF occurrence records within the surrounding region and the significant distance of these occurrences to the Proposed Project. However, in spite of these facts, the possibility for CRLF to be present in the Proposed Project region remains. CRLF may use aquatic features other than S2 as dispersal locations or aquatic refugia when travelling to other nearby aquatic features.

Table 1. California Red-legged Frog Habitat Determination for Assessed Sites

Site Assessed[1]	Surveyed in 2016? (Y/N)	Suitable Breeding and Movement Habitat	Suitable Movement Habitat	Unsuitable Breeding or Movement Habitat[4]
Salinas River (S13a)	N	X	X	
Salinas River (S13b)	N	X	X	
Huerhuero Creek (S3a)	N		X	
Huerhuero Creek (S3b)	N		X	
Unmaintained Pond (S8b)	N		X	
Unmaintained Pond (S8c)	N		X	
Maintained Pond (S8a)	N		X	
Maintained Pond (S4)	N		X	
Irrigation Pond (S1a)	Y		X	
Irrigation Pond (S1b)	Y		X	
Irrigation Pond (S2)	Y			X
Notes: [1] The sites assessed are shown in Figure 2.				

DRAFT





Project Component

- Paso Robles Substation location
- Estrella Substation Location
- Reconductoring and Wood Pole Replacement Segment
- New 70kV Power Line Segment
- 1-mile buffer
- 5-mile buffer

CRLF Potential Habitat and Occurrences

- California red-legged frog CNDDB Records
- Potential Aquatic/Riparian Habitat for CRLF*

*As determined by SWCA Environmental Consultants 2017

N

0 1 2 4

Miles

Figure 1
California Red-Legged Frog CNDDB Records within 5 Miles of the Project Area

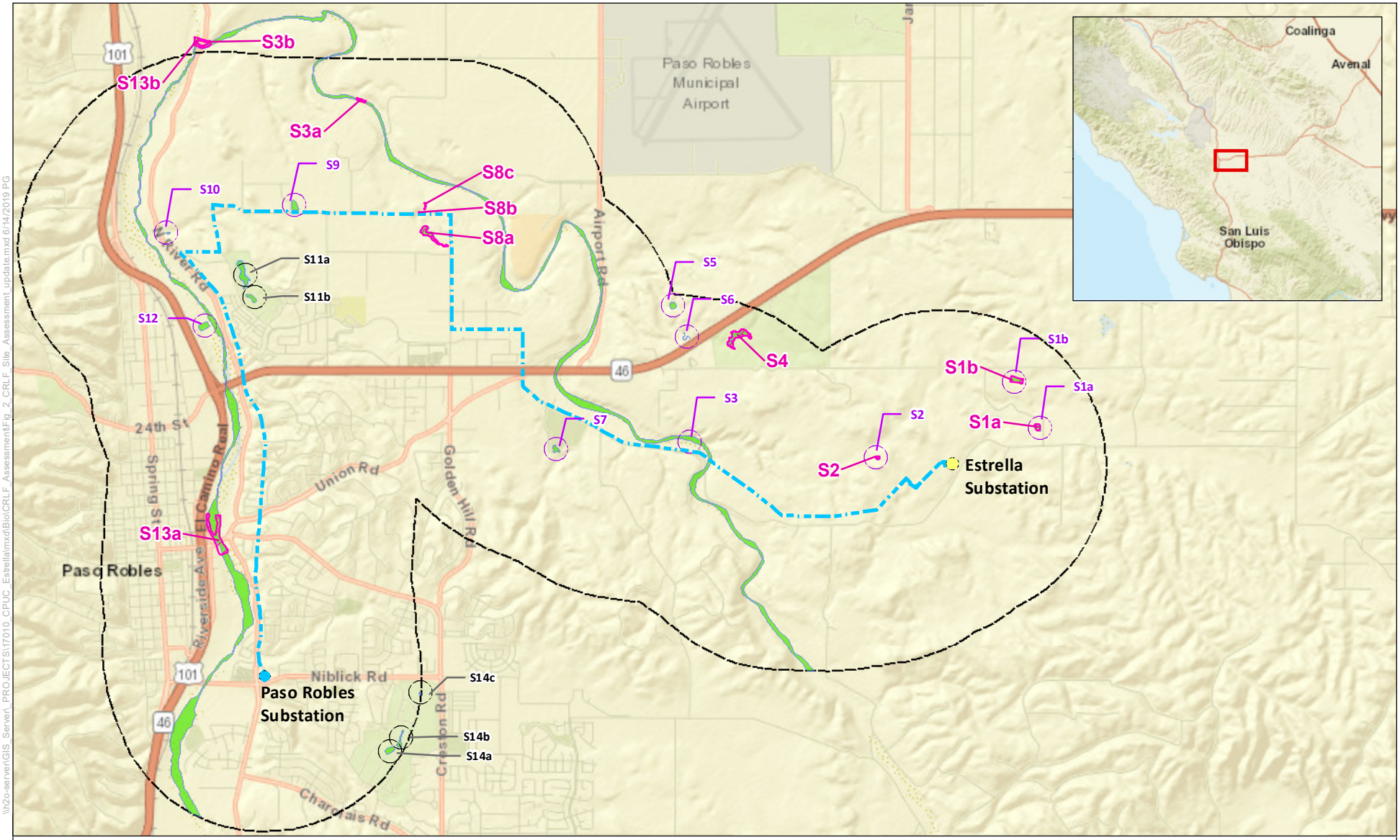
Horizon WATER and ENVIRONMENT

Estrella Substation and Paso Robles Area Reinforcement Project

\\h2o-server\GIS_Server_PROJECTS\17010_CPUC_Estrella\mxd\EIR\UpdatedEIR\7_5_CNDDB_CRLF_Assessment.mxd 3/13/2019 PG

This page is intentionally left blank.

DRAFT



Basemap Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong),

N

0 0.25 0.5
Miles

Horizon WATER and ENVIRONMENT

Project Components

- Proposed Estrella Substation
- Paso Robles Substation
- Proposed 70kV Power Line Segment
- 1-mile buffer

CRLF Assessment

- Sites Surveyed in 2019
- Sites Surveyed in 2016*
- No Access Granted
- CRLF Potential Aquatic & Riparian Habitat

*2016 survey areas were approximated based on SCWA Environmental Consultants Assessment in 2016.

Source: SCWA 2017 and PG&E 2017

Figure 2
California Red-legged Frog Site Assessement Locations

Estrella Substation and Paso Robles Area Reinforcement Project

This page is intentionally left blank.

Appendix A—California Red-legged Frog Habitat Site Assessment Data Sheets

This page intentionally blank.

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/15/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S1a; 35°38'21.59"N, 120°35'26.12"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project
Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 0.74 acres Maximum depth: 4 feet

Vegetation: emergent, overhanging, dominant species: Emergent: rushes, cattail
Dominant: rushes, annual grasses

Substrate: sand to fines

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: n/a
Maximum depth of stream pools: n/a

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Pond created using earthen berm by vineyard owners. Water was clear. Emergent vegetation provides refuge from predators. Little shading available aside from emergent vegetation.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/15/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S1b; 35°38'37.37"N, 120°35'35.41"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project
Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 1.6 acres Maximum depth: 4 feet

Vegetation: emergent, overhanging, dominant species: Emergent: rushes
Overhanging: weeping wollow. Dominant: rushed, annual grasses

Substrate: Fines

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: n/a
Maximum depth of stream pools: n/a

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Pond created using earthen berm by vineyard owners. Water was very clear, allowing predators to spot potential frogs. Emergent vegetation provides refuge from predators. American coot and Clark's grebe observed on the pond.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/15/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S2; 35°38'11.20"N, 120°36'32.20"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project

Brief description of proposed action:

The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 0.2 acres Maximum depth: unknown

Vegetation: emergent, overhanging, dominant species: none

Substrate: sand to fines

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: n/a

Maximum depth of stream pools: n/a

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Pond created using earthen berm by vineyard owners. Water may have been used as a treatment basin.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S3a; 35°40'11.48"N, 120°40'6.34"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project
Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

species:
1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: Not a pond Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Flashy system; only flows shortly after large storm events

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 58 feet

Depth at bank full: _____

Stream gradient: 1%

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Straight segment of Huerhuero with cobbles to boulders in channel, included expected run, riffle, and glide.

Vegetation: emergent, overhanging, dominant species:

Califronia annual grassland along the bank margins with occasional oaks and shrubs

recent fire burned most of the vegetation along this segment of the creek

Substrate: sand to boulders

Bank description: Gradual

Perennial or (Ephemeral *circle one).* If ephemeral, date it goes dry: _____

The Huerhuero Creek was dry and only flash flows after large storm events seem to activate the creek. There were no pools or ponds observed.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S3b; 35°40'11.48"N, 120°40'6.34"W)
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project
Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: Not a pond Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Flashy system; only flows shortly after large storm events

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 96 feet

Depth at bank full: _____

Stream gradient: 1%

Are there pools (circle one)? (YES) NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: Mouth of Huerhuero Creek with sand and loam substrate with saturated areas and one pool less than 1 foot deep. Primarily riffle and glide.

Vegetation: emergent, overhanging, dominant species:

California annual grassland along the bank margins with blue oaks and willows near the Salinas River. Herbs included poison hemlock, Himalayan blackberry, broadleaved pepperweed

Substrate: sand to loam

Bank description: Gradual

Perennial or (Ephemeral *(circle one)*. If ephemeral, date it goes dry: shortly after rain event

The Huerhuero Creek mouth was dry and only flash flows after large storm events seem to activate the Creek. One shallow pool observed that was less than 1 foot deep and also seemed ephemeral.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S4; 35°38'52.28"N, 120°37'31.55"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project

Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 2.42 acres Maximum depth: >6 feet

Vegetation: emergent, overhanging, dominant species: Emergent: cattails, rush
Overhanging: arroyo willow, blue oak. Dominant: blue oak, rush, and non-native grasses

Substrate: Fine unconsolidated

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

n/a

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

Pond created by golf club and is perennial. Surrounding banks are gradual and non-native grasses are frequently mowed. Pond supports carp fish, and bullfrogs. Emergent vegetation is often clipped and thinned. Frequent pedestrian traffic on the bridge crossing the pond. Bird species on the pond include American coot and ducks.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S8a (Circle B Pond); 35.65736944, -120.66111111
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project

Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 2.42 acres Maximum depth: >6 feet

Vegetation: emergent, overhanging, dominant species: Emergent: cattails, rush, water lilies.
Overhanging: arroyo willow, blue oak. Dominant: arroyo willow, water lilies, cattails.

Substrate: Fine unconsolidated

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3 feet

Depth at bank full: 1 foot

Stream gradient: -1.55% (-3/194 feet)

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: n/a

Maximum depth of stream pools: n/a

Characterize non-pool habitat: run, riffle, glide, other: Dry during assessment. Expect glide and run, as channel is entirely vegetated with non-native grasses.

Vegetation: emergent, overhanging, dominant species: Channel is vegetated with non-native grasses. Overhanging: blue oaks and coyote brush. Dominant: non-native annual grasses, blue oak trees.

Substrate: Fine to gravel, vegetated with non-native grasses.

Bank description: Very broad, gradual slopes.

Perennial or (Ephemeral) *(circle one)*. If ephemeral, date it goes dry: Within 1-2 days after rain storm.

Other aquatic habitat characteristics, species observations, drawings, or comments:
Pond created in 1927 for cattle through placement of dam impeding water flow from upstream ephemeral drainage and uplands. Pond is perennial and retains water except when depth of water exceeds height of dam and spills into northern topographic valley. Surrounding banks are gradual, support multiple burrow complexes, and non-native grasses are routinely mowed. Upstream portion of pond is concrete-lined and separated from lower, natural portion of pond by a series of concrete drop structures that range from approximately 1 to 4 feet high. Both pond portions support bass, crappie, bluegill, and bullfrogs. Ground squirrels, desert cottontails, and deer scat observed in adjacent uplands. Residents have observed foxes and bobcat near pond. Birds observed include American coot, red-winged blackbird, American crow, great horned owl, turkey vulture, red-tailed hawk, great egreat, double-crested cormorant, and mallard.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S8b (North of Circle B); 35°39'33.87"N, 120°39'42.00"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project

Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 80 sq. feet Maximum depth: 3 feet

Vegetation: emergent, overhanging, dominant species: Emergent: none
Overhanging: blue oak. Dominant: Blue oak, annual grasses

Substrate: Fine unconsolidated

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: after rainy season has ended

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

_____

_____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Bank description: _____

_____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Pond created in a topographically low valley between two hillsides. The ponding occurs due to an earthen berm created along the downstream portion. The hillsides do not appear to be mowed regularly. The pond only temporarily holds water after storm events according to the property owner. No emergent vegetation was observed, no burrows or fish species were observed in or around the pond. The oaks almost entirely shaded the pond.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S8c (North of Circle B); 35°39'36.35"N, 120°39'39.41"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project

Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 0.12 acres Maximum depth: >6 feet

Vegetation: emergent, overhanging, dominant species: Emergent: none
Overhanging: blue oak. Dominant: Blue oak, annual grasses

Substrate: Fine unconsolidated

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: late summer (approx. September)

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____

Depth at bank full: _____

Stream gradient: _____

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

_____

_____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Bank description: _____

_____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Pond created in a topographically low valley between two hillsides. The ponding occurs due to an earthen berm created along the south of the adjacent road. The hillsides do not appear to be mowed regularly. The pond dries out in late summer annually according to the property owner. Limited to no emergent vegetation was observed, no burrows or fish species were observed in or around the pond. There were deer observed north of the pond.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S13a; 35°37'43.65"N, 120°41'5.56"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project
Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: Not a pond Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry:

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 224 feet
Depth at bank full: >6 feet
Stream gradient: 2%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: 50 feet x 20 feet
Maximum depth of stream pools: >6 feet

Characterize non-pool habitat: run, riffle, glide, other: Run and glide

Vegetation: emergent, overhanging, dominant species: Arroyo willow banks and overhanging cottonwoods. Shrub/ herb layer consisted of poison hemlock, and broadleaved pepperweed

Substrate: Fine to cobble with loamy sand along the banks at the wetted channel

Bank description: Gradual captured

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

The Salinas River is wider with more sediment bars throughout than compared to S13b. Some backwater pools and slower velocity side channels were observed along the margins. In current conditions the stream velocities in the main channel and most side channels were too fast for CRLF.

Various predatory fish species and bullfrogs present in the Salinas River.

Trees lining the stream provide perches for predators.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix A.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by_____ _____ _____
(FWS Field Office) **(date)** **(biologist)**

Date of Site Assessment: 03/14/2019
(mm/dd/yyyy)

Site Assessment Biologists: Kuehn, Viktoria (Last name) (first name); Christensen, Eric (Last name) (first name)

_____ (Last name) (first name); _____ (Last name) (first name)

Site Location: San Luis Obispo County, Paso Robles; S13b; 35°40'31.78"N, 120°41'14.31"W
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: Estrella Substation and Paso Robles Area Reinforcement Project
Brief description of proposed action:
The Proposed Project would primarily involve construction and operation of a new 230 kilovolt (kV)/70 kV substation and a new approximately 7-mile-long 70 kV transmission line, and replacement/reconductoring of approximately 3 miles of an existing 70 kV transmission line. These facilities would be located in unincorporated San Luis Obispo and within the City of Paso Robles. The Proposed Project is intended to address identified deficiencies in the electrical grid system in the Paso Robles area, and to accommodate projected new growth in the area.

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: Not a pond Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry:

Appendix A.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 99 feet

Depth at bank full: >6 feet

Stream gradient: 1%

Are there pools (circle one)? YES NO

If yes,

Size of stream pools: 50 feet x 40 feet

Maximum depth of stream pools: >6 feet

Characterize non-pool habitat: run, riffle, glide, other: Primarily run.

Vegetation: emergent, overhanging, dominant species: Arroyo willow banks and overhanging cottonwoods. Shrub/ herb layer consisted on poison hemlock, mugwort, broadleaved pepperweed, and milkthistle

Substrate: Fine to cobble with loamy sand along the banks at the wetted channel

Bank description: Gradual captured

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Assessment location where Huerhuero Creek flows into the Salinas River. The Huerohuero Creek was dry during assessment. Some backwater eddies provided refugia for Pacific tree frog tadpoles along the Salinas River margin. Trees and shrubs create backwater pools during high stage winter flow events. In current conditions the in-stream velocity was too fast for CRLF within the main channel.

Various predatory fish species and bullfrog present in the Salinas River.

Trees lining the stream provide perches for predators.

Burrows were observed along banks of Huerohuero Creek.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix B—Site Photographs

This page intentionally blank.

Appendix B. Site Photographs

Photo No. 1	Date: 3/14/2019

Description:
Site S13a:
Salinas River facing south, upstream, from the 13th Street Bridge. A side channel is visible in the foreground.

Photo No. 2	Date: 3/14/2019

Description:
Site S13a:
Salinas River facing south, upstream, with the 13th Street Bridge in the background. Exposed roots and vegetation along the margins are present.

Appendix B. Site Photographs

Photo No. 3	Date: 3/14/2019

Description:
Site S13b:
Salinas River at the mouth of Huerhuero Creek, facing northwest downstream of Salinas River. Emergent vegetation creates refugia from the increased channel velocity.

Photo No. 4	Date: 3/14/2019

Description:
Site S3a:
Huerhuero Creek facing west, downstream.

Appendix B. Site Photographs

Photo No. 5	Date: 3/14/2019

Description:
Site S3b:
Mouth of Huerhuero Creek facing east, upstream. The channel bottom is saturated, but doesn't support substantial discontinuous pools.

Photo No. 6	Date: 3/14/2019

Description:
Site S8b:
Unnamed unmaintained pond in a topographic valley, facing northeast, downhill.

Appendix B. Site Photographs

Photo No. 7	Date: 3/14/2019

Description:
Site S8c:
Unnamed unmaintained pond, facing north from the uphill side.

Photo No. 8	Date: 3/14/2019

Description:
Site S8c:
Unnamed unmaintained pond, facing south from the downhill side.

Appendix B. Site Photographs

Photo No. 9	Date: 3/14/2019

Description:
Site S8a: Maintained portion of the upper pond in the Circle B Pond complex. Southeastern portion of the feature, facing southeast.

Photo No. 10	Date: 3/14/2019

Description:
Site S8a: Concrete-lined stream segment connecting the upper pond to the lower pond within the Circle B Pond complex. Photograph facing west, downstream.

Appendix B. Site Photographs

Photo No. 11	Date: 3/14/2019

Description:
Site S8a:
The lower pond in the Circle B Pond complex facing concrete-lined upper/lower pond connection segment. Photograph taken from northwestern extent of the feature facing southeast. Gradual slopes and partially maintained margins and surrounding uplands evident.

Photo No. 12	Date: 3/14/2019

Description:
Site S4:
Large maintained pond in the Hunter Ranch Golf Course photographed from a bridge facing northeast. A carp and emergent vegetation are evident.

Appendix B. Site Photographs

Photo No. 13	Date: 3/14/2019

Description:
Site S4:
A large bullfrog observed on the margin of the maintained pond within the Hunter Ranch Golf Course photographed from the bridge.

Photo No. 14	Date: 3/15/2019

Description:
Site S1a:
A manmade perennial irrigation pond within a vineyard and associated outbuildings facing northwest.

Appendix B. Site Photographs

Photo No. 15	Date: 3/15/2019

Description:
Site S1b:
A manmade perennial irrigation pond within a vineyard facing west.

Photo No. 16	Date: 3/14/2019

Description:
Site S2:
A manmade pond within a vineyard facing northwest. The pond is lined with plastic and exhibited a skimming mechanism, aeration device, and an odor suggesting poor water quality.

Memorandum

Subject: **Biological Resources and Golden Eagle Nest Surveys in Paso Robles, CA for the Estrella Substation and Paso Robles Area Reinforcement Project**

Date: August 12, 2019

To: Robert Peterson, California Public Utilities Commission

From: Eric Christensen, B.S., Horizon Water and Environment
Viktoria Kuehn, M.S., Horizon Water and Environment

On July 11 and 12, 2019, Horizon Water and Environment, LLC (Horizon) biologists Eric Christensen and Viktoria Kuehn surveyed 11 specific locations (four parcels along alternative power line route alignments, four golden eagle nests, and three potential battery storage locations) as well as several areas along publicly-accessible portions of various alignments within the greater Paso Robles-Templeton-Atascadero area to field verify land cover types, wetlands and waters of the U.S., vegetation communities, and potential habitat for special-status species; and survey golden eagle (*Aquila chrysaetos*) nests recently active in 2019 and active in past years. The survey was conducted in support of the California Public Utilities Commission (CPUC's) California Environmental Quality Act (CEQA) analysis for the Estrella Substation and Paso Robles Area Reinforcement Project (Proposed Project), proposed by Horizon West Transmission (HWT) (formerly NextEra Energy Transmission West [NEET West]) and Pacific Gas & Electric Company (PG&E).

The Proposed Project, which would include a new electric substation and 7-mile-long 70 kilovolt (kV) power line and 3-mile-long reconductoring segment, is located in a region known to support special-status plant and wildlife species, nesting raptors, and other protected biological resources. The eastern portion of the Proposed Project is located within Critical Habitat Unit 29C for vernal pool fairy shrimp (*Branchinecta lynchi*). Additionally, the eastern portions of Alternative Power Line Route (PLR)-1A and PLR-1C (including Minor Route Variations [MRVs] 1 and 2) are located within the same Critical Habitat Unit (refer to the Draft Alternatives Screening Report [ASR] for alternative numbering/coding and descriptions). This memorandum report describes the biological survey methods, locations, and results, and discusses the results and provides recommendations.

Background, Areas Surveyed, and Methods

Horizon's 2019 biological resources reconnaissance surveys supplement the biological surveys conducted by SWCA Environmental Consultants (SWCA) (environmental consultants for HWT and PG&E) to support the 2017 Proponent's Environmental Assessment (PEA)[1], and subsequently to support analysis of project alternatives. The Draft ASR, released for public comment in March 2019, identified a

[1] NEET West and PG&E. 2017. Proponent's Environmental Assessment – Estrella Substation and Paso Robles Area Reinforcement Project. Prepared by SWCA Environmental Consultants. Available: www.cpuc.ca.gov/environment/info/horizonh2o/estrella/docs/Revised_PEAOnly_May2017.pdf.

number of new project alternatives and alternatives that had not been fully evaluated in the PEA. CPUC and Horizon requested biological survey information for these alternatives from SWCA, HWT, and PG&E as part of Data Request #2. Although SWCA, HWT, and PG&E ultimately provided vegetation mapping and other biological information for some of the alternatives, Horizon performed the July 2019 surveys to obtain more information about the alternatives carried forward for analysis in the Project environmental impact report (EIR), confirm SWCA's vegetation mapping in the field, and verify information about reported golden eagle nests near the Proposed Project and alternatives.

Horizon focused on areas that were not previously surveyed due to property access restrictions and/or areas that were determined to potentially support habitat for special-status species based on review of aerial imagery. Horizon contacted property owners to request access to these parcels, and only parcels to which access was granted were surveyed (**Figure 1**). Horizon also surveyed some publicly-accessible areas along alternatives and surveyed some alignments by vehicle from the roadway. Additionally, Horizon coordinated directly with staff at the City of Paso Robles to survey a parcel adjacent to the Paso Robles Municipal Airport where a 4.3-Megawatt (MW) solar field is planned, which has been suggested as a potential battery storage location for the Proposed Project. Horizon also surveyed two other potential battery storage sites. **Table 1** summarizes the survey locations.

Table 1. Survey Locations

Survey Location	**Location Description**	**Relationship to Proposed Project or Alternatives**
[redacted]	[redacted]	[redacted]
Sunshine Ag Property	Approx. 1.7 miles north of Highway 46, south of Estrella Road	Alternative PLR-1A and PLR-1C pass through middle of property; Alternative PLR-1C MRV #2 passes through northern portion of property
Testerman Property	Approx. 2 miles north of Highway 46, south of Estrella Road and east of Jardine Road	Alternatives PLR-1A and PLR-1C pass through southern edge of property
Bonel Ranch Property / PG&E Easement	Portion of PG&E's easement for its 230 / 500 kV transmission lines that pass through Bonel Ranch property, south of Estrella Road	Alternative PLR-1C follows this alignment / easement
Estrella Road	Section of Estrella Road that extends from the Bonel Ranch Substation Site (Alternative SS-1) to the intersection with Jardine Road	Alternative PLR-1C MRV #1 would follow this section of Estrella Road
Golden Hill Industrial Park	Publicly-accessible areas within Golden Hill Industrial Park in	Alternative PLR-3A (Strategic Undergrounding, Option 1) and PLR-

Survey Location	Location Description	Relationship to Proposed Project or Alternatives
	proximity to the undergrounding alternatives	3B (Strategic Undergrounding, Option 2) would pass through the Golden Hill Industrial Park
Pirih Property	Along (to the northwest/north) Neal Springs Road and Vaquero Road	Alternative SE-PLR-2 would pass through the property following the existing 230 / 500 kV transmission corridor
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Potential Battery Storage Site #1	Approx. 700 feet west of the CAL FIRE Air Attack Base at the Paso Robles Municipal Airport	This site is under consideration for a battery storage installation under Alternative BS-1, BS-2, or BS-3
Potential Battery Storage Site #2	Approx. 780 southwest of the intersection of Niblick and South River roads (within the Woodland Plaza II shopping center)	This site is under consideration for a battery storage installation under Alternative BS-1 or BS-2
Potential Battery Storage Site #3	Immediately southwest of the existing Atascadero Substation	This site is under consideration for a battery storage installation under Alternative BS-1 or BS-2

Note: The surveys did not cover all of the potential battery storage sites under consideration. The numbering of golden eagle nests and battery storage sites is simply for clarity for the purposes of this memorandum.

Prior to performing the assessment, Horizon biologists conducted a desktop analysis to review special-status species' locality information and current recorded California Natural Diversity Database (CNDDB) occurrences within five miles of the Proposed Project and alternatives. The CNDDB record search resulted in numerous special-status plant and wildlife occurrence records within five miles of the Proposed Project and Project alternatives that were used to inform determinations of suitable habitat during the survey effort. Surveys were conducted on-foot and by vehicle during July 11 and 12, 2019, between 8:00am and 4:00pm to ensure optimal visibility. Binoculars and spotting scope were used to visually aid observations as necessary. Hardcopy and digital (iPad) notes and locations were collected in the field. Site photographs were also taken.

Survey Results

The results of the Horizon biological surveys are provided below and are discussed based on applicability to the Proposed Project or alternatives. Photographs of the assessed sites are included in **Appendix A**.

Proposed Project

On July 12, Horizon biologists surveyed a reported golden eagle nest [redacted] The nest was inactive at the time of the survey, but the property owners reported that the fledglings left the nest approximately 2 to 3 weeks prior. Recent whitewash (e.g., raptor excrement) was visible on the side of the nest. During the survey one adult and two juvenile golden eagles were observed flying in the general vicinity of the nest and each periodically perched on a tree about 400 feet northeast of the nest tree. The property owners indicated that the nest was used by golden eagles in 2018 as well.

Alternative PLR-1A: Estrella Route to Estrella Substation

Two parcels (Sunshine Ag Property and Testerman Property) along Alternative PLR-1A (refer to Figure 1) were surveyed by vehicle and on-foot on July 11. These parcels also encompass a portion of Alternative PLR-1C, which is the same as Alternative PLR-1A in this location, as well as Alternative PLR-1C MRV 2 (see further discussion below). The Sunshine Ag Property is primarily vineyards, but the northern portion includes an intermittent drainage and cottonwood (*Populus fremontii*) trees, immediately south of Estrella Road. A residence is located in the northwest portion of the parcels and California annual grassland (synonymous with non-native annual grassland) occurs on portions of the parcel where vineyards do not occur. Two ephemeral drainages that drain west are surrounded by blue oak (*Quercus douglasii*) trees and are located within the southwest portion of the parcel. Numerous turkey vultures (*Cathartes aura*) were observed foraging over open portions of this parcel. One Swainson's hawk (*Buteo swainsonii*), a California threatened species, was observed perched on a transmission pole in the northwestern corner of this parcel.

The Testerman Property included a residence surrounded by California annual grassland that continues to the southern boundary in the central and eastern portion of the parcel. Other portions of the parcel support blue oak woodland and an intermittent drainage feature that enters at southcentral portion of the southern boundary, flows east immediately north of the southern parcel boundary, turns north and continues east of the residence near the eastern boundary, and meanders northwest through the northeast to northwest portion of the parcel. The blue oak woodland that occurs immediately along the banks of the intermittent drainage is considered riparian woodland and it partially shades the majority of the intermittent drainage feature. The drainage feature is accurately shown in National Wetland Inventory (NWI) data and land cover observed on the parcel is generally consistent with the prior biological studies. Numerous western fence lizards (*Sceloporus occidentalis*), desert cottontails (*Sylvilagus audubonii*) and turkey vultures, as well as a red-tailed hawk (*Buteo jamaicensis*) were observed on the parcel.

Alternative PLR-1C: Estrella Route to Bonel Ranch

As noted above, in the area of the Sunshine Ag Property and Testerman Property, the Alternative PLR-1C alignment is identical to Alternative PLR-1A. In addition to these parcels (discussed above), Horizon surveyed a portion of Alternative PLR-1C that follows the existing 230/500 kV transmission corridor through the Bonel Ranch Property (see Figure 1). This area was surveyed on July 11 on-foot and by vehicle. The survey area supports primarily California annual grassland and, in the southcentral and southeastern portions, mixed valley and blue oak woodland. One ephemeral and two intermittent drainages occur in the southwest and central portions of the survey area, respectively, all of which generally drain northwest toward the Estrella River. [redacted] One large seasonal wetland feature, which receives flow from the ephemeral drainage, is located in the southwestern portion of the survey area and it exhibits a gradual drainage trend north toward the Estrella River.

The portion of the Bonel Ranch Property located north of Estrella Road where the substation would be placed under Alternative Substation Site (SS)-1 was previously used as agricultural row crop fields approximately two years ago, but the vegetation has only been grazed as needed to reduce thatch accumulation and currently supports California grassland. [redacted] Several turkey vultures and red-tailed hawks were also seen foraging throughout the survey area. Numerous California ground squirrel burrows occur in California grassland (north and south of Estrella Road) and represent suitable habitat for western burrowing owl.

Alternative PLR-1C: Estrella Route to Bonel Ranch, MRV 1

As shown on Figure 1, Alternative PLR-1C, MRV 1 would follow Estrella Road all the way from the Bonel Ranch Substation Site to Jardine Road, where the power line alignment would turn south down Jardine Road and then join the Alternative PLR-1C route to the west towards Wellsona Road. On July 11, Horizon biologists surveyed this MRV by vehicle and periodically stopped at locations of biological interest. Estrella Road is surrounded by California grassland, which supports numerous California ground squirrel (*Otospermophilus beecheyi*) burrows, and portions are located immediately south of the Estrella River, a sandy intermittent drainage that flows from east to west towards the Salinas River. The Estrella River supports riparian woodland comprised by cottonwood and valley oak (*Quercus lobata*) trees, as well as willow (*Salix*) shrubs, and patches of invasive giant reed (*Arundo donax*). Ground squirrel burrows in treeless areas offer suitable habitat for western burrowing owl (*Athene cunicularia hypugaea*), a California species of special concern, where grassland is grazed or mowed so it is generally not more than 12 inches tall, but no burrowing owls were observed. Numerous turkey vultures and red-tailed hawks were observed foraging over the grasslands and Estrella River adjacent to this MRV.

Alternative PLR-1C: Estrella Route to Bonel Ranch, MRV 2

Alternative PLR-1C, MRV 2 starts at the “zig zag” northwest through agricultural lands and, instead of continuing the zig zag all the way to the point where the PLR-1C/-1A route veers west towards Wellsona

Road, goes further to the north and follows an existing distribution line through agricultural lands to Jardine Road (see Figure 1). At Jardine Road, Alternative PLR-1C, MRV 2 turns south and joins the remainder of the PLR-1C/-1A route to the west towards Wellsona Road. As noted above, this MRV route is generally located within vineyards and the northern portions of the Sunshine Ag Property and Testerman Property; please refer to the discussion above under Alternative 1A for a description of observations and land cover characterizations.

Alternative PLR-3A: Strategic Undergrounding, Option 1

Publicly-accessible portions of Alternative PLR-3A were surveyed by vehicle and areas of biological interest were surveyed on-foot on July 12. The surveyed portions of this alternative are located within industrial and commercial development, and adjacent undeveloped lots support ruderal vegetation and small patches of California grassland. Numerous California ground squirrel burrows occur in the patches of California grassland within the alignment, but the presence of large valley oak trees on an adjacent ridge, which are used as perches for raptors, make these burrows unlikely to support western burrowing owl. Turkey vultures and red-tailed hawks were observed foraging over the undeveloped portions of Alternative PLR-3A.

Alternative PLR-3B: Strategic Undergrounding, Option 2

Publicly-accessible portions of Alternative PLR-3B were surveyed by vehicle and areas of biological interest were surveyed on-foot on July 12. This alternative is identical to Alternative PLR-3A, but instead of following Wisteria Lane, the underground alignment goes north and then west behind the San Antonio Winery and adjacent parcels (the same as the Proposed Project overhead 70 kV alignment). The surveyed portions of this alternative are partially located on the periphery of industrial and commercial development, with adjacent undeveloped lots that support ruderal vegetation and small patches of California grassland. A potential seasonal wetland was also observed within an undisced portion of an undeveloped lot within the alternative as evidenced by the presence of small patches of hydrophilic obligate and facultative species. [redacted] Numerous California ground squirrel burrows occur in the patches of California grassland within the alignment, but the presence of large valley oak trees on an adjacent ridge, which are used as perches for raptors, make these burrows unlikely to support western burrowing owl. Turkey vultures and red-tailed hawks were observed foraging over the undeveloped portions of this alternative.

Alternative Substation Expansion (SE)-PLR-2: Templeton-Paso South River Road Route

Horizon surveyed several locations near Alternative SE-PLR-2 on July 12. First, the peripheries of the Pirih Property (refer to Figure 1), which primarily supports California grassland, were surveyed by vehicle. This portion of the Alternative SE-PLR-2 follows the existing 230/500 kV transmission corridor. The southern half of the parcel is interspersed by numerous potential seasonal wetlands that generally tend to drain southeast. Patches of coyote brush (*Baccharis pilularis*) scrub and scattered valley oak trees occur on hills in the southern half of the parcel. The northern half of the parcel includes a large hill

that supports several valley and blue oak trees. Numerous turkey vultures and red-tailed hawks were observed foraging over the grasslands of this parcel. Numerous California ground squirrel burrows occur in California grassland in this parcel and represent suitable habitat for western burrowing owl.

[redacted] Male and female hooded orioles (*Icterus cucullatus*) were observed at this location as well [redacted]

Additionally, four western pond turtles (*Emys marmorata*), a California species of special concern, were observed within Santa Ysabel Lake and one additional western pond turtle was observed basking on a concrete spring structure in Sulphur Spring approximately 2,900 feet southeast of Santa Ysabel Lake. Numerous American coots (*Fulica americana*), acorn woodpeckers (*Melanerpes formicivorus*), canvasbacks (*Aythya valisineria*), great egrets (*Ardea alba*), and red-tailed hawks, as well as a great blue heron (*Ardea herodias*), were seen in and around the Santa Ysabel Lake.

Potential Battery Storage Site #1

One potential battery storage location (Potential Battery Storage Site #1) approximately 700 feet west of the CalFire Air Attack Base within the Paso Robles Municipal Airport was surveyed on July 11. This location consisted of disced fields surrounded by California grassland on the north. Turkey vultures were observed foraging over the potential battery storage location site during the survey. The adjacent California grassland supported numerous California ground squirrel burrows that represent suitable western burrowing owl habitat.

Potential Battery Storage Site #2

Potential Battery Storage Site #2, located approximately 780 feet southwest of the intersection of Niblick and South River roads (within the Woodland Plaza II shopping center), was surveyed on July 12. This location consisted of landscaped grasses within a commercial development (i.e., mall and parking lots). Evidence of Canada goose (*Branta canadensis*) (i.e., excrement) was present.

Potential Battery Storage Site #3

Potential Battery Storage Site #3, located immediately southwest of the existing Atascadero Substation was surveyed on July 12. Vegetation in this located consisted primarily of numerous valley oak, blue oak, and pine (*Pinus* spp.) trees with an understory of California blackberry (*Rubus ursinus*), Himalayan

blackberry (*Rubus armeniacus*), and poison oak (*Toxicodendron diversilobum*) shrubs along the margins. The central portion of the potential battery storage site was disturbed and included sparse tree stumps.

Discussion

Overall, Horizon's July 2019 surveys confirmed that SWCA's vegetation mapping from the PEA and other technical documents provided to Horizon/CPUC was largely accurate, as Horizon's observations of species composition and land features on the ground were largely consistent with SWCA's mapping. Additionally, the surveys confirmed that the reports of golden eagle nests near the Proposed Project and alternatives by members of the community appear to be accurate. Although all the nests observed by Horizon were inactive at the time, the nests themselves were observed and golden eagle individuals (juveniles and adults) were also observed in the vicinity in many instances, supporting the community members' claims that the nests were recently active. The potential battery storage sites that were surveyed showed no apparent biological resources constraints that would prevent development of a battery storage facility on the site.

With respect to the golden eagle nests and potential impacts from the Proposed Project and alternatives, we recommend coordinating with the California Department of Fish Wildlife.

Estrella Road
(Surveyed by Vehicle)

Bonel Ranch*
Substation Site
(Alternative SS-1)

Testerman
Property

Sunshine Ag
Property

Battery Storage
Site #1

Bonel Ranch
Property

Strategic Undergrounding
(Surveyed by Vehicle)

[redacted]

Estrella
Substation
(Proposed)

Paso Robles Substation

Battery Storage
Site #2

[redacted]

Pirih
Property

Templeton Substation Expansion
(Alternative SE-1)

Templeton
Substation

Main Map

Paso
Robles

Inset Map

Atascadero

San Luis
Obispo

Battery Storage
Site #3

Morro Road

Atascadero
Lake

Atascadero Substation

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGR D, IGN, and the GIS User Community
Sources: Esri, HERE, Garmin, USGS, Intermap, NCREMENT P,

%H2O-SERVER\GIS_Server_PROJECTS\17010_CPUC_Estrella\mxd\Bio\Fig_1_SurveyLocationsAllSpeciesObservations.mxd 6/8/2019 PG

Survey Locations

- Golden Eagle Nest
- Parcels Accessed

Species Sightings

- Western Pond Turtle
- Swainson's Hawk
- Golden Eagle Activity

Project Alternatives Carried Forward for Full Analysis

- Alternative SS-1: Bonel Ranch Substation Site
- Alternative PLR-1A: Estrella Route to Estrella Substation
- Alternative PLR-C: Estrella Route to Bonel Ranch, Option #1
- Alternative PLR-1C: Minor Route Variation 1
- Alternative PLR-1C: Minor Route Variation 2
- Alternative PLR-3A: Strategic Undergrounding, Option 1
- Alternative PLR-3B: Strategic Undergrounding, Option 2
- Alternative SE-1: Templeton Substation Expansion
- Alternative SE-PLR-2: Templeton-Paso South River Road Route
- Potential Front-of-the-Meter Battery Storage Locations (Alternative BS-1 & BS-2)

Other Project Alternatives Considered

- Alternative SS-2: Mill Road West Substation Site
- Alternative PLR-1B: Estrella Route to Mill Road West
- Alternative PLR-2: Creston Route (Variations not shown; not carried forward)
- Alternative SE-PLR-1:Templeton-Paso 70kV Route (Existing)
- Alternative SE-PLR-3: Templeton-Paso Creston Route
- Alternative PLR-1D: Estrella Route to Bonel Ranch, Option #2

Figure 1
Survey Locations & Species Observations

- Estrella Substation
- Existing Substation
- Proposed Project 70-kV Route

Horizon WATER and ENVIRONMENT

N

0 1
Miles

Source: NEET West and PG&E 2017.

Note: The route variations shown are offset in order to display the alignments of the alternative routes that may overlap in places.

* formerly McDonald Ranch

Estrella Substation and
Paso Robles Area Reinforcement Project

This page is intentionally left blank.

Appendix A.
Representative Photographs

[redacted]

[redacted]

Photo No. 2	Date: 07/12/19

Description: Grassland and blue oak woodland with intermittent drainage along southern boundary of Testerman Property to right. Photo taken from driveway at southwest corner looking east.

Appendix A.
Representative Photographs

Photo No. 3	Date: 07/11/19

Description:
Bonell Ranch looking northeast along existing transmission corridor toward the Estrella River. Valley oak trees in foreground and California grassland evident in background.

Photo No. 4	Date: 07/12/19

Description:
Western pond turtle basking on log within western portion of Santa Ysabel Lake.

Appendix A.
Representative Photographs

Photo No. 5	Date: 07/12/19
Description: Potential battery storage location west of the Paso Robles Municipal Airport. Photo facing southwest from northeast corner of potential battery storage site.	

Photo No. 6	Date: 07/12/19
Description: Potential battery storage location southwest of the intersection of Niblick and South River roads (Battery Storage Site #2). Photo facing north-northeast.	

This page is intentionally left blank.

Garcia and Associates
2601 Mission Street, Suite 600
San Francisco, CA 94110
Phone: (415) 642-8969
Fax: (415) 642-8967

To: **Molly Peterson**
Wildlife Biologist
Pacific Gas and Electric Company

From: **Eric Jepsen**

Date: **July 9, 2020**

RE: **Golden Eagle and Raptor Survey Memo for the Estrella Substation & Paso Robles Area Power Connect Project**

Garcia and Associates (GANDA) was contracted by Pacific Gas and Electric Company (PG&E) to conduct golden eagle territorial occupancy and nesting surveys within existing and proposed transmission line corridors for the Estrella Substation and Paso Robles Area Power Connect Project (Project) in Paso Robles, California.

In central California, the courtship period for golden eagles usually extends from December through January. Final nest site selection and nest building generally start in early February, with egg laying and incubation commencing in mid-to-late February. Golden eagles are most visible during courtship and up until incubation commences, at which point their behavior becomes cryptic and the potential for detection is reduced. Eagle activity increases after hatching, and by the middle of the nestling phase both parents become more visible off the nest, hunting and provisioning their offspring. During the fledgling phase, both adults and juveniles may be seen off of the nest.

Methods

GANDA conducted multiple rounds of ground-based surveys of suitable habitat. The first round of surveys took place during the week of February 17 to February 21, 2020 (summary in Appendix A). The survey area included all areas of suitable habitat and historic eagle observations within 1 mile of the Project area (Figure 1). Previous surveys had identified historic nest locations,

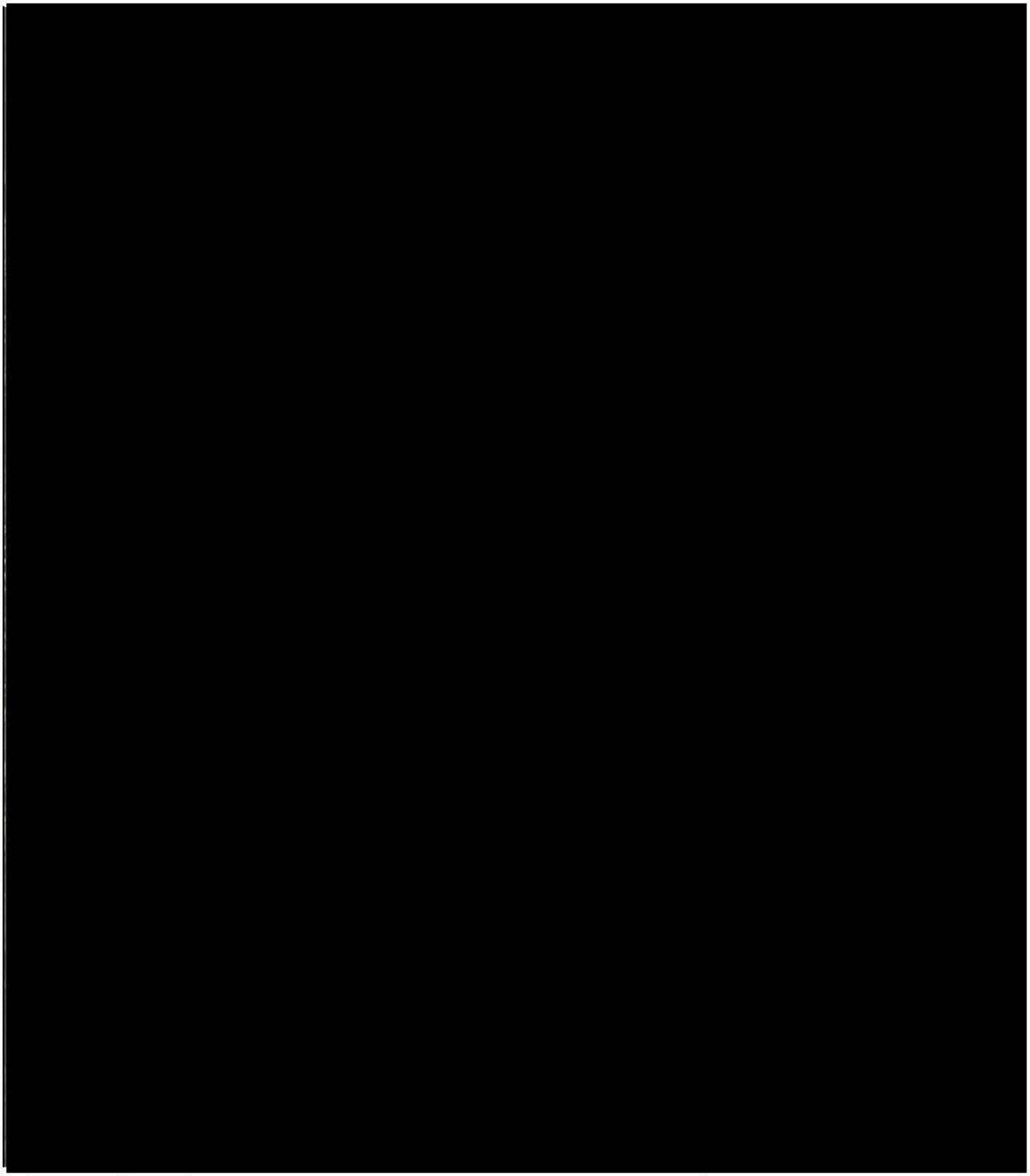
identified as GOEA Nests #1 through #4 (i.e., Huerhuero Creek territory and Santa Ysabel Ranch territory, see below), as well as two potential nest locations identified as Potential GOEA Nest (Estrella Road) and Potential GOEA Nest (Union Road). All of these nest locations were included within the surveyed area shown in Figure 1. The assigned territory name was taken from landscape features in the vicinity of identified nest areas. Full characterization of territory boundaries based on direct observations of soaring, undulations, hunting areas, or disputes with neighbors and interlopers was beyond the scope of this study. To facilitate our visualization golden eagle territory occupancy, territories are shown as half-mile buffers around the 2020 active nests in Figure 1. The half-mile buffer gives an idea of a golden eagle pair's activity center around the nest, but does not strictly define the eagles' use of the landscape.

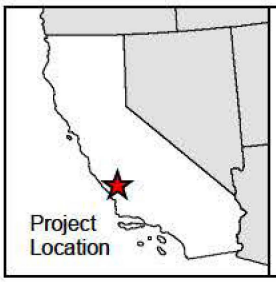
The surveys were designed to provide information on territory occupancy, courtship, nest-building behavior, and nest locations. All observations of golden eagles — including date, time, age, number, location, activity, flight patterns, perch and nest substrate, and nesting status — were recorded onto field notes and maps. From the results of these surveys, we mapped golden eagle centers of activity as well as nest sites.

Mid-to-late season surveys were conducted to confirm remaining questions regarding nesting status within established territories. GANDA conducted additional ground surveys on May 8, 2020 and June 18 and 19, 2020 (Appendix A). Incidental observations of empty stick nests, nesting raptors, and ravens along existing and proposed transmission corridors were also recorded (Appendix B).

Results

Figure 1, below, shows the results of the February, May, and June surveys. Two occupied golden eagle nesting territories were observed in 2020 (GOEA Nest #2 and Nest #3). Both nests found were within areas of previously known golden eagle nesting territories. These two territories are identified as the Huerhuero Creek territory and Santa Ysabel Ranch territory. Based on the observations summarized below, 2020 nesting at Huerhuero Creek appears to have failed, and the Santa Ysabel Ranch territory successfully fledged one juvenile golden eagle in 2020. No golden eagle activity was observed in the vicinity of the potential golden eagle nests at Estrella Road or Union Road. Red-tailed hawks were observed at both nest locations.





Source: Bing Maps

0 1 2 Miles

0 2 4 Kilometers

N

Scale 1:126,720

Figure 1. Nest Locations
Estrella Golden Eagle Surveys
San Luis Obispo County, California

GANDA

Huerhuero Creek Territory

[redacted] In 2006, a single nestling was observed in the nest with adults hunting nearby. There are two nest locations that have been previously identified within this area. Following naming precedent from earlier communications with PG&E, those locations were identified as GOEA Nest #1 and GOEA Nest #2. All Huerhuero Creek 2020 nest observations are presented below and in Table 1.

On February 17, 2020, an adult golden eagle was observed in the vicinity of GOEA Nest #2, perched in the trees close to the nest location making quiet, rattling chirps. Due to the potential for disturbance to an active nest, the surveyor did not get close enough to directly observe GOEA Nest #2. Later in the day, two adult golden eagles were observed soaring south of the airport, in the vicinity of this area. No nest was observed at the mapped location for GOEA Nest #1.

On February 20, 2020, an adult golden eagle was observed perched overlooking GOEA Nest #2. Again, to reduce potential impacts to the active nest, the surveyor did not get close enough to confirm nesting. However, based on the history of this territory and the consistent presence of the adult, including observed vocalizations, this nest was assumed to be active.

On May 8, 2020, an adult golden eagle was observed perched at several locations in the vicinity of the GOEA Nest #2 grove, including above an old, unnumbered, eagle-sized nest approximately 600 feet east of the mapped location for GOEA Nest #2. The adult golden eagle was vocalizing throughout the survey period. The active nest at GOEA Nest #2 was not confirmed during this survey, however the behavior of the adult indicated that it may no longer have been active.

On June 17, 2020, an adult golden eagle was again observed perched within the GOEA Nest #2 stand. The GOEA Nest #2 appeared to have failed. It was partially collapsed, with half of it on the ground below the nest tree (Photos 1 and 2). Several molted eagle feathers were observed on the ground in the vicinity of the nest, however there was no evidence of egg shells or nestling remains in the vicinity of the nest.

Table 1. Huerhuero Creek 2020 observations

Date	Time	Observation
2/17/2020	6:00	Golden eagle adult perched in vicinity of Nest #2, quiet "rattling chirp" vocalization, nest not observed.
2/17/2020	12:45	Two golden eagles soaring south of the airport not far from GOEA Nest #2.
2/20/2020	15:10	Adult golden eagle perched in Nest #2 grove.
5/8/2020	8:45	Adult female golden eagle perched in nest grove, flew east to perch above old nest, to north side of arroyo, then back to nest grove, regularly vocalizing.
6/19/2020	6:00	Adult golden eagle flushed from nest grove, flew across arroyo and perched in an oak.

Photo 1. Huerhuero Creek 2020 golden eagle nest (GOEA #2).

Photo 2. Partial remains of 2020 Huerhuero golden eagle nest (GOEA #2).

Santa Ysabel Ranch Territory

[redacted] The two previously identified eagle nests within this territory are GOEA Nest #3 and GOEA Nest #4. All 2020 Santa Ysabel Ranch nest observations are presented below and in Table 2.

On February 18, 2020, GOEA Nest #3 was identified as "active." An adult female golden eagle was observed in incubation posture on built-up nest [redacted] The male adult golden eagle of this pair was observed perched overlooking the nest area. The nest at GOEA Nest #4 was also observed and appeared to be fallen apart with age.

On May 8, 2020, both adults were observed perched in the vicinity of the nest and a single, approximately five-week-old nestling was observed in the nest (Photo 4). No other eagles were observed.

On June 18, 2020, both adults were observed perched and gliding along the hills overlooking the nest tree. The nest was empty with copious whitewash covering it and on the ground below.

On June 19, 2020, both adults and the recently fledged juvenile golden eagle were all observed perched in a valley oak north of the nest tree (Photo 5). The juvenile eagle was regularly making begging or hunger calls to the adults. Eventually both adults flew to perch uphill from the juvenile, which continued to vocalize.

Table 2. Santa Ysabel Ranch 2020 Observations

Date	Time	Observation
2/18/2020	6:00	Adult female golden eagle prone on Nest #3 [redacted] adult male golden eagle perched in oak overlooking nest.
5/8/2020	8:00	Two adult golden eagles perched [redacted] five-week-old nestling in nest.
6/18/2020	19:15	Adult golden eagle pair gliding along hills north of nest, cruising over nest, then gliding into trees southeast of nest.
6/19/2020	10:15	Adult golden eagle pair and single fledgling perched in valley oak approximately 500 feet north of the nest, with the fledgling constantly begging. One adult flew to the ground for a while, [redacted] soon followed by second adult. Juvenile remained vocalizing in the oak tree.

[redacted]

Photo 4. Approximately five-week-old nestling in nest (GOEA #3).

Photo 5. Adult and single fledgling golden eagle in live oak near GOEA #3.

In addition to occupied territories and confirmed active nest locations, GANDA documented two observations of soaring individual golden eagles (one adult and one subadult) and one distant kettle of six soaring golden eagles that could not be identified to age or with any known nesting territory.

Other observations included seven red-tailed hawk nests, two great horned owl nests, and four common raven nests within or adjacent to existing and proposed transmission corridors. Two red-tailed hawk nests occurred at locations that had previously been identified as potential golden eagle nests [redacted] A table of 2020 observations is included in Appendix B.

Discussion

Habitat suitable for golden eagle nesting surrounds the Paso Robles area. This is especially true for undeveloped rangelands and oak savannah that occur to the north and east of the Project area. The golden eagle nesting sites documented in 2020 appear to be within fragmented remnants of these types of habitats. Areas that are characterized by urban sprawl and agriculture—especially vineyards—dominate much of the Project area and are unsuitable for golden eagle nesting. These areas include Wellsona and River roads at the northwest side of the Project area, Buena Vista Drive between River and Golden Hills roads at the western central part of the Project area, Union Road between Paso Robles Boulevard and Highway 46 at the eastern central part of the Project area, and areas that pass through the central, urbanized portion of Paso Robles.

Suitable habitat predominantly occurs in the Huerhuero Creek territory at the center of the Project area, the Santa Ysabel Ranch territory just south of Paso Robles, and patchy areas of nesting habitat in the southeast and northeast portions of the Project area. However no other evidence of nesting was observed at any areas other than the first two aforementioned locations.

APPENDIX A
Estrella Substation and Paso Robles Area Reinforcement Project
2020 Golden Eagle and Raptor Summary

Date	Time	Area Surveyed
2/17/2020	5:30	Huerhuero Creek Territory, GOEA Nest #2 and vicinity
2/17/2020	9:10	[redacted]
2/17/2020	10:15	Proposed 70-kV route from GOEA nest #2 to the proposed Estrella substation
2/17/2020	12:00	Branch Road – southernmost portions of PLR-1A and PLR-1B up to a Hwy 46
2/17/2020	15:05	Proposed McDonald Ranch Substation, western ends of PLR 1C and PLR-1D
2/18/2020	6:00	[redacted]
2/18/2020	10:00	SE PLR-1
2/18/2020	1230	SE PLR-3 and southern portion of SE PLR-1 and Templeton Substation
2/19/2020	6:00	SE PLR-2, SE PLR-3
2/19/2020	8:00	PLR-2
2/19/2020	12:00	Proposed MacDonald Substation and four proposed routes west of there, up to Jardine Road
2/19/2020	1500	Rest of Project routes
2/20/2020	6:00	Four proposed routes running north of the Paso Robles substation to the point where four routes turn east
2/20/2020	13:20	Unfinished portion of proposed 70-kV route
2/20/2020	15:10	GOEA Nest #2
2/21/2020	6:00	PLR-1D and potential GOEA nest off Estrella Rd. Also PLR-1A, PLR-1B, and PLR-1C
5/8/2020	8:00	Santa Ysabel Ranch Territory, GOEA Nest #3 and vicinity
5/8/2020	8:45	Huerhuero Creek Territory, GOEA Nest #2 and vicinity
5/8/2020	12:30	[redacted]
5/8/2020	13:00	Branch Road – southernmost portions of PLR-1A and PLR-1B up to a Hwy 46
5/8/2020	14:00	[redacted]
5/8/2020	15:00	Estrella Road to Wellsona to River Road
6/18/2020	19:15	Santa Ysabel Ranch Territory, GOEA Nest #3 and vicinity
6/19/2020	6:00	Huerhuero Creek Territory, GOEA Nest #2 and vicinity
6/19/2020	7:00	Estrella Road to Airport Road
6/19/2020	9:45	Union Road, Penman Springs Road
6/19/2020	10:15	Santa Ysabel Ranch Territory, GOEA Nest #3 and vicinity
6/19/2020	11:45	South River Road to Neil Spring Road, Templeton Substation and vicinity

APPENDIX B
Estrella Substation and Paso Robles Area Reinforcement Project
2020 Golden Eagle and Raptor Survey Observations

This page intentionally left blank.

Pacific Gas & Electric Company's Avian Protection Plan

This page is intentionally left blank.

Avian Protection Plan
For External Distribution

PG&E's Program to Address Avian Electrocutions, Collisions, and Nesting Birds

Updated April 2018

Avian Protection Plan
For External Distribution

PG&E's Program to Address Avian Electrocutions, Collisions, and Nesting Birds

Pacific Gas & Electric Company
9575 Victor Road
Victor, CA 95240
Contact: Mike Best
209-942-1426

Updated April 2018

Pacific Gas & Electric Company. 2017. *Avian Protection Plan for Public Distribution: PG&E's Program to Address Avian Electrocutions, Collisions, and Nesting Birds.* Public Version. Updated April 2018. Victor, CA.

Contents

Tables

Figures

Acronyms and Abbreviations

AMM	Avoidance and Minimization Measures
APLIC	Avian Power Line Interaction Committee
APP	Avian Protection Plan
BGEPA	Bald and Golden Eagle Protection Act
CCS	California Condor Conservation Strategy
CDFW	California Department of Fish and Wildlife
ECP	Eagle Conservation Plan
GPS	Global Positioning System
HCP	Habitat Conservation Plan
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NBMP	Nesting Bird Management Plan
PG&E	Pacific Gas and Electric Company
RCZ	Raptor Concentration Zone
USFWS	U.S. Fish and Wildlife Service

This page is intentionally blank

Chapter 1
Introduction

1.1 Introduction and Corporate Policy

PG&E is committed to being an environmental leader. Our environmental policy reflects our environmental commitment and challenges us to find ways to produce, deliver, and use energy as safely and sustainably as possible. It is our policy to:

- Comply fully with the letter and spirit of all applicable environmental laws and regulations;
- Maintain an environmental management system that (1) fosters environmental excellence and innovation, (2) ensures that regular independent reviews of all environmental aspects of our business are conducted through a risk-informed process, (3) train all employees on applicable environmental requirements and the importance of environmental leadership to achieving our vision, and (4) strives for continuous improvement;
- Lead by example and reduce our impact on the environment by delivering clean energy, building more sustainable and climate-resilient facilities, and serving as responsible stewards of land, wildlife and cultural resources;
- Proactively engage with our customers to help them use less energy and better manage their energy footprint;
- Advocate for public policies that create greater environmental benefits while balancing the needs of our customers, communities and shareholders;
- Partner with our stakeholders as we strive to meet our environmental commitment; and
- Publicly communicate our progress and performance.

As one component of PG&E's environmental commitment, PG&E has developed this Avian Protection Plan (APP) to address key issues surrounding impact avoidance, management, and conservation of avian species as related to PG&E's operations and maintenance activities.

1.2 Document Organization

This Avian Protection Plan (APP) is organized as follows:

- Chapter 1, *Introduction*, provides background information for the development, implementation, and the goals of the APP.
- Chapter 2, *Risk Assessment and Risk Reduction*, provides an overview of the risk assessment approach, as well as a summary of the proactive and reactive steps taken to prevent avian electrocutions and collisions. It also provides an overview of PG&E's approach to nesting bird management plan.
- Chapter 3, *Training, Permits, Quality Control and Reporting*, provides an overview of the training conducted for PG&E employees and contractors, permits held by PG&E, the quality control process to ensure that the APP is effective, and a summary of reporting requirements.

- Chapter 4, *Avian Enhancement, Outreach, and Research Programs*, provides an overview of the programs and partnerships PG&E engages in and funds to support habitat restoration or other enhancements for birds. It also describes efforts to promote avian protection and conservation, including support of bird research.
- Chapter 5, *References Cited*, provides a list of sources used in preparing this plan.
- Appendix A, *Public Awareness Program*, contains a publicly distributed brochure explaining PG&E's *Avian Protection Plan* and links to information on PG&E's website.
- Appendix B, *Avian Protection Plan Field Guide*, contains a quick reference guide about PG&E's APP for employees who work in the field.

1.3 Background and Purpose

Birds may be affected by a variety of activities, including activities associated with the construction, operation, and maintenance of electric, natural gas, and power generation infrastructure. PG&E's service territory stretches from Eureka in the north to Bakersfield in the south and from the Pacific Ocean in the west to the Sierra Nevada in the east, in addition to gas transmission pipelines in the Mojave Desert. The service area spans more than 74,000 square miles in 48 of California's 58 counties and is home to many wildlife species and important natural communities. The service area contains habitat for more than 300 species of migratory birds that live in northern and central California either permanently or seasonally, and for the numerous waterfowl that migrate in the Pacific Flyway corridor.

Birds often use utility poles, transmission towers, and power lines for perching, hunting, and nesting because these features are often the highest and most prominent points in the landscape. Birds that come in direct contact with electric current while also touching a grounded element of a facility may be electrocuted, resulting in injuries or death (Figure 1). These electrocutions, in turn, may result in electric outages and fires. Bird collisions with facilities include strikes with wires (transmission and distribution lines), with most collisions occurring with the smallest diameter wires and typically mid-span of the line (i.e. these wires are typically the shield wire located above the phase conductors on transmission lines or the phase conductor and neutral wires on distribution lines). If issues arise, the APP program manager, in conjunction with company biologists, investigates the situation, assesses the methods to deter and prevent future occurrences, and prescribes the measures needed to avoid and minimize impacts. Ongoing PG&E maintenance activities, including vegetation management activities, may also affect birds. Nest abandonment can result directly or indirectly from nearby disturbances, depending on the timing, duration, and extent of the work performed.

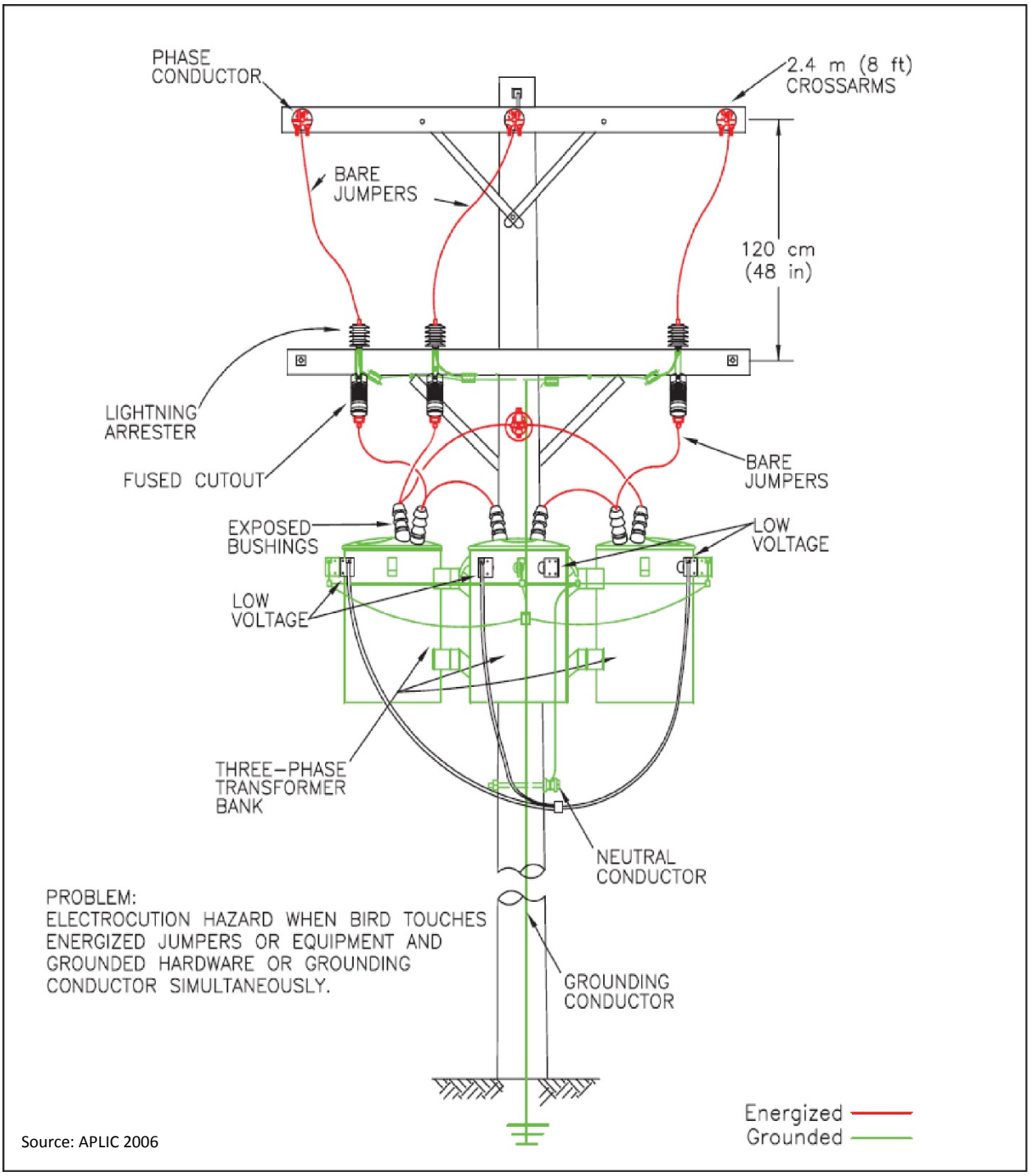


Figure 1. High-risk pole showing the locations where perching birds are vulnerable to electrocutions.

This plan is intended to describe PG&E's efforts to avoid and reduce electrocutions and collisions of birds with electric facilities, and to avoid and minimize impacts on nesting birds from PG&E's maintenance activities. PG&E's APP has evolved over many years and some of the key dates related to the program are described in Table 1.

Table 1. Summary of Key Events Related to Avian Protection Plan Development and Implementation

Year	Key Event
1989	Avian Power Line Interaction Committee (APLIC) established; PG&E is a cofounder.
1994	PG&E and U.S Fish and Wildlife Service (USFWS) enter into a settlement agreement regarding raptor fatalities and pole retrofitting.
1995	PG&E responds to requirements of 1994 settlement agreement.
2002	PG&E develops Raptor Concentration Zone (RCZ) maps and begins implementing pole retrofit program.
2003-2004	PG&E works with APLIC to develop APP guidelines.
2005	APLIC and USFWS provide guidelines to all utilities on APP development.
2006	APLIC issues *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*.
2007	PG&E adopts comprehensive APP as a *Utility Standard*. Settlement agreement with USFWS expires and PG&E continues implementation of retrofitting program. Bald eagle delisted.
2008	PG&E revises and expands RCZ maps. PG&E initiates condor conservation strategy.
2012	USFWS releases *2012 Final Land Based Wind Energy Guidelines* and proposed Eagle Rule. PG&E begins developing Eagle Conservation Plan (ECP). PG&E develops its *Nesting Bird Management Plan*. APLIC issues *Reducing Avian Collisions with Power Lines: State of the Art in 2012*.
2013	PG&E updates standards and procedures including its *Raptor Safe and Wildlife Protection* standards. Eagle Rule revised.
2015	PG&E updates its APP.
2016	Eagle Rule revisions.
2018	PG&E updates its APP.

PG&E finalized its APP in 2007 to better protect migratory, threatened, and endangered birds while improving safety and reliability for its customers. As policies and science evolve, and as PG&E monitors the plan's effectiveness, PG&E will continue to improve the plan to address current issues and trends.

In conjunction with the electric transmission standards team, the APP program manager is responsible for providing oversight, implementing an effective quality assurance program to assess compliance with the APP, establishing the overall program approach and annual work plan, procuring necessary funding, identifying training needs, establishing reporting criteria and

structure, and serving as the central point of contact with resource agencies involved in avian protection.

The primary objective of this APP is to provide a description of all approaches, based on accepted practices of wildlife management to 1) reduce avian electrocutions and collisions with electric facilities and 2) to avoid and minimize impacts of PG&E activities on nesting birds. Implementation of this plan allows for consistent application of avoidance and minimization measures (AMMs) for birds across PG&E's service area and for compliance with state and federal laws and regulations protecting birds.

According to the Avian Power Line Interaction Committee (APLIC), an APP is a utility-specific program designed to reduce the operational and avian risks that result from avian interactions with electric utility facilities. Although each utility's APP may vary, the overall goal of any APP should be to reduce avian mortality. In 2005, APLIC and the U.S. Fish and Wildlife Service (USFWS) jointly released Avian Protection Plan Guidelines. The guidelines provide a framework along with principles and examples to aid utilities in APP development. Although not all APP elements may be included in every APP because of specific utility circumstances or geographical area, these guidelines represent an overview of elements that should be considered for inclusion in an APP. PG&E's APP follows these guidelines. An APP should be a "living document" that is evaluated and modified over time to improve its effectiveness.

Avian Power Line Interaction Committee

The Avian Power Line Interaction Committee (APLIC) leads the electric utility industry in protecting avian resources while enhancing reliable energy delivery. APLIC works in partnership with utilities, resources agencies and the public to:

- Develop and provide educational resources
- Identify and fund research
- Develop and provide cost-effective management options, and
- Serve as the focal point for avian interaction utility issues

The following components are encouraged by APLIC to be included in an APP, all of which are included in PG&E's APP:

- **Corporate Policy** identifying the company's commitment to work cooperatively toward the protection of migratory birds.
- **Training** for all appropriate utility personnel on company APP policies and procedures.
- **Permits**, both federal and state, that may be required for nest management, incidental take, or listed species recovery or management.
- **Construction Design Standards** for avian protection that meet or exceed APLIC recommendations.
- **Nest Management Procedures** for nests that may pose fire or safety risks, as well as methods for installing nest platforms.
- **Avian Reporting System** to track bird mortalities, remedial actions, and nest management.
- **Risk Assessment Methodologies** to aid in the identification of avian mortality risk areas.
- **Mortality Reduction Measures** that can be implemented to minimize bird electrocution and collision risks.
- **Avian Enhancement Options** to benefit bird populations or habitat.

- **Quality Control Methods** to monitor and improve APP effectiveness and efficiency.
- **Public Awareness Efforts** to educate the public about avian/power line issues and solutions.
- **Key Resources**, both internal and external, that are integral to successful APP implementation.

1.4 Objectives of the APP

The APP is intended to ensure compliance with legal and regulatory requirements while improving system reliability and reducing overall avian mortality. PG&E employees are responsible for managing bird interactions with power lines and are committed to reducing the detrimental effects of these interactions. To fulfill this commitment, the APP is designed to do the following:

1. Ensure that company operations comply with applicable laws, regulations, permits, and PG&E procedures.
2. Ensure that company operations follow APLIC recommendations and guidance.
3. Work cooperatively and collaboratively with state and federal wildlife agencies.
4. Provide annual training to targeted staff and contractors on how to implement the APP.
5. Document avian mortalities, high-risk poles and lines, and nests with risk to nesting pairs or infrastructure operations.
6. Construct all new or rebuilt facilities in Raptor Concentration Zones to current avian-safe standards.
7. Retrofit or modify power poles reactively where a raptor or other large bird has been injured or killed.
8. Participate with public and private organizations in programs and research to reduce the detrimental effects of avian interactions with power lines.
9. Prepare an annual plan summarizing the yearly strategy to fulfill the key APP components.
10. Ensure that procedures describing a proactive retrofit program for utility poles are implemented with the goal of reducing avian electrocutions and collisions. This retrofit program includes annual evaluations and retrofits of high-risk poles throughout the service area using multiple variables described in Chapter 2, *Risk Assessment and Risk Reduction*.
11. Ensure that nest protection measures, including seasonal restrictions (i.e., limited operating periods) or exclusion buffers, are implemented in areas where PG&E undertakes projects and other maintenance activities near bird nests.

1.5 Avian Task Force

1.5.1 Overview

PG&E has an avian task force to coordinate the protection, mitigation, and conservation of birds in relation to PG&E's facilities, activities and lands. A primary goal of the task force is to oversee and guide implementation of the APP. Other goals include prioritizing future management actions, addressing other areas of risk, and supporting regional avian conservation efforts. The task force includes the APP program manager, management and staff from environmental management (i.e., principals and wildlife biologists that represent multiple lines of business), Law, and engineers from transmission and distribution departments. This diverse team helps ensure that biological, legal, and governance issues are addressed when implementing the APP. This task force is responsible for reviewing the APP and ensuring the governance structure is in place and that budget is secured to implement the APP.

Ferruginous Hawk

1.5.2 Program Manager

The APP program manager is responsible for implementation of the APP.

In addition, the program manager oversees and ensures that PG&E adheres to the guidelines and conditions of the U.S. Fish and Wildlife Special Purpose Utility Permit MB057942-0, administered by the USFWS Office of Migratory Birds. The APP program manager is responsible for reporting, as required by the Special Purpose Utility Permit, to the USFWS Office of Law Enforcement and Migratory Bird Permit Office. As part of the APP, the program manager is responsible for the following programs:

- **Training and Education.** The APP requires that the appropriate identified employees are trained on the permit conditions and other key elements of the program. Online training is provided for approximately 5,500 employees and contractors annually.
- **Avian Reporting System and Corrective Actions**. All birds found killed or injured because of electrocutions or collisions with PG&E facilities are required to be reported via a web-based reporting system. In the case of raptors, the incident pole and adjacent pole(s) will be retrofitted within 90 days. Other poles are also retrofitted for reliability and for concerns with high-profile species. The program manager is responsible for securing the necessary budget and ensures that work is completed in compliance with the APP. Managing budget includes establishing unit cost, geographic area division targets, and determining which area divisions will participate in the annual retrofit plans.
- **Avian-Safe Construction Design Standards.** The program manager works closely with the engineering and standards group to design facilities that meet industry guidelines for avian protection. This also includes development of new standards as necessary. In addition, any new ancillary equipment or facilities attached to power poles are evaluated for potential risks.

- **Risk Assessment Methodology and Retrofit Program.** The program manager is responsible for identifying, planning, and working with the area divisions and reliability group to proactively retrofit approximately 2,000 poles annually. As required for reliability and/or threatened or endangered species, annual retrofit work also targets high-risk transmission structures and substations.
- **Nest Management and Permit Compliance.** The program manager, in conjunction with PG&E biologists, is involved in developing project-specific measures to address nesting bird issues for various types of projects (gas, electric, facility, renewable). The program manager also takes the lead in discussions with the California Department of Fish and Wildlife (CDFW) and USFWS to discuss nesting bird issues.
- **Quality Control.** The program manager performs periodic division audits to assess compliance with the related standards, work procedures, and overhead construction techniques. Quality control audits also ensure that all bird incidents are reported to the regulatory agencies as required. This audit is completed by verifying electrical distribution and transmission outage data and correlating with bird incident reports on a monthly basis.
- **Avian Enhancement.** Certain species of birds may benefit from using utility structures. The program manager works closely with USFWS on protection projects to reduce bird mortality. This can be accomplished by installing bird flight diverters, or more commonly through installing bird nesting structures. The program manager also works to partner with environmental and conservation organizations as well as identify charitable contribution opportunities to nonprofit groups.

The APP program manager also responds to unusual situations that arise regarding birds. For example, the APP program manager maintains partnerships with not-for-profit wildlife rehabilitation groups that may care for injured birds or wildlife that are affected by electric facilities. PG&E works with the following groups to provide care for injured and orphaned wildlife resulting from encounters with PG&E facilities: Injured and Orphaned Wildlife, International Bird Rescue, WildCare, Lindsey Wildlife, U.C. Davis Raptor Center, and Wildlife Center of Silicon Valley.

1.5.3 Environmental Staff

As part of the avian task force, environmental management staff provides direction to the program based on state and federal laws, regulations, or policies, and direction from senior management. Environmental management staff participates in strategy and program development for the APP. Environmental management staff also participates in APLIC meetings and works to share the latest information with PG&E staff.

Killdeer

1.5.4 Biological Staff

Biological staff provides technical biological input for non-routine avian issues, such as study design, proposal development and review, data analysis and interpretation. Biological staff advises on technical biological issues affecting bird species, and participates in agency consultations as needed.

1.5.5 Line of Business Staff

The avian task force includes staff members from engineering within PG&E's transmission and distribution lines of business. Engineering staff provides input on the effectiveness of the APP as it relates to asset engineering design, maintenance, and operations. Assigned staff updates engineering documents, work procedures, and other materials to support avian program implementation. They also approve new methods and materials for use on electric transmission or distribution systems. Transmission and distribution representatives support implementation of the APP and provide guidance on what is working in the field.

1.5.6 Legal Staff

PG&E Law Department staff provides legal advice and counsel to the avian task force on various legal and regulatory matters. Law reviews implementation of the APP and regulations affecting bird species, including compliance with state and federal laws and PG&E's special purpose utility permit.

1.6 Avian Reporting System

PG&E trains field staff to identify and report avian mortalities and any other relevant avian concerns. Staff is directed to contact the APP program manager when there is a nesting bird, electrocution, collision, or other avian issue. The APP program manager maintains a comprehensive database of reported bird incidents and uses this information to help direct PG&E's avian risk reduction efforts. When a dead or injured bird is found, PG&E collects information on the date, location, type of bird, type of injury, where the bird was found in relation to PG&E facilities, photos (if possible), the equipment involved, and need for repairs. This information is used to plan retrofits and to identify and evaluate facility risk over time.

Swainson's Hawk

The APP program manager responds to incidents from the public when calls are received directly or through PG&E's general service hotline. PG&E has developed systems to standardize the reporting of avian fatalities including a detailed phone log, a script outlining responses and procedures based on the type of incident or issue experienced by the public, and an automatic notification process to ensure the APP program manager is aware of pressing issues related to avian management as reported by the public.

This page is intentionally blank

Chapter 2
Risk Assessment and Risk Reduction

The APP is intended to ensure compliance with legal and regulatory requirements while improving system reliability and reducing overall avian mortality. Its primary components are risk assessment and risk reduction.

2.1 Retrofits

Avian-safe power pole retrofits reduce the potential for mortality from electrocution by reducing or eliminating the risk when raptors and other birds encounter energized components when landing on power poles. PG&E's Raptor-Safe Construction and Wildlife Protection guidelines specify construction methods and special materials used by PG&E to ensure retrofits are safe for birds and other wildlife. For example, protective coverings or guards are constructed such that birds, squirrels, and other wildlife are deterred or protected from contacting energized conductors. In addition, all power pole retrofits are completed using APLIC guidance (Avian Power Line Interaction Committee 2006).

As part of the proactive retrofitting process, careful attention is paid to high-risk poles, lines, and structures, including the following:

- Older and non-retrofitted equipment
- Riser, tap, and corner poles
- Locations where raptors are known to perch or nest
- Lines that traverse open fields, farmlands, orchards, or rolling hills with signs of ground squirrels (i.e., a high prey base) or that are near a body of water
- Poles or structures that are higher than the surrounding terrain, providing a vantage point from which raptors may perch

Reactive retrofits are made to poles or equipment that has electrocuted a raptor or other migratory bird. Avian electrocution also triggers a risk assessment of the five adjacent poles (or 1,000 feet of power line for 60- or 70-kilovolt [kV] wood transmission poles) in all directions away from the incident pole. Adjacent pole evaluations assess bird use, pole type, and habitat near the incident pole. On average, about five adjacent poles are retrofitted for every incident pole. Repairs to facilities with high risk to raptors and other birds are generally completed within 90 days of an electrocution on distribution facilities.

2.2 Risk Assessment – Proactive Retrofits

PG&E is committed to reducing avian mortality in a cost-effective manner by focusing efforts on the areas that pose the greatest risk to birds. PG&E considers areas with the highest avian use, established flyways, adjacent wetlands, and other information (e.g. electric equipment type, configuration, perceived risk of electrocution for larger birds) when assessing risk. Biological

assessments, outage investigations, and anecdotal evidence are also helpful in determining where potential incidents are most likely to occur.

PG&E's risk assessment for prioritizing proactive retrofits considers historical mortality data, facility nesting data, wildfire risk, and effectiveness of existing risk reduction efforts. To aid in visualizing where at-risk facilities are located, PG&E developed a detailed Raptor Concentration Zone (RCZ) map (Figure 2) that identifies areas where raptors are most likely to occur. The RCZ map is based on raptor mortality data, presence of poles as preferred perch locations, proximity to water and wetlands, and the history of outages resulting from raptor collisions. The RCZ map is used as a planning tool to prioritize proactive retrofit efforts throughout the service territory. When old poles in the RCZs reach their maximum service life, they are replaced with poles that are automatically built to raptor-safe standards. The RCZ is reviewed periodically to assess if it needs to be modified based on bird-caused outages and reported mortalities.

The risk assessment process requires consistent reporting, analyzing, and tracking of corrective work. These duties are performed by the APP program manager and the local area compliance employees. Unusual situations regarding birds may arise, including nesting birds in parking areas, powerhouses, and service garages. These issues are brought to the attention of the APP program manager, who then investigates these issues and works with local staff and other experts to develop solutions to prevent reoccurrence.

2.2.1 Existing Facility Repairs

When existing facilities are repaired, PG&E will often make other avian-safe repairs, including relocating exposed jumper wires, reconductoring with insulated conductors, or adding other bird protection devices. PG&E makes hundreds to thousands of repairs each year that reduce risk to raptors and other bird species.

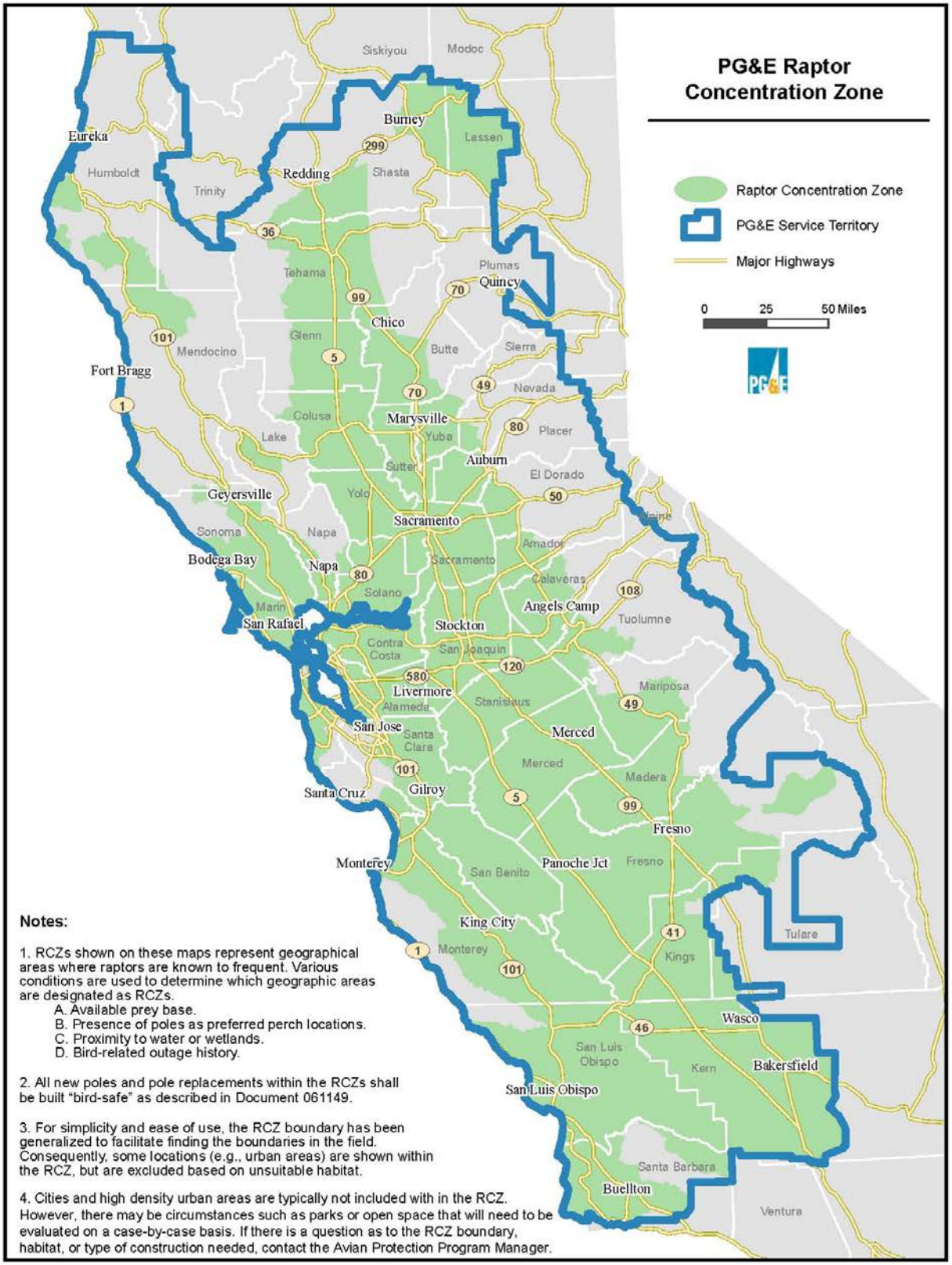


Figure 2. Raptor Concentration Zone

2.3 Risk Reduction

Risk reduction is achieved by constructing new facilities to the current avian-safe standards, assessing existing facilities that pose the greatest risks, repairing facilities, and retrofitting facilities. PG&E also implements risk reduction techniques for nesting birds, California condor, bald and golden eagles, and other birds as described below.

2.3.1 New Construction

PG&E's construction design standards are state-of-the-art and are based on APLIC's *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006).[1] PG&E has developed additional avian-safe construction details, clearance distance requirements for new construction, equipment prescriptions, and construction methods based on the APLIC practices. Avian-safe construction is based on two principles:

Peregrine falcon

- Provide birds with a safe place to land
- Prevent incidental contact with energized conductors

Avian-safe construction in a RCZ is typically implemented by leaving 60 inches of separation (phase to phase) between energized components, and leaving 60 inches of separation (phase to ground) between an energized component and a grounded component. Where separation is not practical, PG&E insulates equipment and conductors to guard against bird electrocutions. Avian-safe construction includes the following measures, depending on pole and equipment configurations:

- Installation of bushing covers
- Interruption of ground links (floating grounds)
- Increased phase separation (reframing)
- Installation of perch deterrents and conductor covers
- Installation of bird flight diverters
- Siting and routing of new facilities away from high-risk areas to minimize impacts (e.g., waterways, wildlife refuges, and foraging habitat).

Examples of some of these retrofits are illustrated in Figure 3. PG&E maintains a catalogue of bird protection devices, material, and equipment approved for use in PG&E operations, maintenance, and construction. Durability and effectiveness of these items are continually monitored as part of facility inspections and maintenance. Whenever new bird protection equipment, devices or materials are introduced by any manufacturer, PG&E must rigorously test this equipment to ensure it does not pose a safety or other risks to facilities and the public before deploying it in the field.

[1] APLIC has 2012 standards for guidance on collisions; the 2006 standards are the latest standards for electric distribution infrastructure.

Figure 3. Important Avian Protection Hardware on Electric Facilities

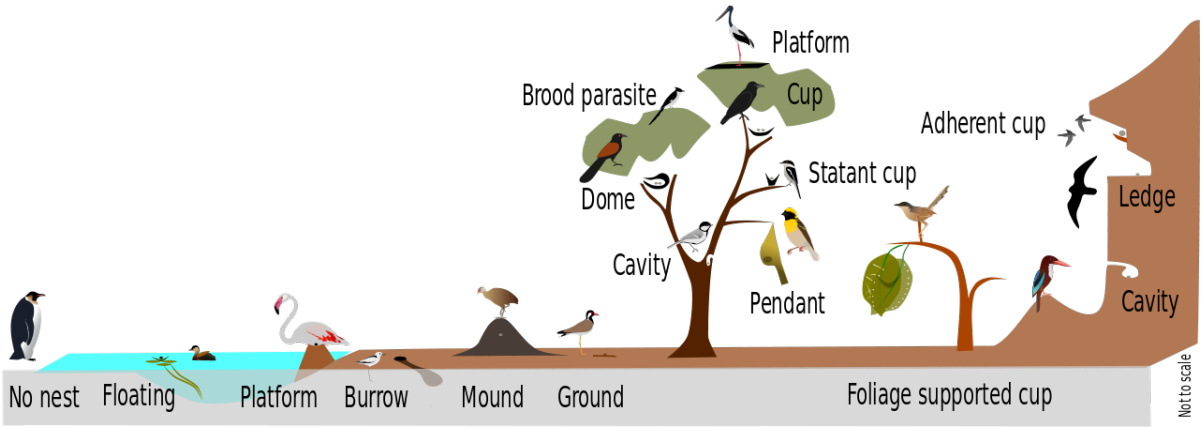
2.3.2 Nesting Bird Management

PG&E is focused on reducing potential impacts from its operations and maintenance activities on nesting birds. To address these impacts, and to maintain compliance with the MBTA and state statute, PG&E has developed a comprehensive plan to avoid and minimize impacts on nesting birds: PG&E's *Nesting Bird Management Plan* (NBMP). The NBMP is intended to do the following:

Hummingbird nest

- Maintain compliance with applicable federal and state bird protection regulations.
- Avoid and minimize disturbance to nesting birds within PG&E's service area.
- Standardize PG&E's approach to managing nesting bird conflicts using accepted wildlife management practices.

The NBMP is implemented by biologists working on PG&E activities and projects near active bird nests. The NBMP defines an active nest as one containing eggs or young. PG&E is required to comply with federal and state laws and regulations that prohibit take of birds, including eggs or young, in active nests or for special-status protected species.



Nest Forms and Locations

Implementation of the NBMP allows for consistent application of avoidance and minimization measures for nesting birds across PG&E activities, provides structured and standardized decision making, and allows PG&E to comply with federal and state regulations applicable to nesting birds.

A step-wise compliance approach guides implementation of the NBMP:

- **Step 1: Conduct desktop review** as part of the environmental review and planning process prior to initiating activities in locations that provide suitable habitat for nesting birds. A qualified biologist determines if there is potential for the activity to impact nesting birds.
- **Step 2: Conduct preconstruction nesting bird surveys,** if there is potential to impact active nests in or near construction areas. Pre-construction surveys can detect recent or established nests and identify the need to implement or adjust standard exclusion buffers.
- **Step 3: Assign nest exclusion buffers** or other applicable AMMs around active nests. The NBMP provides standard species-specific nest exclusion buffers; assigned buffers may be standard or reduced and may include periodic nest monitoring.
- **Step 4: Confer** with the USFWS and/or CDFW as necessary. PG&E may confer with USFWS and/or CDFW when the standard buffer cannot be observed for a nesting threatened, endangered or fully protected species.

PG&E also created EarlyBird, a mobile application and website, to improve data collection and tracking for nesting bird surveys and species detections. Every year, nesting season surveys locate active nests for many bird species across California. Communicating the results of these survey efforts is a critical aspect of managing work near nests and retaining survey information is an important part of PG&E's Nesting Bird Management Plan. EarlyBird offers PG&E biologists a way to standardize the information they collect, streamline reporting, and save data for future projects and research. As an example, PG&E can use EarlyBird to support the management and protection of burrowing owls located at or near PG&E facilities.

2.3.3 California Condor Risk Reduction

Portions of PG&E's electric service area fall within the current and historic range of the California condor (*Gymnogyps californianus*), one of the rarest avian species worldwide. PG&E works with condor managers to identify potential areas of electrocution and collision risk for condors in California. As areas of risk are identified and refined, PG&E develops action plans to reduce these risks by making power lines more visible to condors (reduce collisions), covering the wire with insulation (reduce electrocutions), and, in special cases, undergrounding the power line altogether (reduce collisions and electrocutions). In addition, company biologists are working with condor partners to develop a predictive risk model to identify and prioritize future areas for additional proactive work as condors continue to expand their territory.

PG&E is in the process of developing a long-term California Condor Strategy (CCS) for the express purpose of providing a clear and predictable program for avoiding and minimizing hazards to California condors that may be associated with the design, construction, operation, and maintenance of electric facilities. The CCS achieves the following objectives:

- Reviews and summarizes the status of California condors in relation to utility facilities, including movement patterns and range, general ecology and status, management practices, recovery efforts, and power line interactions.
- Maps and evaluates California condor movements to determine condor density zones based on available satellite or cellular GPS (Global Positioning System) tracking data through partnerships with agencies and condor management teams.
- Overlays available satellite telemetry data with PG&E electric facilities to establish a repeatable process for evaluating tracking data for periodic assessment within the range of PG&E facilities.
- Defines risk through assessment of condor telemetry data to provide new tools for evaluating California populations to better understand and define areas of risk.
- Develops a long-term strategy to identify, plan, and prioritize retrofits for facilities that have the greatest potential to reduce the risk of California condor electrocutions or collisions.

As described in Chapter 4, *Avian Enhancement, Outreach, and Research Programs*, PG&E also contributes to the Ventana Wildlife Society to help with the condor release program including training young condors to avoid perching on electric poles (also known as aversion training).

2.3.4 Bald and Golden Eagle Risk Reduction

For years PG&E has worked closely with USFWS and other federal land managers to address bald and golden eagle management issues on its hydroelectric power facilities and throughout its service area. In 2013, PG&E developed an Eagle Conservation Plan (ECP) to address bald and golden eagle mortalities, both of which are protected under the Bald and Golden Eagle Protection Act (BGEPA). The ECP evaluates effects at the landscape level, estimates mortalities on a yearly basis, and identifies minimization and mitigation measures. PG&E

Bald Eagle

submitted the ECP to the USFWS to obtain a long-term incidental take permit for bald and golden eagles. PG&E is working closely with the USFWS on the ECP. Issuance of this permit is anticipated in 2019. The ECP addresses the take of bald and golden eagles associated with above-ground transmission and distribution lines and facilities and emergency eagle nest disturbance.

The incidental take of eagles is the result of infrastructure that has, in most cases, existed for many decades, and, consequently, is part of the baseline mortality for eagles in the ECP area. Issuance of the requested permit would not increase mortality in the ECP area. Rather, PG&E's avoidance and mitigation measures, including annual pole and line retrofits, will continue to significantly reduce take relative to baseline levels, resulting in a net benefit to bald and golden eagles. For example, avian-safe power pole retrofits will continue to reduce the potential for eagle mortality from electrocution by eliminating the risk that eagles and other raptors would encounter energized components when landing on power poles.

Pole Retrofits for Wind Developers

USFWS's Eagle Conservation Plan Guidance for wind developers details current guidelines regarding minimizing impacts on eagles. Eagle take permits issued by the USFWS require compensatory mitigation to offset eagle take. Actions to retrofit, reframe, or rebuild power poles to avian-safe designs have been identified by USFWS as an option for offsetting eagle take occurring at wind facilities. PG&E is working with USFWS, the National Fish and Wildlife Foundation, and specific wind developers to facilitate retrofits on PG&E facilities to meet compensatory mitigation requirements for these third-party entities. To provide mitigation options to third party wind developers, PG&E identifies areas with suitable poles for modification, provides the USFWS and the third-party entity with a cost estimate and schedule to conduct the appropriate retrofits, and, once an agreement is reached between the parties, PG&E executes the work plan. This work is in addition to PG&E's reactive and proactive power pole retrofitting work.

2.3.5 Other Bird Species Risk Reduction

As needed, the APP program manager assists PG&E staff with other risk reduction issues. This includes consulting with staff on the timing of work activities, the installation of materials and equipment to avoid and minimize the potential impact on birds of work activities, and the rescue and relocation of birds. The APP program manager has assisted with wild turkeys, nesting cormorants, nesting sparrows, among other species.

Chapter 3
Training, Permits, Quality Control and Reporting

3.1 Training

PG&E delivers biannual training on the APP to more than 5,000 operations and management staff to ensure employees and contractors are aware of their obligations to report incidents and protect active nests or special-status species. Managers, supervisors, line crews, engineers, dispatch, and design personnel receive biannual training as well. The training covers the need for an APP, the methods by which employees should report an avian mortality or injury, and protocols to follow to avoid and minimize impacts on nests. Three APP trainings are offered: APP Overview, APP Comprehensive Review, and APP for Vegetation Management. All trainings are available for delivery to staff in-person or via the web. Descriptions and target audience of each training course are as follows:

Code: ENVR-0400
Name: Avian Protection Plan Overview
Type: Mandated
Description: This course provides an overview of PG&E's APP

Objectives: Overview level of the following subjects: The twelve components of the APP – Employees' roles and responsibilities to comply with the APP – How birds interact with electric distribution and transmission facilities – Laws that protect migratory birds and threatened and endangered birds and their nests – Reporting procedure for bird incidents – Selection of incident and adjacent poles – Pole risk assessment and retrofit program – Raptor Concentration Zone (RCZ) – Avian safe construction – Nest management – Avian enhancement – Public awareness – Working safely – How to obtain additional information about the program.

Target Audience: Senior Management, Control Center Ops, etc.
Duration: 15 minutes plus discussion
Repeat Interval: 24 months

Code: ENVR-0401
Name: Avian Protection Plan Comprehensive Review
Type: Mandated
Description: This course provides a comprehensive presentation of PG&E's APP.

Objectives: Overview and detailed information for the following subjects: The twelve components of the APP – Employees' roles and responsibilities to comply with the APP – How birds interact with electric distribution and transmission facilities – Laws that protect migratory birds and threatened and endangered birds and their nests – Reporting procedure for bird incidents – Selection of incident and adjacent poles – Pole risk assessment and retrofit program – Raptor Concentration Zone – Avian safe construction – Nest management – Avian enhancement – Public awareness – Working safely – How to obtain additional information about the program.

Target audience: M&C Field Employees, Supervisors, Quality Assurance, etc.

Duration: 40 minutes plus discussion
Repeat Interval: 24 months

Code: ENVR-0402
Name: Avian Protection Plan for Vegetation Management
Type: Mandated
Description: This course provides an overview of PG&E's APP as well as detailed information about managing nests encountered by Vegetation Management activities.

Objectives: Overview information for the following subjects: The twelve components of the APP – Employees' and responsibilities to comply with the APP – How birds interact with electric distribution and transmission facilities – Laws that protect migratory birds and threatened and endangered birds and their nests – Reporting procedure for bird incidents – Selection of incident and adjacent poles – Pole risk assessment and retrofit program – Raptor Concentration Zone – Avian safe construction – Nest management – Avian enhancement – Public Awareness – Working safely – How to obtain additional information about the program – Details information is provided about managing nests encountered by Vegetation Management activities.

Target Audience: Foresters, Vegetation Management Program Managers, VM Specialists, etc.
Duration: 20 minutes plus discussion
Repeat Interval: 24 months

PG&E distributes educational materials to the public. Appendix A, *Public Awareness Program*, provides an example of these materials.

PG&E has developed the *Avian Protection Plan Field Guide* (Appendix B), a quick reference tool used by field crews to understand their responsibilities to the APP. The field guide contains information on how to report bird incidents, identifies additional actions required for raptors, contains photos and brief descriptions of some of the common bird species typically encountered in the field, specifies methods for managing nests, and provides common examples of raptor-safe construction techniques.

3.2 Permits

PG&E maintains a Special Purpose Utility Permit with the USFWS. The permit authorizes PG&E to collect, transport, and temporarily possess migratory birds found injured or deceased on electric facilities including property, structures, and rights-of-way for avian mortality monitoring or disposal purposes; in certain emergency situations, the permit also allows PG&E to remove active nests. The permit requires that PG&E maintain records of mortalities and injuries, and that the results be reported annually to the USFWS. This permit enhances PG&E's ability to accurately monitor migratory bird mortalities and enables PG&E to retain specimens to confirm identification. Collecting and reporting data to the USFWS contributes to collective knowledge and understanding of the impacts of utilities on migratory birds. PG&E also obtains other project-specific permits as needed. This has included permits for moving and removing raptor nests. PG&E's San Joaquin Valley operation and maintenance (O&M) Habitat Conservation Plan (HCP) and the Bay Area O&M HCP also serve as a special purpose permit for non-ESA listed birds covered in the HCP.

3.3 Quality Control

PG&E evaluates the progress and effectiveness of the APP annually. The APP program manager ensures that project engineers use the guidance required to design facilities, and that crews know how to respond when deceased birds or active nests are discovered in the field. The APP program manager is involved in all major decisions affecting birds or their nests, reviews key incidents, and evaluates and plans for PG&E's annual avian protection needs. Where information on incident forms is incomplete or illegible, the APP program manager contacts staff to complete and clarify the information reported. Based on the annual review of the program, PG&E's avian task force discusses, modifies, expands, and provides recommendations to improve the APP to address issues that arise.

3.4 Reporting

PG&E maintains detailed records of each year's avian incidents. PG&E reports this information, consistent with its Special Purpose Utility Permit, to USFWS. The annual report provides an opportunity for PG&E to review the previous year's data, summarize incidents, and evaluate further needs.

Common Raven and Nest

This page is intentionally blank

Chapter 4

Avian Enhancement, Outreach, and Research Programs

4.1 Avian Enhancement Programs and Partnerships

PG&E implements a series of efforts that are designed to enhance avian habitat and benefit migratory birds. These efforts include providing ongoing wildlife habitat grant funding, obtaining wildlife habitat certification at several of our properties, installing nesting platforms for osprey, and making habitat acquisitions to benefit many species. Wildlife Habitat Council certifies submitted PG&E properties that benefit wildlife species and natural habitats. PG&E has developed partnerships for over 15 years with Audubon California, local Audubon chapters, Ducks Unlimited, San Francisco Bay and Central Valley Joint Ventures, Santa Cruz Predatory Bird Research Group, Migratory Bird Partnership (Audubon California, The Nature Conservancy, and Point Blue Conservation Science), Ventana Wildlife Society, WildCare, and other organizations whose mission is to promote the protection of avian species and further the conservation of birds. PG&E will continue to support and fund avian enhancement programs to advance the protection and conservation of avian species.

4.1.1.1 Migratory Bird Conservation Partnership

PG&E supports the Migratory Bird Conservation Partnership, a collaboration of Audubon California, Point Blue Conservation Science, and The Nature Conservancy that is addressing the loss of wetland habitat in California's Central Valley and its impact on bird populations. The projects PG&E has supported between 2015 and 2017 clear barriers to providing additional water on the landscape and are complementary in nature—building off previous work supported by PG&E and leveraging the expertise and engagement of each partnership organization. The projects complement each other by creating additional tools and data for land managers to use in their efforts to most effectively and efficiently manage wetlands for migratory birds, flooding protection, and other wildlife.

4.1.1.2 Migratory Bird Joint Ventures

PG&E has been an active member of the Management Boards for both the San Francisco Bay Joint Venture and the Central Valley Joint Venture—part of the National Migratory Bird Joint Ventures across the country that work collaboratively with federal, state and local regulatory agencies, environmental nonprofit organizations, businesses, and landowners to conserve and restore habitat for migratory birds. PG&E works with partners to develop restoration plans and ensure that electric utility infrastructure is integrated into final designs.

Migratory Bird JOINT VENTURES

Migratory Bird Joint Ventures are cooperative, regional partnerships that work to conserve habitat for the benefit of birds, other wildlife, and people. There are twenty-two habitat-based Joint Ventures, each addressing the bird habitat conservation issues found within their geographic area.

4.1.1.3 Tricolored Blackbird Memorandum of Understanding

PG&E was an original signatory to the multi-agency and environmental stakeholder group Memorandum of Understanding (MOU) in 2007 that was developed to promote voluntary conservation measures to save this species. PG&E continues to be an active member of the Tricolored Blackbird Working Group to encourage and support actions by all stakeholders to

safeguard the long-term welfare of tricolored blackbirds (*Agelaius tricolor*) by supporting secure breeding, foraging, and wintering populations and their associated habitat in California. The Working Group has developed and is implementing a Conservation Plan and Research and Monitoring Programs. Signatories to the MOU include Audubon California, California Association of Resource Conservation Districts, California Farm Bureau, California Cattlemen's Association, CDFW, California Department of Food and Agriculture, Central Valley Bird Club, Central Valley Joint Venture, Natural Resources Conservation Service, PG&E, Point Blue Conservation Science, Sonoran Joint Venture, Sustainable Conservation, U.C. Berkeley Agriculture and Natural Resources, USFWS, and Western United Dairymen.

4.1.1.4 Peregrine Falcon Nest Box

Since the late 1980s, PG&E has partnered with U.C. Santa Cruz Predatory Bird Research Group to provide safe nesting habitat on the roof of the company's headquarters in downtown San Francisco. The scientists at U.C. Santa Cruz Predatory Bird Research Group knew that peregrine falcons (*Falco peregrinus*) were attempting to nest on the Bay Bridge and other bridges with poor results. They identified a good location to install a nest box on the roof of 77 Beale Street that would provide a safe location and one that could be easily monitored. A webcam was installed to allow interested employees and the public to view progressive peregrine pair nesting activities including egg incubation and fledging of nestlings. PG&E has also supported the U.C. Santa Cruz Predatory Bird Research Group education and outreach efforts in local schools.

4.1.1.5 Osprey Nest Platforms

Native osprey (*Pandion haliaetus carolinensis*) populations are expanding in Northern California and often favor building their large nests on PG&E's power poles. PG&E developed a program to install osprey nest platforms to move osprey nests out of harm's way and to prevent fires from nests initiated on live power poles. Hundreds of osprey nest platforms have been installed throughout PG&E's service area.

Installation of Osprey Nesting Platform

4.1.1.6 Barn Owl Nest Boxes

PG&E has partnered with Central Coast Vineyards and the Lodi Wine Grape Commission to aid grape growers in the Central Coast and Central Valley to maintain sustainable pest control and keep birds safe around power lines. PG&E's charitable grants funded the purchase of owl nest boxes for grape growers to install with the goal of attracting barn owls, a natural predator of rodents. The nest boxes are intended to provide a safe home for the owls and replace the boxes that growers often attach to power poles that can create unintended problems such as electrocution of the birds, outages, and potential fires.

Barn Owl Nest Boxes

4.1.1.7 California Condor Recovery Efforts

Since 2003, PG&E has continued to promote protection and recovery of California condor populations. PG&E helped form an external Condor Recovery Plan Powerline Subcommittee, comprising multiple California utilities, resource agencies, and other condor recovery stakeholders, to determine the risk of power structures to California condors in California and to develop and implement plans to minimize that risk. In 2016, PG&E signed an MOU with multiple condor recovery partners (USFWS, National Park Service, Yurok Tribe, CDFW, Bureau of Land Management, Redwood National Park, U.S. Forest Service, and Ventana Wildlife Society) focused on condor reintroduction efforts in Redwood National Park. In addition to providing insight on PG&E facilities that could pose a risk to the condors, PG&E donated $200,000 over a 3-year period to the National Parks Foundation for condor reintroduction and recovery, which directly supports the Redwood Condor Reintroduction Project.

PG&E continues to actively support the Ventana Wildlife Society to help with the reintroduction of condors on the Central Coast of California, including efforts such as developing joint educational displays, hosting fundraising events and technical meetings, developing risk mitigation strategies, and has served on the Board of Directors.

Since 2002, PG&E and the PG&E Corporate Foundation have contributed more than $7.5 million to programs that benefit migratory birds. Table 2 lists the organizations that have received PG&E contributions.

Table 2. Summary of Partner Organizations That Have Received Charitable Contributions

California Wine Education Foundation
Center for Land-Based Learning
Central Coast Vineyard Team
Ducks Unlimited
Friends of the Swainson's Hawk, Inc.
Golden Gate Audubon Society
Injured & Orphaned Wildlife
Lodi Sandhill Crane Association
National Audubon Society
National Fish and Wildlife Foundation
National Park Foundation (Washington office)
Redwood National Park
U.C. Santa Cruz Foundation
Ventana Wildlife Society

4.1.1.8 Supporting National, State and Local Chapters of the Audubon Society

PG&E has had a long-standing relationship with the National Audubon Society, California Audubon, and local Audubon chapters throughout our service area. PG&E employees volunteer, are members, have held leadership positions in these organizations.

4.1.1.9 Avian Power Line Interaction Committee

In the mid-1980s, PG&E was an original founder of APLIC, which was formed to address bird electrocutions and collisions with power lines. APLIC develops guidelines for utility companies to minimize risk to birds from infrastructure and develops education and outreach to others. PG&E has supported APLIC by serving as the Chair and on the Executive Committee, assisting with the development of utility standards and guidelines, supporting and attending educational workshops, supporting and developing research grant efforts, and implementing APLIC's recommendations.

4.2 Research

PG&E has contributed to multiple research efforts. Some of these key efforts are:

- Identifying Electric Distribution Poles for Priority Retrofitting to Reduce Bird Mortality. California Energy Commission. PIER Final Project Report. December 2007. P500-04-052.
- Testing the Effectiveness of an Avian Flight Diverter for Reducing Avian Collisions with Distribution Power Lines in the Sacramento Valley, California. PIER Final Project Report. January 2008. CEC-5000-2007-122.
- Evaluating Diverter Effectiveness in Reducing Avian Collision with Distribution Lines at San Luis National Wildlife Refuge Complex, Merced County, California. PIER Final Project Report. August 2009. CEC-500-2009-078.

This research has informed PG&E's maintenance and retrofitting practices.

Chapter 5
References Cited

5.1 Printed References

Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

This page is intentionally blank

Appendix A

Public Awareness Program

Going beyond compliance and building "best practices" for our industry.

PG&E has a long history of protecting habitat and species, including bird populations. For example, we were a founding member of the Avian Power Line Interaction Committee, a collaboration between utilities and the U.S. Fish and Wildlife Service that began nearly 20 years ago.

In 2002, PG&E and the U.S. Fish and Wildlife Service entered into an agreement that required PG&E to implement various measures to protect migratory, threatened, and endangered birds. When this agreement expired in 2007, PG&E voluntarily adopted a proactive Avian Protection Plan that expands PG&E's commitments in public outreach, collaborative research, and "bird safe" technology demonstration projects. This plan has set the standard for our industry and is one of the most comprehensive in the nation.

BIRD PROTECTION PROGRAM (BIRD-SAFE RETROFITS)

	2002	2003	2004	2005	2006	2007
Poles Planned	2,000	2,011	2,000	2,050	2,075	2000
Poles Completed	1,930	2,089	2,023	2,073	2,117	2000
% Poles Completed	97%	103%	101%	101%	102%	100%

Since 2002, in compliance with the agreement, PG&E has retrofitted more than 12,230 existing utility poles and towers with "bird-safe" equipment (see chart above). We have also retrofitted more than 11,100 poles in high-risk areas where bird injuries or fatalities have occurred previously, or where there have been bird-related power outages. All new poles and replacement poles in "Raptor Concentration Zones" are also built "bird-safe."

Many bird species build nests on power poles and structures; unfortunately, this behavior increases risks for both the birds and our electric system. PG&E's Avian Protection Plan minimizes these risks by protecting birds and their nests, while improving safety and reliability for our customers.

SOME OF OUR PARTNERS:

Ventana Wildlife Society
Avian Power Line Interaction Committee (APLIC)
Wildcare
Audubon California
UC Santa Cruz Predatory Bird Research Group

Since 2003, PG&E has contributed over $500,000 to support bird conservation organizations.

In 2008, PG&E earned Audubon California's Corporate Achievement Award for protecting California's birds and important habitat.

For more information,
visit **www.pge.com/environment**

AVIAN PROTECTION PLAN

Helping protect California's birds and keep customer service flying high.

AVIAN PROTECTION PLAN

Pacific Gas and Electric Company's (PG&E) service area spans over 70,000 square miles and is home to wildlife and other important natural resources. More than 300 species of migratory birds live in northern and central California either permanently or during migration along the "Pacific Flyway."

Since utility poles are often the highest and most prominent point in a landscape, birds often perch on the poles to hunt or rest. Also, it is often easier for birds to build nests on the flat surfaces of electric equipment than in trees.

When birds seek out power lines for perching and various other uses, they can come into direct contact with live electric wires and become electrocuted, which, in turn, can cause electric outages and fires. Birds can also collide with power lines while in flight. PG&E's Avian Protection Plan seeks to protect migratory, threatened, and endangered birds, while improving safety and reliability for our customers.

Breeding bald eagles in California have increased from a low of only about 30 pairs in the early 1980s to more than 200 pairs today due to a variety of federal, state, and private protection efforts.

A plan designed to take wing.

PG&E's Avian Protection Plan consists of several key components:

- **Employee training and compliance:** We educate our employees to ensure we comply with all federal and state bird protection laws. PG&E has developed training in "bird-safe" construction practices and in the proper reporting and tracking of all avian electrocutions or collisions.
- **Making our poles "bird-safe":** Since 2002, we have proactively retrofitted a growing number of our utility poles. Each year, we identify high-risk poles based on the type of electric equipment, risk of electrocution, local biology, geography, and regional conservation initiatives. When needed, we also install platforms above or near our equipment to give birds a safe place to build a nest.
- **Public education and partnerships:** We promote the need for migratory bird and habitat conservation in cooperation with federal and state agencies and non-profit organizations. We also partner with a variety of bird conservation organizations to raise awareness about sensitive bird species, such as the Purple Martin in Lake County or the Tricolored Blackbird in Tulare County.

A PG&E crew installs a nest platform near Clear Lake. Nest platforms reduce outages and are preferred by large birds, such as ospreys.

Together, we can make a difference to Californians on the ground—and in the air.

Targeted species enhancement programs: For the past 25 years, PG&E has led various bird species conservation initiatives.

- **Bald Eagle:** PG&E has put in place tailored plans to protect bald eagles at our facilities as part of a long-term, statewide effort to monitor our national symbol. PG&E has surveyed more than 50 bald eagle nesting territories and provided scientific research and data to the U.S. Fish and Wildlife Service. Today, PG&E's hydroelectric watershed lands support about one-quarter of the state's entire breeding population of bald eagles.

"PG&E's avian protection efforts give us hope for the California Condor's recovery in Big Sur and elsewhere," said Kelly Sorenson, executive director of the Ventana Wildlife Society.

- **California Condor:** Endangered California Condors have a risk of colliding with PG&E's power lines in remote Big Sur locations. Inadequate scientific data on Condors makes it difficult to resolve this challenge. Yet, PG&E has taken a number of steps, including developing a cutting-edge long-lining helicopter technique to install special "bird flight diverters" along these area power lines. In 2007, PG&E partnered with Monterey County, the Ventana Wildlife Society, California State Parks, the U.S. Forest Service, and the U.S. Fish and Wildlife Service on one of the largest installations of these innovative devices.
- **Peregrine Falcon:** PG&E's support of peregrine falcon conservation efforts reached new heights in 2005 by funding the UC Santa Cruz Predatory Bird Research Group (SCPBRG) "nest cam" to broadcast the daily routine of a pair of peregrines and their young perched high on the company's headquarters building in San Francisco. In 2007, the famous peregrines laid new eggs on the central anchorage of the San Francisco-Bay Bridge, requiring a dramatic rescue by the SCPBRG scientists with financial support from PG&E. Our continued financial support also funds the group's educational outreach to hundreds of high schools and middle schools throughout California.

A golden eagle soars above a PG&E transmission tower near San Juan Bautista. Innovative new products, such as the red transmission line covers pictured (at left), protect eagles and greatly increase service reliability.

"Voluntary industry cooperation has long been essential to our conservation efforts, and many electric power companies have already taken steps to protect migratory birds," said former U.S. Fish and Wildlife Service Director Matt Hogan. "The new [industry] guidelines build on and strengthen that tradition."

In 2007, PG&E crews rescued a barn owl, entangled in a kite string, in Anderson, California.

"Thank you PG&E for helping us save the owl. We definitely couldn't have done it without your help."

Karlene Stoker, PR Coordinator,
Shasta Wildlife Rescue & Rehabilitation, Inc.

Avian Protection Plan—Helping Protect California's Birds and Keep Customer Service Flying High

Avian Protection Plan
Field Guide

A Field Guide to PG&E's Avian Protection Plan. This Field Guide can be used as a quick reference to the Avian Protection Plan. This Field Guide contains information on how to report bird incidents, additional actions required for raptors, photos and brief description of some of the common species of birds typically encountered in the field, guidelines for nests, and common examples of "raptor safe" construction techniques.

For additional information on the Avian Protection Plan please refer to documents S2321, WP2321, 061149, and 068181 located in the Technical Information Library.

cover photo:

Golden Eagle:

WINGSPAN: 79 inches

Golden eagles have a shiny, "golden" plumage on the nape of the neck. Adults are brown with some lighter feathers at the base of the underside of the tail and juveniles have a white patch on the underside of their wings. Golden eagles tend to be found in open areas.

Reporting Bird Incidents

An employee shall complete F2321-3, "Bird Incident Reporting Form" (type of information on form shown below), whether or not an outage occurred, for any of the following conditions:

1. The employee discovers and/or confirms a bird electrocution or collision.
2. The employee receives notification from the public or other source regarding a bird electrocution or collision.

The employee shall hand-deliver, email, or fax a copy of the completed form to the construction first line supervisor or the division compliance department.

The completed form, including the bird incident number, shall be entered into the "Bird Incident Reporting Web Site" at **http://dbird/HomePage.aspx** within 5 working days of the incident.

Bird Incident Reporting Form

Electric T&D Engg.
06/07
F2321-3

Email the completed form to Division Bird Coordinator. Enter completed form on "Bird Incident Reporting Site" within 5 working days of incident.
For additional information or a copy of this form call: (415) 973-WILD or 223-9453.

Report Date: / / **Incident #** **WorkType**

Date Found: / / **Time (FNL):** : **Outage?** ☐No ☐Yes=**Outage/Log#**

Bird Found By: **CorpID** **Cell** ( ) -

Sender: **CorpID** **Phone** ( ) -

GPS coordinates of pole: **Latitude N** **Longitude W**

Address:

Cross Street: **Nearest City:**

Where is bird now and in whose possession?

Number of birds found = __ and type of bird(s) involved (use check boxes or enter the species below):

☐ Raptor: ☐ golden eagle ☐ bald eagle (Collect eagle, and call 24-hour line at 415-973-9453.)
☐ hawk ☐ owl ☐ vulture ☐ other bird with curved beak and sharp talons
☐ Waterfowl
☐ Perching bird
☐ Undetermined bird

Type/species, if known: _____

Condition of bird(s) ☐ dead **OR** ☐ injured (check below all that apply):
☐ burned ☐ broken appendage ☐ decayed ☐ maggots present ☐ other observation _____

Suspected cause of injury or death: ☐ electrocution ☐ collision ☐ unknown/other _____

Bird was found: ☐ base of pole ☐ on pole ☐ mid-span __ of incident pole _____ ☐ other location _____

Photos? ☐ bird ☐ pole (file locally with original form)

Additional Info. (e.g., band #, other persons) _____

Incident Pole Information (*PG&E Field Use*)

Division: **Circuit name:** **Voltage:** kV

Pole/Tower #: _____

Pole /Tower Design: ☐ tangent ☐ line/buck ☐ dead end ☐ slack span ☐ other_____

Conductor Spacing: ☐ <44" ☐ 44 – 59" ☐ ≥60" **Number of Phases** = __

Circuit Design:
☐ horizontal
☐ vertical
☐ triangular

Support:
☐ 9" brackets ☐ wood x-arm
☐ 20" brackets ☐ fiberglass bracket
☐ metal riser bracket
☐ metal x-arm

Equipment: and **Equip. ID#**:
☐ transformer ☐ capacitor
☐ cutouts bushing mounted ☐ recloser
☐ cutouts on x-arm ☐ switch
☐ riser ☐ other _____

Protection	None	Bushing covers	Insulated jumpers	Perch guard	Raptor framing	Other (Describe)
Existing:	☐	☐	☐	☐	☐	☐
Needed:	☐	☐	☐	☐	☐	☐

EC/EL# **Construction Supervisor CorpID:**

U.S. Fish and Wildlife Service (USFWS) will provide the information requested, if available, at the time the form is completed. Any use by USFWS of this form is not a final determination of the issues addressed. The form, or its use, does not constitute rulemaking by the USFWS and may not be relied upon to create a right or benefit, substantive or procedural, enforceable at law or equity by any person.

Raptor Incidents

Raptor Electrocution: **Distribution**

The incident investigator shall follow the protocol in, "Adjacent Pole Determination Form, and perform the following steps:

1. Identify other nearby structures posing a high risk of bird electrocution.
2. Enter the information from the "Adjacent Pole Determination Form" into the Bird Incident Reporting web site.
3. Create one Electric Corrective (EC) work form notification per pole.
4. Set the priority and completion date of each notification to 90 DAYS.
5. Enter the EC notification number on the Bird Incident Reporting web site.
6. Include the bird incident number on all forms and notifications.
7. File copies of the "Adjacent Pole Determination Form," including EC notification numbers, for auditing purposes.
8. Raptor-related EC notifications shall not be reassessed.

Raptor Electrocution: **Transmission Line**

The incident investigator shall perform the following steps:

1. Create an LC Work Management (WM) notification to schedule investigative work regarding the incident.
2. If the incident involved a raptor, the incident pole/tower shall be retrofit with avian-safe devices.
3. Create a Plant Maintenance (PM) order to retrofit the incident pole.
4. Set the priority and completion date of the order to 6 months.
5. If the incident pole/tower cannot be made avian-safe, provide the reason to avian program management.

continued on back

6. For 60 kilovolt (kV) and 70 kV wood pole lines, evaluate nearby adjacent poles within 1,000 feet of the incident pole. Only evaluations of the adjacent poles and data gathering are required. The information on adjacent poles should be included on the outage Event Report.
7. Schedule any retrofit work to be completed as soon as practical, based on material availability, facility accessibility, clearances, etc.
8. Provide any PM order number to avian program management, and include the bird incident number on all forms, notifications, or PM orders.
9. Enter the PM order number in the "Additional Data" field on the Bird Incident Reporting website.

Incidents Involving Non-Raptors

Bird electrocutions or mid-span incidents involving non-raptor or non-T&E bird species shall be monitored, addressed, and prioritized within the structured retrofit program or included in mitigation work recommended through the outage review process.

Reliability

Capital work performed to proactively improve reliability, as the result of an outage review team recommendation, shall be charged against MWC 08 using existing capital project review and approval processes.

Date: ____/____/____ Name:_____ Corp ID: _____ Incident# M M G d d m m y y h h m m

Notes: It is required to make the incident pole avian-safe. For mid-span raptor and T&E bird *electrocutions*, the nearest pole becomes the incident pole (IP).
Construction supervisor or delegate: Perform work verification on a representative sample of avian related work to ensure the work was completed correctly.

Pole Location Number	Equip Label	Bird Sign	Habitat (check one per row)				Existing Protection (Check all that apply)				Needed Protection (Check all that apply)				Lat/Long (or pole #)		EPCM /EL or PM							
			Res.	Com.	Ag.	Nat.	Bushing Cover	Jumper Insul.	Perch Guard	Other (Describe)	Bushing Cover	Jumper Insul.	Perch Guard	Other (Describe)										
IP																								

Comments: _____
Attach a copy of the distribution map or a sketch depicting the circuit(s) within the work area adjacent to the incident pole.

[a] Label key: Transformer (TF), Capacitor (CAP), Riser (RI), Fuse (FU), Recloser (RE), Line & Buck or Corner (L&B), Other (specify here) _____

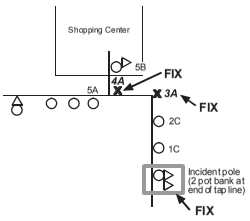
[b] **For Audit Only:** Use this form to record the date when the audit was performed (in the rightmost column) following the job completion. If possible, take a digital picture labeled with the EPCM/EL number for reference.

continued on back

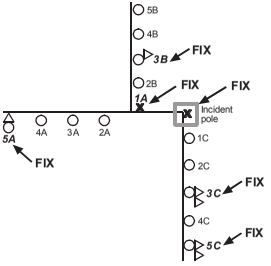
Adjacent Pole Report

Examples of Locating Adjacent Distribution Poles for Fixing

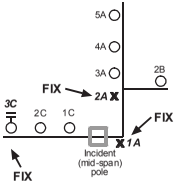
In the examples below, assume all the poles were found within Natural or Agricultural habitats, unless noted otherwise.



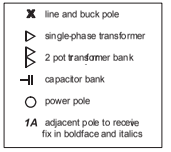
Example: Found line and buck poles (3A and 4A). Pole 5B in the shopping center is excluded because habitat is not suitable for raptors.



Example: Found two pot banks (3C and 5C), line and buck (1A) and single phase transformer poles (5A and 3B).



Example: Found two line and buck poles (1A and 2A) and capacitor bank (3C). Nearest pole (1A) becomes the incident pole.



Bald Eagle

WINGSPAN: 80 inches

Prominent features of adults are a white head and tail as well as uniformly brown wings and breasts. Juveniles do not have white heads. Bald eagles are often found near bodies of water.

Osprey

WINGSPAN: 63 inches

An osprey's underside has white breasts and a white tail with many black bands. Ospreys nest in tall, dead trees and utility poles near water.

Swainson's Hawk

WINGSPAN: 51 inches

The Swainson's hawk has a reddish brown band across its breast and is otherwise brown with a light underside. The species lives in grassland and agricultural land.

Red-tailed Hawk

WINGSPAN: 49 inches

Adults of this species have a red tail and are otherwise brown with a pale underside. Red-tailed hawks have wide distributions and can be found year-round in fields, hunting from trees or utility poles.

Peregrine Falcon

WINGSPAN: 41 inches

Dark grey wings and head with a light underside streaked with black. Often found near marshes and tends to nest on cliff ledges or tall buildings.

Barn Owl

WINGSPAN: 42 inches

This owl has a distinct white, heart-shaped face and a mostly white underside. Barn owls sleep during the day in barns, caves, or dense trees, hunting at night in marshes, agricultural land, and brushy areas.

Great Horned Owl:

WINGSPAN: 44 inches

Perching individuals exhibit "ear tufts" of feathers. Overall plumage is mottled brown. A nocturnal owl that sleeps in trees and sheltered areas, the great horned owl hunts in forests and fields.

Turkey Vulture

WINGSPAN: 67 inches

Turkey vultures have featherless heads. The turkey vulture has a widespread distribution and can be seen in rural and suburban areas.

Great Blue Heron

WINGSPAN: 72 inches

A tall, slender bird, the great blue heron can easily be identified by its size and blue color. Usually found near water, but can forage in wet meadows or fields.

Great Egret

WINGSPAN: 51 inches

A crane-like, white bird with a yellow beak and black legs. Lives in marshes, but can also be found in wet agricultural fields.

Sandhill Crane

WINGSPAN: 77 inches

A distinct character of the sandhill crane is the red feathers on top of its head. This species can be found in open meadows, marshes, and farmland.

Tundra Swan

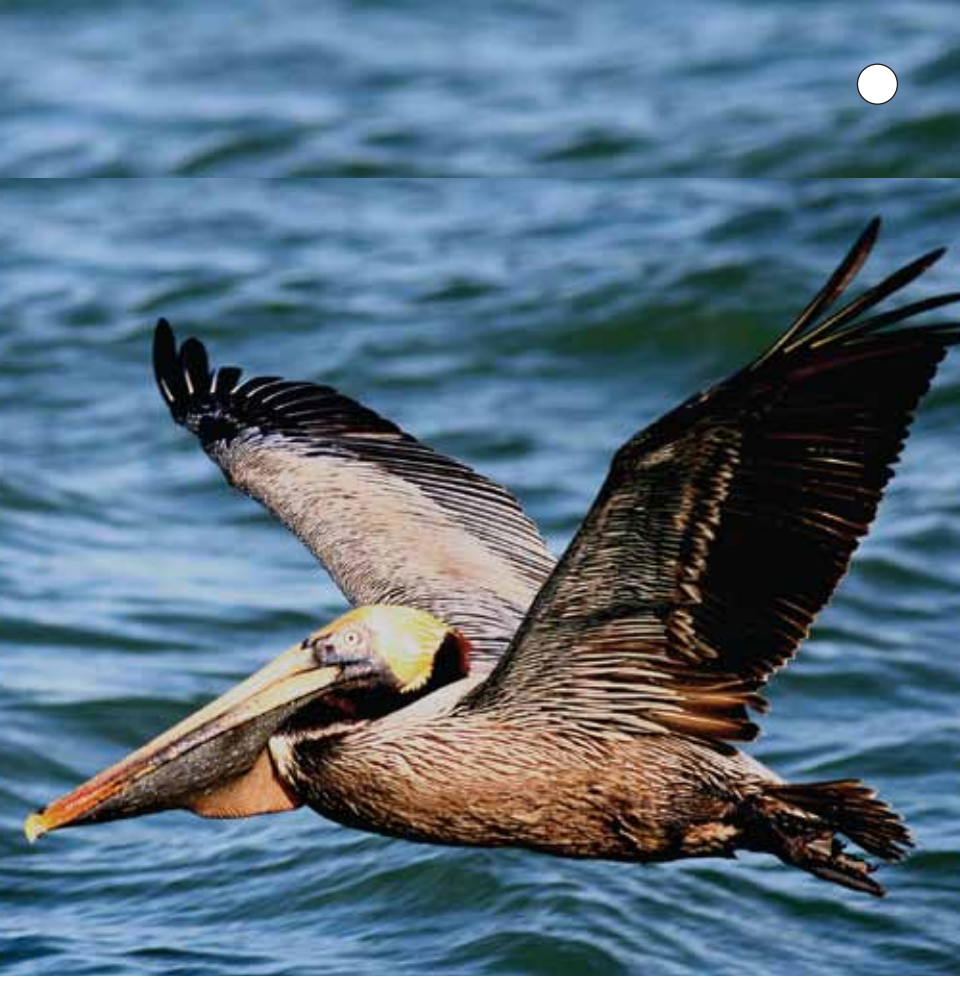
WINGSPAN: 66 inches

A white swan with a yellow patch between its eye and black beak. Can be found in California during the winter in ponds, marshes, and agricultural fields.

American White Pelican

WINGSPAN: 108 inches

White with yellow or orange legs and beak, the American white pelican is found in the calm waters of lakes and marshes.



Brown Pelican

WINGSPAN: 79 inches

A brown or grey colored bird that can often be observed flying low to the surface of the water. The brown pelican tends to be found in saltwater near or in the ocean.

Nests

Precautions

Be cautious when handling bird nests because they can carry disease. Use leather gloves and other personal protective equipment (PPE), as applicable.

Permit

Authorization for employees to remove nests, on an emergency basis, from transmission and distribution systems to prevent electrocution of birds and associated power outages is provided by Federal Fish and Wildlife Permit MB057942-0.

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE

FEDERAL FISH AND WILDLIFE PERMIT

2. AUTHORITY STATUTES
16 USC 703-712

REGULATIONS
50 CFR Part 13
50 CFR 21.27

1. PERMITTEE
PACIFIC GAS & ELECTRIC CO
ELECTRIC ASSET LIFE CYCLE PLANNING
ATTN MIKE BEST
4040 WEST LANE
STOCKTON, CA 95204
U.S.A.

3. NUMBER
MB057942-2
AMENDMENT

4. RENEWABLE
YES
NO

5. BIRD COPY
YES
NO

6. EFFECTIVE
04/30/2010

7. EXPIRES
03/31/2011

8. NAME AND TITLE OF PRINCIPAL OFFICER (If Applicable)
RONALD L. ORTCHLOW
BRIAN FRANTZ

9. TYPE OF PERMIT
SPECIAL PURPOSE - UTILITY

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
PG&E PROPERTY STATEWIDE (including rights-of-way and easements) - CALIFORNIA
RECORDS MUST BE MAINTAINED AT ADDRESS INDICATED ABOVE
CONTRA COSTA, COUNTY, CALIFORNIA

11. CONDITIONS AND AUTHORIZATIONS

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY OR RENEWAL OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. Authorized emergency removal of nests from electric transmission & distribution systems to prevent electrocution of birds and associated power outages (excludes eagles and endangered species). Notification to permit office is required in writing within 72 hours of such activity. (Note: No notification is required for species that are covered under Depredation Order 21.43 which do not require permits to take: crows, ravens, magpies, blackbirds (excluding Tri-colored and Brewer's Blackbirds which do require permit and must be reported), and cowbird

E. Removal and/or re ation of active nests that could be affected by construction, reconstruction, modification or maintenance of PG&E ften permission from USFWS permit office on a case-by-case basis. Nest manipulations required by

continued on back

1. The permit does not authorize removing eagles' nests or those of threatened or endangered bird species.
2. Active nests of any bird species, other than those listed below, "Exceptions Regarding Active Nests," below, that could be affected by construction, reconstruction, or maintenance activities shall not be removed or relocated without written permission from the USFWS permit office on a case-by-case basis.

- Brewer's blackbirds
- Red-winged blackbirds
- Pigeons
- Yellow-headed blackbirds
- Brown-headed cowbirds
- Crows
- Common grackles
- Magpies
- European starlings
- English sparrows

Discretion shall be used when applying these exceptions.

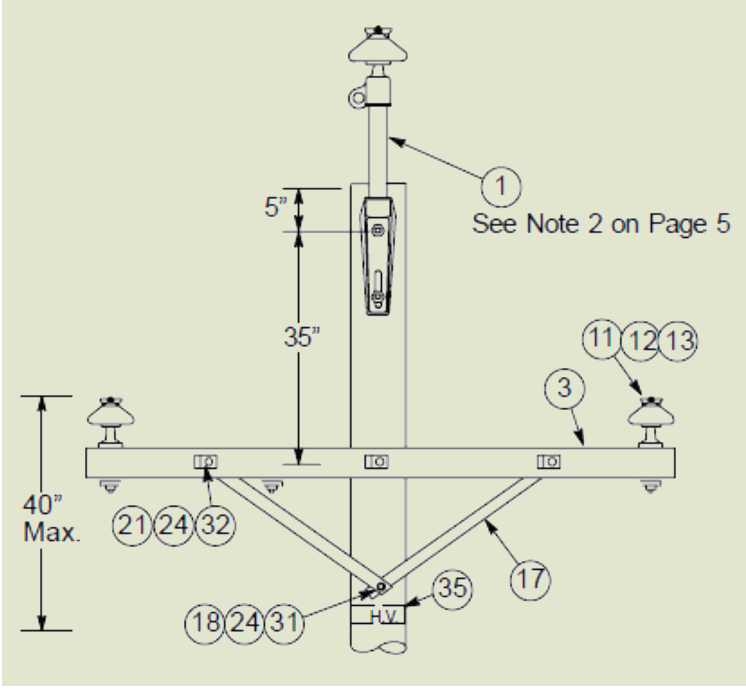
3. A copy of the permit shall be carried, ready for display, by employees who transport or move any bird, nest, or carcass.
4. A copy of the permit may also be printed from the Environmental Services site on the Company Intranet.

Nest Protection

1. Employees shall contact avian program management before working near any eagle's nest, because there may be work- or permit-related restrictions imposed during certain times of the year.
2. Nearly all bird nests are protected by the Federal Migratory Bird Treaty Act.
3. Golden eagle and bald eagle nests are protected by the Eagle Protection Act and cannot be disturbed or possessed without authorization from the USFWS.
4. Under no circumstance shall an employee take away any part of any bird carcass/nest or give away any part to others. To do so could lead to civil and/or criminal penalties. Refer to, "Bird Nest Process."

Construction Retrofits

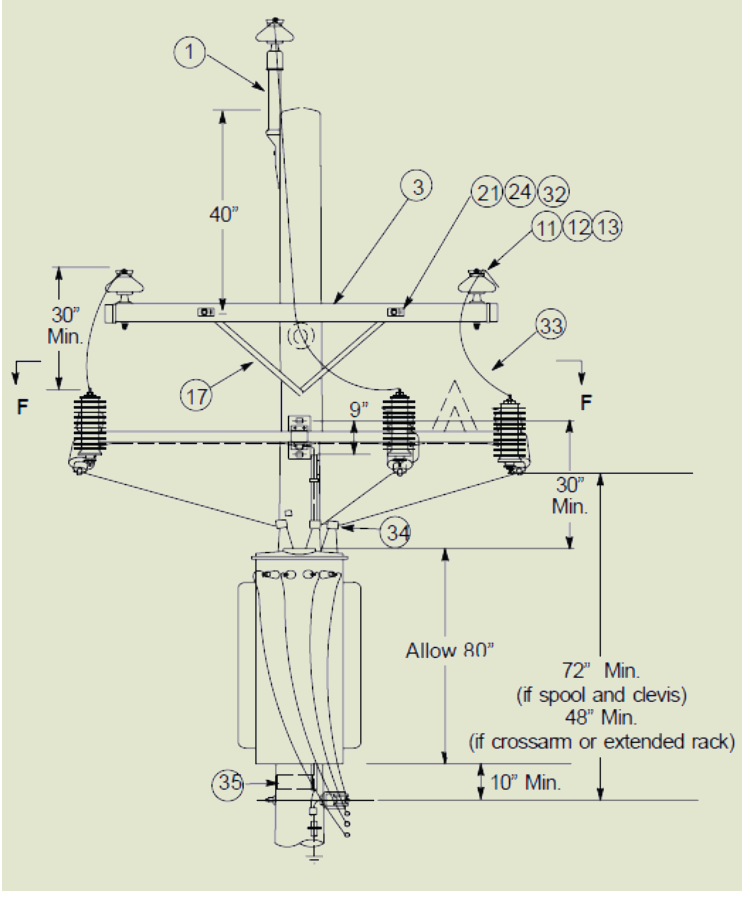
Tangent and Light Angle Construction



Need more explanation here of this diagram and where to find out more. Need more explanation here of this diagram and where to find out more.

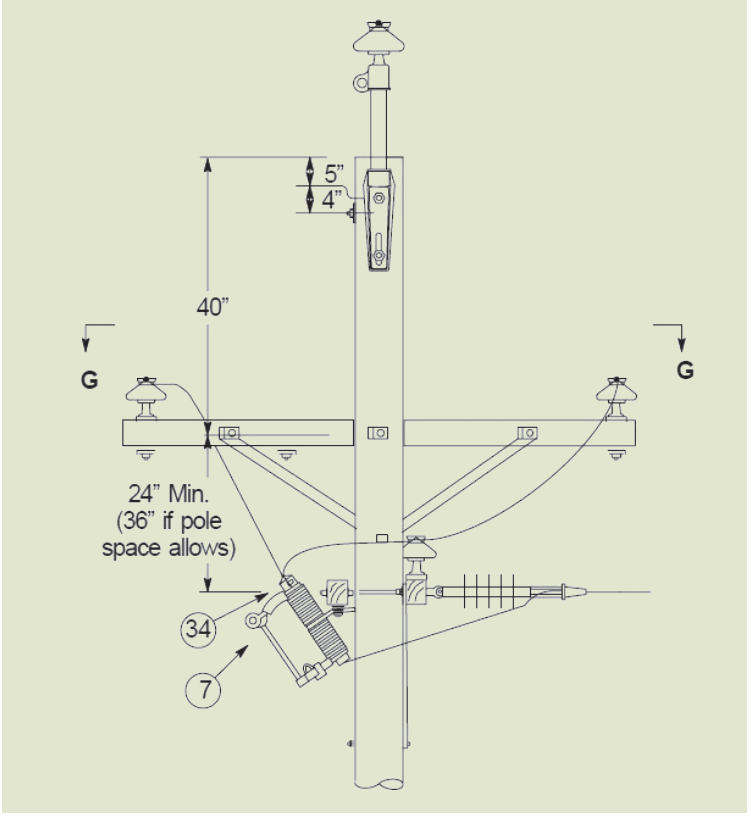
continued on back

Tangent Construction: Pole Top
Conventional Transformer with Surge Arrester



Need more explanation here of this diagram and where to find out more.
Need more explanation here of this diagram and where to find out more.

Another Construction diagram Here



For additional framing information refer to document:
061149 OH: Framing

continued on back

For more information, contact:

Mike Best, Avian Program Manager
MBB8@pge.com

Chuck Partridge, Senior Electric Distribution Engineer
CAP4@pge.com

www.pge.com/environment