



Habitat Conservation Plan

AMENDMENT

FINAL AUGUST 2023



FINAL

San Diego Gas & Electric Company Habitat Conservation Plan Amendment

Prepared By:

San Diego Gas & Electric Company
Environmental Services
Last Edited: August 2023

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SDG&E Habitat Conservation Plan Amendment

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LIST OF ACRONYMS AND ABBREVIATIONS

ARTO	arroyo toad
BGEPA	Bald and Golden Eagle Protection Act
BSS	Belding's savannah sparrow
BUOW	burrowing owl
C.F.R.	Code of Federal Regulations
CAGN	coastal California gnatcatcher
Cal-IPC	California Invasive Plant Council
CACW	coastal cactus wren
CBI	Conservation Biology Institute
CDFW	California Department of Fish & Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CPUC	California Public Utilities Commission
CRLF	California red-legged frog
DEM	Digital Elevation Model
ECP	Eagle Conservation Plan
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
GRC	General Rate Case
HCB	Hermes copper butterfly
HCP	Habitat Conservation Plan
ITP	incidental take permit
LBVI	least Bell's vireo
LEHCP	Low-Effect Habitat Conservation Plan
LFRR	light-footed Ridgway's rail
LMS	Laguna Mountains skipper
MCBCP	Marine Corps Base Camp Pendleton
MHCP	Multiple Habitat Conservation Program
MSCP	Multiple Species Conservation Program
MSHCP	Multi-Species Habitat Conservation Plan
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Planning Act
NEPA	National Environmental Policy Act
O&M	operations and maintenance
OHV	off-highway vehicle
OP	Operational Protocol
PAR	Property Analysis Record
PBF	physical and biological feature
PIZ	Probable Impact Zone
PPM	Pacific pocket mouse
PSR	Pre-activity Survey Report
R/E Program	Habitat Restoration and Enhancement Program
ROW	Rights-of-Way

SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas & Electric Company
SKR	Stephens' kangaroo rat
SNPL	western snowy plover
SWFL	southwestern willow flycatcher
SWPT	southwestern pond turtle
TRBL	tricolored blackbird
U.S.C.	United States Code
UAS	Unmanned Aircraft System
USDA	U.S. Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGS	U.S. Geological Survey
WYBC	western yellow-billed cuckoo
°C	degrees Centigrade

GLOSSARY OF DEFINED TERMS

No.	Term	Definition
1.	Annual Report	Report required under Section 6.4 of the HCP Amendment that will be prepared each year by San Diego Gas & Electric Company (SDG&E) and provided to USFWS to document permit compliance and implementation of the conservation strategy.
2.	ARTO-Habitat	Those areas where there is a potential for arroyo toad to occur or in designated critical habitat with physical and biological features (PBFs).
3.	Biologist	<p>A person who has the educational background, training, and work experience (handling experience or permits) required to perform a specific biological task.</p> <p>The term also includes a botanist, where applicable, for specific plant-related tasks, or habitat restoration specialists.</p>
4.	BSS-Habitat	Those areas where there is a potential for Belding's savannah sparrow to occur.
5.	BUOW-Habitat	Those areas where burrowing owl is known to nest or there is a potential for burrowing owl to nest (i.e., in the vicinity of known nesting occurrences).
6.	CACW-Habitat	Those areas where there is a potential for coastal cactus wren to occur, especially individuals or groupings of cactus greater than 2 feet tall.
7.	CAGN-Habitat	Those areas where there is a potential for coastal California gnatcatcher to occur.
8.	Cal-IPC Inventory	An inventory that categorizes plants that threaten California's natural areas. The inventory includes plants that cause damage in California (invasive plants) as well as "Watch" plants that are a high risk of becoming invasive in the future, and is prepared and maintained by the California Invasive Plant Council (Cal-IPC). First published in 1999, this list was later updated in 2006 and now includes more detailed information on invasive species impacts and distribution, more transparent criteria for the rating system, and more thorough documentation for each assessment.

No.	Term	Definition
9.	Changed Circumstances	Changed Circumstances are defined in 50 C.F.R. 17.3 and mean changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by SDG&E and the Wildlife Agencies.
10.	Cover	The percent of a given area covered in vegetation, generally equaling the area of the site covered by shadow if the sun were directly overhead.
11.	Covered Activities	Current and future activities of SDG&E, arising out of or in any way connected with the siting (including any site assessment, surveying, testing, or planning), design, installation, construction, use, maintenance, repair, and removal of Facilities within the Plan Area; biological surveys, handling, and habitat management; or any activities associated with the acquisition of property rights in relation thereto, as more fully described in Sections 2, 4, 5, and 6 of the HCP Amendment.
12.	Covered Species	All species, subspecies, and populations identified in Section 3, Table 3.1, of the HCP Amendment.
13.	CRLF-Habitat	Those areas where there is a potential for California red-legged frog to occur.
14.	DEMs	Digital Elevation Models provided by U.S. Geological Survey.
15.	ESA	The federal Endangered Species Act (16 U.S.C. Section 1531, <i>et seq.</i>).
16.	Facilities	Facilities that are part of SDG&E's operations as an investor-owned utility company, whether owned or operated by SDG&E, that are described in Section 2 of the HCP Amendment.
17.	GRC	The regulation of rates is administered through a California Public Utility General Rate Case proceeding that takes place every 3 to 4 years. As part of the state-mandated proceeding, investor-owned electric and gas companies address the costs of operating and maintaining the utility system and the allocation of those costs among customer classes.

No.	Term	Definition
18.	HCB-Habitat	Those areas where there is potential for Hermes copper butterfly to occur that have PBFs and are within the Mapped Areas as delineated by USFWS and updated annually.
19.	HCP Amendment	Reference to this document, the 2023 SDG&E HCP Amendment to SDG&E's 1995 Subregional Natural Community Conservation Plan/Habitat Conservation Plan to the United States Fish & Wildlife Service (USFWS) and California Department of Fish & Wildlife (CDFW).
20.	Implementing Agreement	The 1995 San Diego Gas & Electric Company Subregional Natural Community Conservation Plan Implementing Agreement/California Endangered Species Act (CESA) Memorandum of Understanding, together with all documents and instruments that are attached hereto or incorporated herein by reference, and all addenda thereto.
21.	Incidental Take	Take of Listed Species that is otherwise prohibited by ESA Section 9(a)(1)(B) where such take is incidental to, and not for the purpose of, the carrying out of an otherwise lawful activity.
22.	LBVI-Habitat	Those riparian areas where there is a potential for least Bell's vireo to occur.
23.	LFRR-Habitat	Those areas where there is the potential for light-footed Ridgway's rail to occur.
24.	Listed Species	Species that are listed as endangered species or threatened species under the ESA.
25.	LMS-Habitat	Areas where there is potential for Laguna Mountains skipper to occur on Palomar Mountain or designated critical habitat with PBFs in the Laguna Mountain range of the Peninsular Ranges System in eastern San Diego County, southern California.
26.	Major Amendment	Those changes to the HCP Amendment that cannot be made administratively and instead require formal amendment of the permit itself, as discussed in Section 6.5.1.3 of the HCP Amendment.

No.	Term	Definition
27.	Mapped Areas	Those areas specifically delineated or designated as providing the necessary components for a species to persist and recover and with the potential for a species to occur (e.g., critical habitat, preserve areas). USFWS will update Mapped Areas annually.
28.	Minor Amendment	Those changes to the HCP Amendment that can be made administratively without formal amendment of the permit itself, as discussed in Section 6.5.1.2 of the HCP Amendment.
29.	Mitigation Credits	A unit of trade used to offset habitat impacts that occur in the PIZ or Plan Area. Each Mitigation Credit typically represents 1 acre of habitat that has been preserved in perpetuity.
30.	Modeled Habitat	The best publicly available data to predict species habitat in the HCP Amendment Area. This model is a representation of an area where a species is likely to be found based on the quality, suitability, and occupancy of a particular area.
31.	Natural Resources Staff	The staff within the Environmental Services Department at SDG&E that are assigned to the Natural Resources Group.
32.	NCCP Act or NCCPA	The Natural Community Conservation Planning Act (California Fish and Game Code Section 2800, <i>et seq.</i>).
33.	New Construction	Construction of new electric transmission and distribution infrastructure including substations and switching stations; gas transmission and distribution pipelines; energy generation and storage Facilities; or other new electric, gas, energy generation or storage Facilities that may be planned, sited, or routed in the Plan Area, either within or outside the PIZ.
34.	No Surprises	The rule promulgated by USFWS and currently codified at 50 C.F.R. 17.3, 1722(6)(5) and 17.32(6)(5) that extends certain assurances regarding future mitigation obligations to permittees obtaining incidental take permits under Section 10(a) of the ESA.

No.	Term	Definition
35.	Operational Protocols or OP	Those policies and procedures detailed in Section 5.1 of the HCP Amendment that are designed to avoid, minimize, and mitigate impacts from Activities by providing an environmentally sensitive approach to SDG&E's day-to-day operations, including Covered Activities (i.e., traditional utility construction, maintenance, and repair).
36.	PBFs	The physical or biological features that may include space for individual and population growth and for normal behavior; cover or shelter; food, water, air, light, minerals, or other nutritional or physiological requirements; sites for breeding and rearing offspring; and habitats that are protected from disturbances or are representative of the historical geographical and ecological distributions of a species.
37.	Probable Impact Zone (PIZ)	The portion of SDG&E's service area around existing SDG&E Facilities where impacts are reasonably likely to occur. More specifically, the PIZ widths and corridors are measured from the center of infrastructure and represent the maximum area within which Covered Activities at these Facilities would occur. The PIZ captures all components associated with linear infrastructure, such as poles and towers, guy wires, and gates.
38.	Plan Area	The 4,100-square-mile service area within which SDG&E supplies power to a population of business and residential accounts and in which may conduct Covered Activities in accordance with the HCP Amendment. The Plan Area is synonymous with SDG&E's service area and is depicted on the map attached to the HCP Amendment as Figure 1.
39.	PPM-Habitat	Those pacific pocket mouse Mapped Areas designated by Marine Corps Base Camp Pendleton (MCBCP) in coordination with USFWS, and any other pacific pocket mouse occupied areas found outside of MCBCP in the future.
40.	Pre-activity Survey	The field survey described in Section 5.1.3 that is completed prior to the start of Covered Activities as outlined in Section 6.3.2 occurring within or adjacent to habitat with potential to support Covered Species.

No.	Term	Definition
41.	Pre-activity Survey Report or PSR	The report that memorializes the findings of a Pre-activity Survey; prescribes avoidance and minimization measures (i.e., applicable Operational Protocols and Species-Specific Protocols); and records mitigation required to offset the impacts, if any, of a Covered Activity.
42.	Preserve	Conserved lands within the Plan Area in a current pending or adopted regional habitat conservation plan, or other local, state, or federal conservation plan that are legally protected from future development (e.g., via conservation or open space easement, through acquisition, deed restriction, or other methods) for the purpose of protecting natural habitat, species, and open space and/or that are actively managed to protect the open space or natural resources into the future.
43.	Proposed Preserve	Those lands within the Plan Area that are not yet legally conserved but are planned for conservation in a current pending or adopted regional plan, or other local, state, or federal conservation plan.
44.	R/E Program	The habitat Restoration and Enhancement Program detailed in Section 5.2 of the HCP Amendment.
45.	Repetitive Fire	A fire that (1) occurs in the same location as a previous fire; (2) occurs between 3 to 10 years after the initial fire; (3) burns at least 50% of any future mitigation lands; or (4) is a single fire so intense or of such severity that it would be unlikely for the area to recover to the original vegetation community.
46.	Road Rut	Man-made depressions or grooves worn into a road or path by travel and other seasonal depressions that are not vernal pools, but which may contain wildlife associated with vernal pools, such as fairy shrimp or western spadefoot, but not vernal pool plant indicator species.
47.	SKR-Habitat	Those areas where there is a potential for Stephens' kangaroo rat to occur.
48.	SNPL-Habitat	Those areas where there is a potential for western snowy plover to occur or in designated critical habitat with PBFs.

No.	Term	Definition
49.	Spadefoot-Habitat	Those areas where there is a potential for western spadefoot to occur.
50.	Species-Specific Protocols	Those measures detailed in Section 5.1.13 of the HCP Amendment that are designed to avoid, minimize, and mitigate impacts from Covered Activities to 21 specifically identified Covered Species.
51.	Subregional Plan	The 1995 San Diego Gas & Electric Company Habitat Conservation Plan and Natural Community Conservation Plan of this date herewith entered into by and among USFWS, CDFW, and SDG&E and all the documents and instruments specifically attached thereto or incorporated therein by reference.
52.	SWFL-Habitat	Those areas where there is a potential for southwestern willow flycatcher to occur or in designated critical habitat with PBFs.
53.	Take	To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. 16 U.S.C. Section 1538(a)(1). As used herein, “take” is limited to incidental take under the ESA.
54.	Target Condition	The condition of a site when it has been restored to pre-impact or pre-project conditions, as defined by the success standards in Section 5.2.2.4.
55.	Thinning	The selective removal of parts of native vegetation to increase space between plants used as a means to reduce wildfire fuels loads.
56.	Tracked Habitat	Modeled Habitat or unmodeled habitat that is assumed or observed to be suitable habitat for or occupied by a Covered Species and will be used to track Covered Species habitat impacts (see Section 6.3.6).
57.	TRBL-Habitat	Those areas where there is a potential for tricolored blackbird to occur.
58.	Treatment Areas	Those locations where native thinning is conducted pursuant to SDG&E’s Wildfire Fuels Management Program.

No.	Term	Definition
59.	Unforeseen Circumstances	Unforeseen Circumstances is defined in 50 C.F.R. 17.3 and means changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by SDG&E or USFWS and CDFW.
60.	Vernal Pool Clarification	The Minor Amendment granted by the Wildlife Agencies to SDG&E on July 26, 2004, regarding vernal pool resources located both on and off SDG&E access roads.
61.	Vernal Pool Complex	A collection of vernal pools that occur in proximity, on the same soil series and are typically biogeographically and hydrologically connected.
62.	Vernal Pool Habitat	The term vernal pool habitat includes vernal pools, vernal pool complexes, and Vernal Pool Watersheds as more fully described in Section 5.1.11.
63.	Vernal Pool Watershed	A topographically defined catchment area from which surface water flows to a vernal pool.
64.	Vernal Pools	Seasonal, depression-type wetlands that result from a unique set of physical parameters and support a specific biological assemblage of plant and animal species. Functional vernal pool ecosystems form under specific physical conditions when small, shallow depressions collect precipitation to create a seasonally perched water table.
65.	Weed	For the purposes of the R/E Program, and per the Cal-IPC, the term weed is defined as a plant that is not native to an environment and, once introduced, establishes, quickly reproduces and spreads, and causes harm to the environment, economy, or humans.
66.	Wildfire Fuels Management	The suite of Covered Activities used by SDG&E as part of its Wildfire Fuels Management Program to reduce fire fuel load around distribution and transmission lines within the SDG&E service area.
67.	Wildfire Fuels Management Program	A Wildfire Fuels Management effort that SDG&E launched as a pilot program in 2019.

No.	Term	Definition
68.	Wildlife Agencies	USFWS and CDFW collectively.
69.	WYBC-Habitat	Those areas where there is a potential for western yellow-billed cuckoo to occur.

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LETTER TO READERS



August 2023

Dear Stakeholders,

San Diego continues to be one of the most biodiverse areas in the United States. From the desert to the coast and everywhere in between, San Diego is home to many special natural resources. San Diego Gas & Electric Company (SDG&E) remains committed to helping protect them through the modernized environmental stewardship practices outlined in this document – our Habitat Conservation Plan (HCP) Amendment.

For 28 years and counting, SDG&E has helped balance economic growth with quality of life for the communities we serve – all alongside the animals and habitats that drew many of us to the region. When SDG&E started this work in 1995, we were one of the first utility companies in California to voluntarily develop an HCP. Today we are thrilled to be joined in our conservation efforts by a network of like-minded environmental stewards and community leaders as we work together to achieve our state’s goal of conserving 30 percent of our lands and coastal waters by 2030.

Stakeholders throughout our service territory, including our customers, suppliers, and employees, have agreed with and supported our efforts to not just avoid and minimize impacts from our activities, but preserve and improve local ecological conditions to enable local animals and plants, including endangered and threatened species, to thrive. Our robust and longstanding environmental stewardship efforts range from proactive habitat conservation and tree planting to employee volunteerism and implementing nature-based solutions to address business challenges.

Some examples of SDG&E’s pioneering work include:

- Deploying innovative environmental impact and tracking technology to streamline collaboration and reporting for field crews, biologists, and monitoring agencies.

- Strategically managing vegetation and energy infrastructure to reduce the likelihood of catastrophic wildfires while creating an ecologically rich space for natural resources to flourish.
- Expanding protection to more than forty species, including those that may be at risk of being listed as endangered or threatened.
- Creation of a local seed collection and banking facility in San Diego County to protect genetic integrity of native plant species as part of our habitat restoration programs.

Starting in late 2023, SDG&E anticipates beginning to operate under the HCP Amendment, which builds on our industry-leading approach to resource conservation and wildfire safety by adding scores of species-specific protections and mitigation—including for bald and golden eagles, detailed in our included Eagle Conservation Plan—and extending our conservation strategies to all parts of our service territory.

We are proud of efforts to collaborate with the wildlife agencies, stakeholders, and communities across our region to not just restore but enhance the sites of our infrastructure projects as we work together to protect our region for current and future generations.

Sincerely,

Erica L. Martin
Director of Environmental Services

Executive Summary

San Diego Gas & Electric Company (SDG&E) is proposing a Habitat Conservation Plan (HCP) Amendment to its 1995 Subregional Natural Community Conservation Plan/Habitat Conservation Plan (Subregional Plan) to the United States Fish & Wildlife Service (USFWS) (HCP Amendment). The HCP Amendment is designed to support the continuation of Covered Activities covered by Endangered Species Act (ESA) Permit No. PRT-809637, which is a multi-species incidental take permit (ITP) issued by USFWS to SDG&E in December 1995. That permit authorized the “incidental take of 110 species in San Diego County and portions of Orange and Riverside County, California.” See ITP No. PRT-809637. It was subject to compliance with and implementation of the Subregional Plan. The Subregional Plan, in turn, “allow[ed] for up to 400 acres of impacts in natural areas before requiring a Plan amendment.” Implementation of the HCP Amendment may result in 400 acres of permanent impacts, 210 acres of temporary impacts, and 210 acres of Wildfire Fuels Management impacts to habitat supporting federally listed and other Covered Species. The impacts anticipated are in addition to the 400 acres of habitat impacts authorized and mitigated under ESA Permit No. PRT-809637. The original ITP for the Subregional Plan was set to expire in 2050, and the amended ITP is anticipated to have the same expiration date.

In approximately 2017, SDG&E began working with the Wildlife Agencies on a joint Subregional Natural Community Conservation Plan (NCCP) and HCP Amendment (joint document) with the goal of allowing each agency to use the joint document for its respective environmental review (California Environmental Quality Act [CEQA] review for the California Department of Fish & Wildlife [CDFW], National Environmental Policy Act [NEPA] review for USFWS) and its respective approval and amended permit issuance. After years of extensive collaboration on the development of the joint document and recognizing that the environmental review timelines for each agency may not align, SDG&E and the Wildlife Agencies agreed in 2021 to separate the joint document into the HCP Amendment and a separate NCCP Amendment, to allow each agency latitude to conduct its required environmental review on its own, independent timeline.

USFWS has received the HCP Amendment, which was circulated for public review as part of its NEPA environmental review in 2022. CDFW has received a matching NCCP Amendment that SDG&E anticipates will be finalized and circulated for public review as part of CDFW’s CEQA review in 2023. SDG&E further anticipates implementing the HCP Amendment when it is first approved by USFWS. SDG&E anticipates that both Plans will ultimately be approved, at which time SDG&E would implement the HCP Amendment and NCCP Amendment as a single plan over the remaining term of the Subregional Plan.

(i) **Background**

Both the federal ESA, 15 United States Code (U.S.C.) Section 1531, *et seq.* and California Endangered Species Act, California Fish and Game Code Section 2050, *et seq.* (CESA) prohibit the “take” of protected species without permission. The CESA defines “take” as to “[h]unt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” California Fish and Game Code Section 86. “Take” is defined under the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” 16 U.S.C. Section 1538(a)(1). USFWS regulations define “harm” as “an act which actually kills or injures wildlife [including] significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, and sheltering.” Title 50 of the Code of Federal Regulations (C.F.R.) Section 17.3.

Under federal law, until 1982, non-federal entities had no means to acquire incidental take authorization. Private landowners and state agencies thus risked violating the ESA no matter how carefully they undertook otherwise lawful activities. This dilemma led Congress to amend Section 10 of the ESA in 1982 to authorize the issuance of an ITP to a non-federal project proponent upon completion of an approved conservation plan (now called a habitat conservation plan or HCP).

In cases where federal land, funding, or authorization is not required for an action by a non-federal entity, USFWS may issue permits through the Section 10 process for acts otherwise in violation of ESA Section 9 to enhance the propagation or survival of any affected species or for the taking of any species incidental to an otherwise lawful activity. Private landowners, corporations, state agencies, local agencies, and other non-federal entities may therefore obtain a Section 10(a)(1)(B) ITP for take of federally listed fish and wildlife species that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”

With the proposed and subsequent listing of the coastal California gnatcatcher (*Poliophtila californica californica*) in 1993, as a federally threatened species, the ESA became a significant constraint to all forms of development in southern California, including the development of energy infrastructure. The state had previously enacted the Natural Community Conservation Planning Act (NCCPA) in 1991 as a tool to work with local communities to develop habitat conservation strategies to protect a wide variety of plants and animals, which included the coastal California gnatcatcher’s coastal sage scrub habitat. One of the goals of the NCCPA was to eliminate the need for future listings. If an NCCP is combined with an HCP, the same plan can provide the basis for issuance of federal endangered species Section 10 permits.

SDG&E saw the potential benefits offered by the NCCPA to the region’s resources and to SDG&E’s ability to reduce regulatory processes typically involved with the maintenance and expansion of a gas and electric energy system. Therefore, SDG&E launched into preparation of its Subregional Plan in the early 1990s.

The Subregional Plan was ultimately approved in 1995 and expires in 2050. In approving the Subregional Plan, USFWS found that it contained all elements required by ESA Section 10(a)(2)(A) and 50 C.F.R. 17.22(b)(1) and 17.32(b)(2). CDFW determined the Subregional Plan would “adequately mitigate impacts to endangered species,” and that with implementation of mitigation, “protect [covered] species from further degradation” by “minimiz[ing] and mitigat[ing] the impacts of the taking of the enumerated species (including, without limitation, the modification of their habitat).”

SDG&E has been successfully operating under the Subregional Plan since its issuance for the 2,245,800-acre permit boundary defined in 1995. The Subregional Plan has helped to create company awareness to operating and constructing Facilities in a manner that avoids or minimizes impacts to the natural communities and wildlife within the San Diego region. This Subregional Plan also defined how mitigation is accomplished for unavoidable impacts and initially allowed for up to 400 acres of impacts in natural areas before requiring a Plan Amendment. Between 2003 and 2007, the region began to experience more prolonged droughts and the frequency and severity of wildfire began to increase. SDG&E began to focus on mitigating the fire risk through hardening of the electric systems within the SDG&E service area. As a result of these increased wildfire safety efforts, SDG&E anticipates that the original impact authorization of 400 acres of habitat modification will not be adequate to continue supporting Covered Activities for the remainder of the Subregional Plan term (through 2050).

The HCP Amendment expands the 1995 Subregional Plan boundary to the entire 2,815,930-acre SDG&E service area (i.e., Plan Area) (see Figure 1); seeks authorization for an additional 400 acres of permanent impacts, 210 acres of temporary impacts, and 210 acres of Wildfire Fuels Management impacts to habitat; updates the Covered Species list based on coordination with USFWS; and adds new species-specific protections and a process for providing species-specific compensatory mitigation as appropriate. The HCP Amendment also includes a Covered Species Analysis (Appendix A), which updates ecological information on each Covered Species, including its current status within the region and known threats or pressures to the species’ continued survival, and analyzes potential impacts of Covered Activities on Covered Species and their habitat. SDG&E has also prepared an Eagle Conservation Plan (ECP), appended to the HCP Amendment (Appendix B), which provides the information necessary to continue to include golden eagles and bald eagles as Covered Species under the HCP Amendment.

The Covered Species Analysis and ECP rely on locally developed analytical modeling data to predict anticipated effects of continued Covered Activities necessary to provide safe and reliable utility service in an environmentally sensitive manner to Covered Species within the region through 2050. The analysis explains the HCP Amendment’s conservation strategy to avoid, minimize, and mitigate impacts from Covered Activities and details additional Species-Specific Protocols to enhance current practices and further protect and conserve Covered Species. The HCP Amendment also reorganizes and updates the language of the Subregional Plan to improve readability.

(ii) Overview of the HCP Amendment

The HCP Amendment includes the Covered Activities as defined in Section 2, provides estimates of impacts from Covered Activities, and defines the mitigation that may be required for the biological impacts of the installation, use, maintenance, and repair of the existing gas and electric system and typical expansions to that system. SDG&E is an electric and natural gas utility company subject to regulation established by the California Public Utilities Commission (CPUC) and the Federal Energy Regulatory Commission. As a regulated entity, Covered Activities are required and undertaken in conformance with applicable state and federal laws and regulations and are necessary to provide adequate, reliable, and safe gas and electric service to the region. The HCP Amendment also covers biological impacts (within the boundaries of this Plan Area only) associated with new electric and gas distribution and transmission lines, including interconnections.

The Subregional Plan allowed up to 400 acres of impacts to habitat before requiring an amendment. Impacted areas may be home to one or more of the species covered by this HCP Amendment. To mitigate these impacts, the HCP Amendment carries forth several forms of mitigation from the Subregional Plan, while adding and updating others, including:

- The most important mitigation measure is avoiding impacts whenever possible. To accomplish this, Operational Protocols for working in the field have been developed. The 61 Operational Protocols approved in 1995 are listed in Section 5 of the HCP Amendment. An additional eight Operational Protocols specific to vernal pools were added in 2004. The HCP Amendment provides updates to the original Operational Protocols and Vernal Pool Protocols and adds additional Species-Specific Protocols to further protect and conserve Covered Species. In addition, field crews attend a series of ongoing classes on how to conduct Covered Activities and operate construction and maintenance equipment in environmentally sensitive areas.
- As mitigation for the 400 acres of habitat modification originally authorized by the Subregional Plan, certain fee-owned Rights-of-Way (ROW) were made available for use as wildlife corridors to connect the region's conservation areas. SDG&E and CDFW have been working together to establish conservation easements over these corridors to memorialize the agreement to limit but not preclude use within these ROW. Additional opportunities to establish wildlife corridor easements over fee-owned ROW to support wildlife corridor connectivity will be considered throughout the term of the HCP Amendment. These efforts, however, should not be considered as an offset for future impacts beyond the original 400 acres.
- Within the Plan Area, SDG&E uses and maintains a widespread system of roads to access SDG&E Facilities. In certain areas, SDG&E access roads may be close to road networks maintained by other entities, including for example, municipalities, private property owners, and/or federal and/or state agencies. Therefore, the potential exists that, in the Plan Area, certain SDG&E access roads could potentially be re-aligned or removed entirely to improve local biological resources without

sacrificing safe and reliable access to SDG&E Facilities. There is also the potential that SDG&E no longer needs certain existing access roads for Facility maintenance; therefore, these roads, if any, may also be re-aligned or removed entirely without sacrificing SDG&E operations. Accordingly, when SDG&E receives reports or other concerns about roads, including for example, on Del Mar Mesa, it will work in coordination with the Wildlife Agencies and the landowner (if applicable) to review and address the concerns regarding existing access to SDG&E Facilities. SDG&E may also review the continuing functionality of any of its existing access roads at its discretion. Any SDG&E access road that SDG&E determines is unnecessary for safe and reliable access to its Facilities will be removed and restored by SDG&E or a third party.

- Mitigation Credits of approximately 240 acres were established upon commencement of the Subregional Plan in 1995. SDG&E maintains an accounting of all mitigation and conservation credits and these Mitigation bank accounts are debited to mitigate for actual impacts as projects are realized. The Wildlife Agencies review and concur with SDG&E's assessment of the extent and quality of any impact. As needed, the Mitigation Credits are replenished.
- Restoration and enhancement of impacted areas are also available as mitigation measures, sometimes instead of debits to the Mitigation banks, and other times in addition to such debits.

The benefits of the HCP Amendment to SDG&E are that the project-specific ITPs would not typically be required by the ESA once the HCP Amendment is authorized. USFWS will still monitor projects, evaluate impacts, and concur with mitigation, but in a much more streamlined process. The HCP Amendment sets up a framework for USFWS to fulfill its regulatory responsibilities in an efficient manner and provides SDG&E with certainty over required mitigation.

Several minor amendments and clarification have been made to the Subregional Plan since its issuance in 1995. Those administrative processes are summarized below.

- November 7, 2002 – USFWS and SDG&E settlement agreement regarding Pacific pocket mouse (*Perognathus longimembris pacificus*), which identified additional notification requirements and mapping prior to work within known Pacific pocket mouse areas on federal lands.
- June 4, 2004 – USFWS issued a clarification letter to SDG&E documenting that the Subregional Plan provides incidental take coverage for all Covered Activities occurring in the Subregional Plan Area on both federal and non-federal lands.
- July 26, 2004 – The Wildlife Agencies granted a minor amendment to SDG&E regarding vernal pool resources located both on and off SDG&E access roads (Vernal Pool Clarification). The Vernal Pool Clarification establishes clear standards for avoidance, minimization, and mitigation of permanent and temporary impacts. Eight additional Operation Protocols, specific to vernal pools, were established with approval of this amendment.

- January 6, 2006 – The Wildlife Agencies concurred on a request to assign SDG&E's rights, interests, and/or obligation in the Subregional Plan to Southern California Gas (affiliated utility also owned by Sempra Energy) for the joint Southern California Gas and SDG&E operations and maintenance (O&M) of Natural Gas Pipeline 1026.
- April 9, 2015 – The Wildlife Agencies granted a minor amendment to SDG&E revising the required Annual Report submittal date from November 1 (Section 9.2 of the Implementing Agreement) to March 31.

In addition, on August 20, 2007, USFWS issued a permit for the Low-Effect Habitat Conservation Plan for the issuance of an ITP under Section 10(a)(1)(b) of the Endangered Species Act for the Federally Endangered Quino Checkerspot Butterfly for the San Diego Gas & Electric Company (Quino LEHCP) (SDG&E 2007). The purpose of the Quino LEHCP is to minimize and mitigate the effects of SDG&E's Covered Activities on the Quino checkerspot butterfly (*Euphydryas editha quino*) over the 50-year term of the USFWS permit. Similar to measures outlined in this HCP Amendment for invertebrate species, the Quino LEHCP includes operational protocols, including Pre-activity Surveys and mitigation requirements to reduce and minimize potential impacts specifically to Quino checkerspot butterfly from SDG&E Covered Activities. Because the Quino checkerspot butterfly is covered independently under the Quino LEHCP, it is not included as a Covered Species in the HCP Amendment.

Then, on March 15, 2017, USFWS issued a permit for the Low-Effect Habitat Conservation Plan for Areas Where San Diego Gas & Electric Company Conducts Its Routine Utility Operations and Maintenance Activities (2017 LEHCP) (SDG&E 2017). USFWS's permit for the 2017 LEHCP authorized an additional 60 acres of impacts to habitat supporting 37 federally listed and other Covered Species over a 5-year permit term. SDG&E prepared the 2017 LEHCP to ensure that it may continue planning and implementing its routine O&M while it works with USFWS to develop the HCP Amendment. Under the 2017 LEHCP, SDG&E would continue to apply all of the conservation efforts, mitigation measures, and operational protocols currently implemented under its Subregional Plan and the Implementing Agreement when addressing the Covered Activities covered by the 2017 LEHCP. The 60 acres of impacts anticipated under the 2017 LEHCP is in addition to the 400 acres of habitat modification authorized and mitigated under the USFWS 1995 permit. Once USFWS authorizes the additional 400 acres of permanent impacts, 210 acres of temporary impacts, and 210 acres of Wildfire Fuels Management impacts to habitat as requested in the HCP Amendment, the 2017 LEHCP and any unused impact allowance under it will be voided and superseded by the HCP Amendment. Projects initiated under the 2017 LEHCP would continue to rely on the coverage as documented in the Pre-activity Survey Report (PSR) until the project has been completed.

As noted above, the HCP Amendment expands the 1995 Subregional Plan boundary to the entire 2,815,930-acre SDG&E service area (i.e., Plan Area) and seeks an additional 400 acres of permanent habitat modification impacts, 210 acres of temporary habitat impacts, and 210 acres of Wildfire Fuels Management impacts. The HCP Amendment also establishes numerous Vernal Pool Protocols (adapted from the 2004 amendment

above) and Species-Specific Protocols in addition to the aforementioned Operational Protocols. Additionally, the HCP Amendment clarifies and expands the restoration Covered Activities that SDG&E can implement to successfully restore temporary impacts. Specifically, temporary impacts that are successfully restored, as defined by the success criteria of Section 5.2, will not require that any Mitigation Credits be withdrawn from the Mitigation bank.

(iii) **Future Project-Specific Environmental Review under California Environmental Quality Act or National Environmental Policy Act**

Projects currently subject to permits from the CPUC, California Coastal Commission, California Energy Commission, State Lands Commission, and several other state and federal agencies will continue to be subject to those applicable permits. Therefore, many projects will be subject to the CEQA and NEPA reviews as described in Section 1.4.3. It is intended that the subsequent environmental reviews use the HCP Amendment to evaluate the impacts to Covered Species and their habitat.

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Introduction

1 Introduction

San Diego Gas & Electric Company (SDG&E) is a California investor-owned utility providing natural gas, electricity, and other services to customers within its service area, which includes San Diego County and portions of Orange and Riverside Counties (see Figure 1). SDG&E's ability to provide these services depends upon the installation, operation, maintenance, and repair of an evolving array of utility Facilities located throughout its service area and, to a limited extent, beyond. For example, SDG&E's electric and natural gas service is provided by means of two separate systems. The electric system includes electric generating plants, electric transmission lines, electric substations, and an electric distribution network (see Figure 2). The natural gas system includes compressor stations, transmission pipelines, regulator stations, and distribution pipelines (see Figure 3). Regular maintenance and repair of these systems are performed to prolong their useful life and to ensure adequate, safe, and reliable service. The location and type of new Facilities are dependent upon the service demands of SDG&E's customer load centers while existing Facilities are not. Both the electric and natural gas systems are subject to the regulatory authority and requirements of the California Public Utilities Commission (CPUC), the California Energy Commission, and various other federal and state agencies.

Over the past several decades, the natural lands and wildlife habitats in San Diego County, Orange County, and Riverside County (Moreno Compressor Station only) have been subjected to increasing pressures from various land development activities. The Natural Community Conservation Planning Act, California Fish and Game Code Section 2800, *et seq.* (NCCPA), authorizing comprehensive management and conservation of habitat and multiple wildlife species, is California's response to the ever increasing numbers of species protected and being considered for protection under the California Endangered Species Act, California Fish and Game Code Section 2050, *et seq.* (CESA). In recognizing the need to develop a comprehensive management plan for the sensitive biological resources of the region, agency wildlife biologists, consulting and research biologists, landowners, businesses, and representatives of conservation groups have proposed a conservation strategy that includes the establishment of a habitat preserve system intended to ensure long-term habitat survival and individual species viability.

As a regulated utility, Covered Activities are required and undertaken in conformance with applicable state and federal laws and regulations and are necessary to provide adequate, reliable, and safe gas and electric service to the region. Nonetheless, Covered Activities may impact certain sensitive plant and animal species or their habitat, which may include species listed as threatened or endangered by the federal Endangered Species Act, 15 United States Code (U.S.C.) Section 1531, *et seq.* (ESA) or the CESA. To ensure implementation of appropriate avoidance, minimization, or mitigation measures for these potential impacts, SDG&E prepared this 2023 HCP Amendment to the Subregional Plan (HCP Amendment) following the multiple species

and habitat conservation planning approach authorized by the ESA. The intent of the HCP Amendment is to identify SDG&E's existing and prospective Covered Activities as a regulated utility, which may have an impact upon Covered Species or their habitat and to define those measures that SDG&E will employ to avoid, minimize, or mitigate any such impacts to the maximum extent practicable. SDG&E's HCP Amendment is a significant part of the overall regional conservation planning strategy for two reasons: (1) It will provide a net benefit in habitat values by providing foundational resource protection; and (2) It can be used by other regional public service providers as a model.

In 2017, SDG&E began working with the Wildlife Agencies on a joint Subregional Natural Community Conservation Plan (NCCP) and HCP Amendment (joint document) with the goal of allowing each agency to use the joint document for its respective environmental review (California Environmental Quality Act [CEQA] review for the California Department of Fish & Wildlife [CDFW], National Environmental Policy Act [NEPA] review for United States Fish & Wildlife Service [USFWS]) and its respective approval and amended permit issuance. After extensive collaboration on the development of the joint document and recognizing that the environmental review timelines for each agency may not align, SDG&E and the Wildlife Agencies agreed in 2021 to separate the joint document into the HCP Amendment and a separate NCCP Amendment, to allow each agency latitude to conduct its required environmental review on its own, independent timeline.

USFWS has received the HCP Amendment, which was circulated for public review as part of its NEPA environmental review; CDFW has received a matching NCCP Amendment that will be finalized and circulated for public review as part of its CEQA environmental review. SDG&E anticipates implementing the HCP Amendment when it is approved by USFWS. SDG&E further anticipates that the NCCP Amendment will ultimately be approved by CDFW, at which time SDG&E will implement both Amendments over the remaining term of the Subregional Plan.

Over the past two decades, a number of local governments have been working to develop comprehensive habitat and multi-species conservation plans within the boundaries of their respective jurisdictions, generally referred to as "regional conservation programs." Ultimately, a network of such plans has and will be implemented throughout much of the area, which will affect, or which may be affected by, Covered Activities and will be covered by SDG&E's HCP Amendment. Both SDG&E's HCP Amendment and the regional conservation programs will maximize the protection and conservation of wildlife and habitat by utilizing the comprehensive multi-species and habitat conservation approach. Section 5.4, Relation to Other Regional Habitat Conservation Programs and Preserves, has been updated to reflect the current status of San Diego County's regional planning efforts and boundaries. However, unlike the HCP Amendment, regional conservation programs otherwise address the unique municipal concerns of local government's interest in local land development and other land use activities with federal and state wildlife conservation mandates.

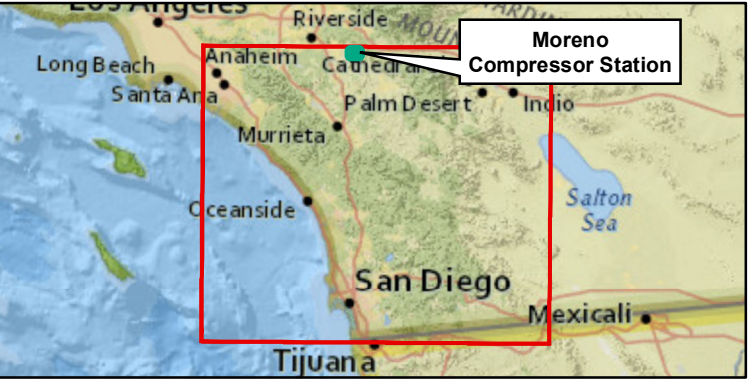
San Diego Gas and Electric Company
HCP Amendment

Plan Area
Figure 1

- Legend
- 2023 Plan Area / SDG&E Service Area
 - 1995 Subregional Plan Area



Data Date: 03/13/2020 Version Date: 7/28/2023



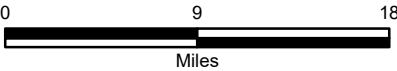
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San Diego Gas and Electric Company
HCP Amendment
SDG&E Electric Transmission System
Figure 2

- Legend
- SDG&E Service Territory
 - Electric Transmission and Distribution Lines (Overhead)
 - Electric Transmission and Distribution Lines (Underground)



Data Date: 03/13/2020 Version Date: 7/28/2023







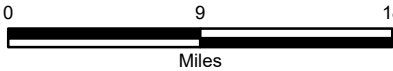
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San Diego Gas and Electric Company
HCP Amendment
SDG&E Natural Gas
Transmission System
Figure 3

Legend

-  SDG&E Service Territory
-  Gas Transmission and Distribution Lines
-  Gas Transmission and Distribution Structures
-  Gas Transmission and Distribution Structures at Moreno Compressor Station

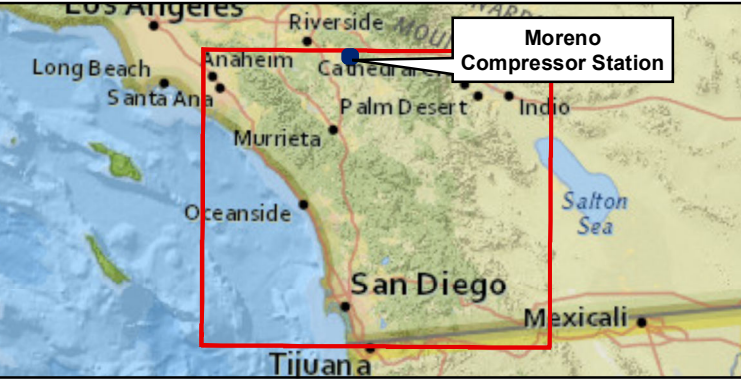


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In contrast, SDG&E's utility operations span the jurisdictional boundaries of many local governments and provide benefits to the state as a whole. SDG&E's operations as a regulated utility are, therefore, matters of statewide concern. To ensure uniform, adequate, safe, and reliable operations for the benefit of the state's citizens, SDG&E's operations are regulated at the state level, primarily by the CPUC but also by various other state agencies, rather than at the local level. Accordingly, as with its Subregional Plan, the HCP Amendment balances Covered Activities that are necessary to meet the continuing demands of its customers for electric and gas service with federal and state wildlife conservation mandates.

The regional conservation programs support local permit applications filed by persons seeking to pursue projects falling within the regulatory authority of such local governments. However, because SDG&E's projects do not fall within the regulatory authority of local governments, none of the underlying regional conservation programs are applicable to address the particular and unique issues raised by regulated utilities. SDG&E resolved this problem in coordination with USFWS, by developing and by amending, as appropriate, its Subregional Plan to address Covered Activities and their potential impact upon Covered Species or their habitat throughout the area of its operations.

The HCP Amendment expands the 1995 HCP boundary and includes all Covered Activities conducted within the SDG&E service area described in Figure 1 (Plan Area). The HCP Amendment will function independently of the regional conservation programs of local governments, which may also cover any part of the Plan Area. As with the Subregional Plan, the HCP Amendment continues to consider the objectives of such local regional conservation programs and endeavors to ensure that Covered Activities do not interfere with the proper functioning of such local regional conservation programs, as they become effective, to maximize the benefits to Covered Species and their habitat.

The HCP Amendment describes Covered Activities that have the potential to impact Covered Species or their habitat and that will be subject to the provisions of the HCP Amendment. The nature and extent of such potential impacts have been identified, together with those protective and conservation measures SDG&E will undertake to avoid such impacts and, where impacts are unavoidable, to minimize and mitigate the same. Protective and conservation measures will include (a) implementing Operational Protocols and Species-Specific Protocols established in coordination with USFWS, (b) assisting USFWS to establish wildlife corridors that interconnect one habitat preserve or wildlife conservation area to another utilizing certain SDG&E Rights-of-Way (ROW), (c) causing the conveyance of valuable habitat land to a wildlife management agency for conservation purposes, and (d) abandoning and restoring SDG&E exclusive use access roads that are no longer required for safe and reliable access to Facilities.

1.1 Purpose

The purpose of the 1995 Subregional Plan was to establish and implement a long-term agreement between SDG&E and the Wildlife Agencies for the conservation of Covered

Species and their habitat, while allowing SDG&E to develop, install, maintain, operate, and repair its Facilities, which are or become necessary to provide electric, natural gas, and other services to the customers served by SDG&E in the Subregional Plan Area. The purpose of the HCP Amendment is to continue that original intent through 2050.

Because of the evolving and continuing nature of SDG&E's operations in the 1995 Subregional Plan Area, SDG&E and the Wildlife Agencies determined that a comprehensive Multiple Species and Habitat Conservation Plan under Section 10(a)(1)(B) of the ESA and a Natural Community Conservation Plan (NCCP) under California Fish and Game Code Sections 2800–2835 would most effectively preserve and enhance Covered Species and their habitat. The long-term multi-species and habitat planning approach avoids the less effective, less efficient, and more costly process of obtaining federal and state ITPs on a species-by-species, project-by-project basis. The Subregional Plan was intended to meet the regulatory requirements of the Wildlife Agencies for their issuance of ESA and CESA/NCCPA ITPs for all Covered Species and their habitat.

The HCP Amendment (a) authorizes the incidental take of listed and other Covered Species (should they become listed) under the ESA, such take being incidental to the otherwise lawful Covered Activities of SDG&E; (b) minimizes and mitigates the impacts of such incidental take to the maximum extent practicable; (c) ensures adequate funding for the implementation of the HCP Amendment; (d) authorizes incidental take that will not appreciably reduce the likelihood of the survival or recovery of any Listed Species or candidate species in the wild; (e) imposes measures to be implemented by SDG&E as requirements for, or conditions of, the authorization and permits granted herein, which will be met by SDG&E; (f) generally satisfies and fulfills all measures required by USFWS as being necessary or appropriate for the purposes of the HCP Amendment, including any measures determined necessary by the parties to deal with Unforeseen Circumstances; and (g) will provide for the conservation and protection of Covered Species and their habitat in the Plan Area, as if each of the species, subspecies, or populations was listed under the ESA. In addition, the HCP Amendment was drafted so that it (h) satisfies all regulatory requirements necessary for CDFW to issue an amended Management Authorization for Covered Species under California Fish and Game Code Section 2835, and NCCPA Section 2825, in anticipation of future action by CDFW to prepare an NCCP Amendment, which is currently in progress. SDG&E is also continuing to include golden eagles (*Aquila chrysaetos*) and bald eagles (*Haliaeetus leucocephalus*), which were Covered Species under the 1995 Subregional Plan, as Covered Species on the ITP for the HCP Amendment. See Appendix B (Eagle Conservation Plan [ECP]). Doing so will confer take authorization under the Bald and Golden Eagle Protection Act (BGEPA) without the need for a separate permit.

1.2 Historical Context

1.2.1 Natural Resource Protection

Impacts to Covered Species and their habitat are one of SDG&E's primary environmental concerns associated with its utility operations. The area of southern

California that includes the Plan Area contains the highest diversity of plant and animal life in the continental United States. As a result of the rapid pace of urbanization in the last half of the 20th century, SDG&E's Plan Area also has the highest number of plants and animals in the continental United States that have become protected or are proposed for protection under the ESA or CESA.

In the absence of multi-species and habitat conservation guidelines, continued urbanization and other land uses pose significant risks of extirpation or extinction of Covered Species. SDG&E's implementation of Operational Protocols and Species-Specific Protocols to avoid or minimize impacts to natural resources is a major focus of the HCP Amendment.

1.2.2 Land Use Planning

Several profound differences exist between the nature and extent of impacts to Covered Species or their habitat caused by agricultural and typical urban development versus impacts caused by the operation of a gas and electric utility company like SDG&E. Agricultural and urban development usually occurs on established parcels of land with generally permanent impacts to Covered Species and their habitat. Agricultural and urban development occurs in checkerboard fashion over the available land. With some limited exceptions (e.g., the infrequent installation of electrical substations or natural gas regulator stations), most utility projects are linear in nature requiring limited grading; therefore, impacts upon Covered Species and their habitat caused by the operations of an electric and gas utility company like SDG&E are avoided entirely or are only minimal or temporary. The potential exists, however, for slight habitat fragmentation by virtue of the presence of the utility and its access roads, which may facilitate unapproved intrusion into an ecosystem.

San Diego County, southern Orange County, and Riverside County continue to experience strong socio-economic growth pressures, causing equally strong pressures to be exerted on the regional ecosystem's long-term viability. Consequently, the following land use and operational issues were examined in the Plan Area in the preparation of this document:

- Impacts of adjacent land uses, particularly real estate development, on the Covered Species and their habitat that exist in SDG&E's easements and fee-owned ROW and other land holdings.
- Existing conditions in SDG&E's easements and fee-owned ROW and other landholdings of natural resources and degree of habitat protection and conservation.
- Land use compatibility.
- Coordination with Regional Conservation Programs and NCCPs.
- SDG&E's HCP Amendment strategies, which include avoidance, minimization, mitigation, and implementation strategies.
- Impacts to Covered Species from operations and maintenance (O&M).

- Impacts to Covered Species from New Construction.

1.3 Approach

Neither the ESA nor CESA had been enacted when many of the SDG&E utility Facilities were planned and constructed. In 1993, SDG&E collaborated with the Wildlife Agencies to develop and implement Operational Protocols designed to avoid impacts to specified species and their habitat. But certain installation, maintenance, operation, and repair Covered Activities could not be modified to avoid incidental take of species listed under the ESA and/or CESA. For these Covered Activities, ITPs were sought by SDG&E from the Wildlife Agencies through either ESA Section 7 consultation procedures where the appropriate federal nexus occurred, or through CESA Section 2081.

As with the Subregional Plan, the HCP Amendment is intended to preserve biological and physical resources to the greatest extent possible and afford species within managed habitat greater protections than without the amendment. In the mid-1990s, SDG&E and the Wildlife Agencies collaborated to protect and conserve endangered, threatened, candidate species, and other sensitive species and their habitat under the ESA, CESA, and NCCPA through a holistic approach covering the Subregional Plan Area. This approach was intended to meaningfully contribute to regional conservation efforts and established an operational program for conducting day-to-day Covered Activities in a way that best protects species and their habitat.

Under this approach, SDG&E has conducted Covered Activities in an environmentally sensitive manner in accordance with more than 60 Operational Protocols, previously adopted and implemented successfully over the last 26 years of the Subregional Plan. The protocols are primarily based upon impact avoidance and minimization and recognize that minor adjustments during planning and execution of Covered Activities can often yield major benefits to Covered Species and their habitat. Under the Subregional Plan, SDG&E also agreed to allow certain fee-owned ROW to be used for wildlife and habitat preservation to allow for connectivity between areas of native habitat, or that may contribute to overall habitat protection of preserves. For these reasons, all species within managed habitat will be afforded greater protections than without a Subregional Plan.

The HCP Amendment provides for the continuation of SDG&E's existing habitat conservation program to mitigate residual impacts associated with SDG&E's O&M for its utility system. It continues to emphasize avoiding impacts through the use of Operational Protocols developed in coordination with the Wildlife Agencies, including Pre-activity Surveys to avoid occupied habitat. SDG&E has successfully implemented these Operational Protocols for more than 26 years and now includes additional Species-Specific Protocols to the HCP Amendment. When habitat impacts cannot be avoided, the HCP Amendment includes measures to ensure that the impacts are minimized to the extent feasible, and that any residual impacts are mitigated through restoration, purchase of land or credits for Mitigation banks, and maintenance of easements for habitat connectivity.

1.4 Scoping

1.4.1 Applicable Law

1.4.1.1 Federal

The federal ESA, 15 U.S.C. Section 1531, *et seq.*, provides for the protection and conservation of fish, wildlife, and plants that have been listed as threatened or endangered. Covered Activities otherwise prohibited by ESA Section 9 and subject to the civil and criminal enforcement provisions of ESA Section 11 may be authorized for appropriate federal agency action pursuant to ESA Section 7 and for other non-federal actions pursuant to ESA Section 10. Pursuant to ESA Section 10(a), USFWS may issue permits, under such terms and conditions as the Secretary of the Interior may prescribe, for acts otherwise in violation of ESA Section 9 to enhance the propagation or survival of any affected species or for the taking of any species incidental to an otherwise lawful activity. Further, for threatened species, the Secretary may issue such regulations as necessary to provide for the conservation of such species under ESA Section 4(d).

Other federal laws enacted with the intent to protect and conserve species of fish, wildlife, plants, and their habitat include, but are not limited to, the following:

- The Migratory Bird Treaty Act (including the protective provisions for game and wild birds), the Migratory Bird Conservation Act, and the Migratory Bird Hunting Stamp Act, 16 U.S.C. Section 701, *et seq.*, are intended to protect birds and restore their necessary habitat. Otherwise unlawful activities, which may impact such birds, or their habitat, may be authorized in accordance with applicable regulation, by permit or other entitlement, as appropriate.
- BGEPA (16 U.S.C. Section 668 and 50 Code of Federal Regulations [C.F.R.] 22) prohibits unauthorized take of bald or golden eagles, including their parts, nests, or eggs. BGEPA authorizes USFWS to issue eagle take permits under specific circumstances. Pursuant to BGEPA, SDG&E has appended an ECP (Appendix B) that assesses bald and golden eagle use in the Plan Area, estimates impacts, identifies avoidance and minimization measures, and provides a monitoring and mitigation approach to offset any eagle impacts.
- NEPA, 42 U.S.C. Section 4321, *et seq.*, mandates that federal agencies consider the environmental impacts of their actions, with the intent of avoiding or minimizing any such impact prior to conducting federal projects (including the authorization of private projects).
- The federal Water Pollution Control Act, 33 U.S.C. Section 1251, *et seq.*, provides for certain protections to wildlife relating to the discharges of pollutants into waters of the United States.

1.4.1.2 State

Similarly, CESA California Fish and Game Code Section 2050, *et seq.*, provides for the protection and conservation of fish, wildlife, and plants that have been listed by the state

of California as threatened, endangered, or as candidate species. Covered Activities prohibited by CESA Section 2080 and subject to the civil and criminal enforcement provisions of Section 12000, *et seq.*, may be authorized for appropriate state actions pursuant to CESA Section 2090, *et seq.* and for other persons pursuant to CESA Sections 2081 and 2084. CESA Section 2081 enables CDFW to grant management authorization for the incidental take of threatened, endangered, or candidate species subject to such terms and conditions as it may prescribe.

Other state laws enacted with the intent of protecting and conserving fish, wildlife, plants, and their habitat include, but are not limited to, the following:

- NCCPA, California Fish and Game Code Section 2800, *et seq.*, authorizes agreements between CDFW and any person for the comprehensive management and conservation of habitat and multiple wildlife species and permit, as appropriate, as a part of such plan, the incidental take of CESA-Listed Species and candidate species under NCCPA Sections 2830 and 2835. The NCCPA authorizes CDFW to enter into agreements with any person to develop and implement an NCCP to provide comprehensive management and conservation of multiple wildlife species and their habitat. Any such plan may authorize the taking of candidate, threatened, or endangered species whose protection and conservation are provided for in any such plan pursuant to NCCPA Sections 2830 and 2835. The NCCP Amendment, once complete, will remain subject to the 1991 NCCPA regulations per the original Subregional Plan approval date in 1995.
- Fish and Wildlife Conservation Act, California Fish and Game Code Section 1600, *et seq.*, requires that state agencies, public utilities, and other persons notify CDFW before conducting any project that may adversely affect aquatic habitats of fish or wildlife.
- The Native Plant Protection Act, California Fish and Game Code Section 1900, *et seq.*, is intended to preserve, protect, and enhance endangered or rare native plants.
- CEQA, California Public Resources Code Section 21000, *et seq.*, is intended to require state agencies to consider environmental qualitative factors, including the conservation of fish, wildlife, and plant species and the preservation of representations of all plant and animal communities for future generations prior to conducting any project.

1.4.2 Coordination

As a result of urbanization, agriculture, and other development, the amount of habitat remaining to support Covered Species is rapidly dwindling. The effective protection, preservation, and conservation of Covered Species are dependent upon the implementation of effective and properly functioning conservation plans for the habitats and ecosystems essential to the recovery of such species.

Regional conservation programs have been prepared by various local governments or government entities in the Plan Area such as the San Diego County Multiple Species Conservation Program (MSCP), finalized in 1997; the San Diego County Multiple Habitat Conservation Program (MHCP), finalized in 2003; the Orange County Southern Subregion Habitat Conservation Plan, finalized in 2007; the Western Riverside Multi-Species Habitat Conservation Plan (MSHCP), finalized in 2004; and the North (San Diego) County MSCP, in progress. Section 5.4, Relation to Other Regional Habitat Conservation Plans and Preserves, has been updated to reflect the current status of San Diego County's regional planning efforts and boundaries.

Local land development is regulated by local government through enactments of land use, zoning, and permitting ordinances pursuant to their police powers derived from the California Constitution. It is anticipated that local regional conservation programs will be adopted, implemented, and enforced pursuant to these same laws.

SDG&E's land use Covered Activities, the regulation of such Covered Activities, and its HCP Amendment are distinguishable from entities whose actions fall within the jurisdiction of a particular local government. The California Constitution, through Article XII, created and empowered the CPUC with the exclusive jurisdiction to regulate the affairs and operations of public utilities. Pursuant to Section 8 of Article XII, the enactments of local governments that attempt to regulate public utility operations, in matters over which the CPUC has the power to regulate, are invalid.

The CPUC's exclusive jurisdiction to regulate public utilities recognizes the statewide interest in preserving for the benefit of the state's citizens uniform, safe, and reliable utility service. Were the converse true, and if local governments were allowed to regulate the activities of public utilities, public utilities would be subject to a mosaic of divergent local requirements from as many local governments as there are in the Plan Area. SDG&E serves a statewide interest.

The HCP Amendment and the regional conservation programs govern different activities and different persons, often in the same area. The identified Covered Activities herein are regulated by various state agencies, primarily the CPUC, while the activities identified in municipal HCPs are subject to local regulation. In effect, the HCP Amendment, governing Covered Activities serving statewide interests, acts as an overlay across areas also covered by regional conservation programs, thereby governing Covered Activities of municipal concern. As a result of the cooperative efforts of various local governments and public bodies within San Diego, Orange, and Riverside Counties, a reserve of habitat has been established that includes reserve core areas, narrow endemic reserves, and connecting corridors. These reserve areas are managed primarily for listed plants and animals, with a varying goal of maintaining at least 60–90% of the natural lands as high-quality habitat, depending on applicable conservation plan and jurisdiction. The corridors are designed to maintain connections between core areas of the primary reserves and to support supplemental populations between reserves. The HCP Amendment remains designed to be consistent with the local habitat conservation plans and the overall preserve planning effort.

1.4.3 Activities Covered by HCP Amendment and Those Requiring Further CEQA/NEPA Coverage

Two broad categories of Covered Activities are discussed in the HCP Amendment: O&M and New Construction. O&M pertains to existing Facilities and does not typically require permits; therefore, CEQA/NEPA review is also not typically required. The HCP Amendment recognizes that O&M can sometimes have impacts. To mitigate for O&M impacts, the HCP Amendment contains an extensive list of field protocols designed to minimize disturbance to habitat.

New Construction may be subject to CEQA pursuant to the CPUC rules, in particular General Order 131-D. The HCP Amendment is intended to cover typical expansions of the system needed to serve new load; ensure reliability; modernize older less-efficient Facilities; underground existing overhead lines; and comply with new safety, air, wildfire, and water quality standards, as well as other retrofits imposed by new government regulations. Those Covered Activities that would normally be addressed by CEQA will still be subject to CEQA.

New Construction, unlike O&M, may be a linear or non-linear project; is typically not associated with an existing facility; and often requires the acquisition of new property, land rights, or easements. SDG&E must obtain necessary entitlements and approvals prior to undertaking New Construction. The siting of a microgrid (an independent energy system such as a solar photovoltaic facility capable of generating, storing, and delivering power to a local or rural community) is an example of New Construction. When new Facilities are sited (i.e., non-linear Facilities such as substations or microgrids) or routed (i.e., linear Facilities such as electric distribution and transmission lines, pipelines, or roads) in natural areas, disturbed areas are always preferred over non-disturbed areas.

Although USFWS will not undertake additional NEPA review for such projects, neither the Subregional Plan nor the HCP Amendment is intended to exempt such projects from CEQA or NEPA (for other federal agencies besides USFWS), should the state act or federal laws apply. If applicable, new SDG&E projects may be separately analyzed pursuant to CEQA and, if there is federal involvement, NEPA. Project-specific environmental review may warrant an alternative mitigation approach, as dictated by the Lead Agency. Any mitigation that would deviate from that described herein would require USFWS approval as equivalent mitigation, as described in Section 5.

1.4.4 Projects Previously Reviewed under ESA Section 7 with Long-Term Operations and Maintenance Compliance Requirements

Several major projects constructed by SDG&E were previously reviewed under project-specific, ESA Section 7 formal consultations for effects related to both construction and ongoing O&M. Ongoing O&M compliance is required by the Biological Opinions and incidental take statements issued for those projects; therefore, these projects will not be required to adhere to the Operational Protocols of the HCP Amendment. The following

Section 7 formal consultations will continue to remain in effect once the HCP Amendment is implemented:

- Biological Opinion issued to the Bureau of Land Management for the Sunrise Powerlink Project (FWS-08B0423-11F0047), Imperial and San Diego Counties, November 10, 2010.
- Biological Opinion issued to the Bureau of Land Management (lead agency) and U.S. Army Corps of Engineers (cooperating agency) for the East County Substation and Transmission Line Project (FWS-SD-10B0136-11F0122), San Diego Co., CA. September 1, 2011.
- Biological Opinion issued to the U.S. Forest Service (lead agency), Bureau of Indian Affairs (cooperating agency), and the Bureau of Land Management (cooperating agency) for the Cleveland National Forest Power Line Replacement Projects (FWS-SD-158019 I-I 5F0339), San Diego Co., Nov 19, 2015.

SDG&E and USFWS may include O&M of these Facilities within the HCP Amendment later, using the amendment process detailed herein.

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Covered Activities

2 Covered Activities

Covered Activities on owned property, easements, and ROW include installation, operation, maintenance, and repair of SDG&E Facilities. A brief description of SDG&E Facilities and associated easements is provided below, followed by a detailed description of Covered Activities.

2.1 SDG&E Facilities

Although many of SDG&E's easements are located within urbanized areas, many large easement corridors cross through and connect biologically sensitive and diverse areas. In addition, a number of substation and gas regulator sites adjoin or contain valuable habitat. Provided below are brief descriptions of the types of easement corridors typical for SDG&E Facilities, including electric distribution, electric transmission, gas, and substation properties.

Covered Activities include both O&M and New Construction. O&M refers to construction work done to maintain, repair, relocate, or upgrade existing Facilities. New construction occurs where SDG&E is expanding or extending gas and electric Facilities to provide safe and reliable energy to the region. As described in more detail in Section 4, however, in contrast to 1995, all major infrastructure is now largely in place, and SDG&E anticipates building new Facilities at a far lower rate than prior decades. Accordingly, in future years, Covered Activities will be predominantly maintaining, repairing, and upgrading the existing system.

2.1.1 Electric Distribution Easement Corridors

Above ground and underground electric distribution easements are typically 12 feet in width or narrower. Above ground Facilities typically consist of power poles located in the center of the easement with attachments such as guy anchors, circuit switches, stub and anchors, wires, and communication cables. Underground Facilities may consist of manholes or hand holes to provide access for repairs and maintenance. The total percentage of utility footprint within the easement area is less than 1% of the easement area. Access routes to these Facilities are not usually maintained, enabling the habitat to recover.

2.1.2 Electric Transmission Easement Corridors

Above ground and underground electric transmission easements are typically 20 feet in width or greater. Above ground Facilities typically consist of power poles, two-pole structures, steel poles, or lattice steel towers. Corridors that are 20 feet in width contain a single pole line, while corridors greater than 100 feet in width could contain as many as five individual transmission lines. Underground electric transmission lines may consist of manholes or hand holes to provide access for repairs and maintenance. Due to the greater span distance between structures, the utility footprint in the easement

area is approximately less than 5% of the easement area. Access routes to these Facilities are typically provided via SDG&E-maintained access roads in order to inspect and maintain the utility structures as mandated by the CPUC for safe and reliable service.

2.1.3 Gas Distribution and Transmission Easement Corridors

Gas distribution and transmission easements are normally 40 feet in width or narrower. Above ground improvements are minor and consist of valve boxes, cathodic stations, pipeline identification markers, and leak detection devices. Above ground improvements are approximately less than 1% of the easement area. Access to these improvements is provided via access roads.

2.1.4 Electric Substations and Gas Regulator Stations

Electric substations and gas regulator stations are located along or at the terminus of electric or gas easement corridors and are usually surrounded by landscaped areas or open space areas. Storage Facilities may be associated with, and located nearby or adjacent to, electric substations. It is essential for safe and reliable service that access roads be maintained in a condition that ensures that these Facilities can be operated, as necessary, on a 24-hour basis.

2.2 Covered Activities

SDG&E constructs new utility infrastructure on an ongoing basis to maintain uniform, adequate, safe, and reliable electric and gas service. SDG&E also conducts maintenance and repair of Covered Activities on existing Facilities. As a regulated California utility, all proposed actions as described herein are necessary to maintain and provide service in a safe and reliable manner in compliance with state (CPUC) and/or Federal Energy Regulatory Commission (FERC) requirements. Typical construction, maintenance, and repair of Covered Activities for each type of Facility are described in this section. Operational Protocols to be used by SDG&E field personnel to avoid and minimize the potential impacts of installation, maintenance, and repairs for each type of Facility are contained in Section 5.1.

2.2.1 Overhead Facilities

Overhead Facilities are utilized in the transmission and distribution of electricity. Generally, overhead conductors (wires) are supported by wood or steel poles, or by steel lattice towers.

2.2.1.1 New Overhead Facility Alignment

New overhead Facilities will, to the extent possible, be designed to minimize habitat fragmentation and disruption of wildlife movement and breeding areas. This will be accomplished by avoiding siting of Facilities in habitat and by utilizing dead-end/spur

roads rather than linking Facilities tangentially, to the extent possible.² When Facilities must be sited in undisturbed or habitat areas, they will, to the extent possible, be sited in lower-quality habitat (Figure 4).

2.2.1.2 Placement of Structures

Steel lattice towers are installed using concrete or micropile foundations. Wood or steel poles are installed using direct burial or concrete or micropile foundations. Maintenance will be performed, and repairs may be required, to restore structural integrity or inadequacies in a foundation or transmission structure caused by erosion or other occurrences.

2.2.1.3 Placement of Electrical Equipment on Structures

Towers and poles support a variety of electrical equipment, including insulators and conductors. Insulators are attached directly to poles, or to arms mounted on the structures. The insulators are installed by workers who climb the structure or access the structure in bucket trucks. Once the insulators are installed, a helicopter is often used to install a small rope. The small rope is used to pull in a bigger rope or cable, which is then used to pull in the conductor.

2.2.1.4 Insetting Poles

“Pole inseting” places poles in-line between existing structures. The new poles provide additional strength to support new or heavier conductors. The new poles are also used to achieve necessary wire clearances, consistent with applicable legal requirements. Insetting is an effective method of fully utilizing existing electric line structures and alignments, which often defers the need for new structures, lines, and alignments.

2.2.1.5 Equipment Repair and Replacement

Poles or towers may support a variety of equipment such as conductors, insulators, switches, transformers, lightning arresters, line junctions, and other electrical equipment. This type of equipment may need to be added, repaired, or replaced in order to maintain uniform, adequate, safe, and reliable service. Due to damage, changes in conductor size, or the like, an existing transmission structure will be removed and replaced with a larger/stronger structure at the same or nearby location. This could also include replacing existing wood poles with steel poles for fire hardening purposes.

² “To the extent possible” means without violating CPUC standards or jeopardizing the structural and operational integrity of the Facility.

Existing:



Relocated:

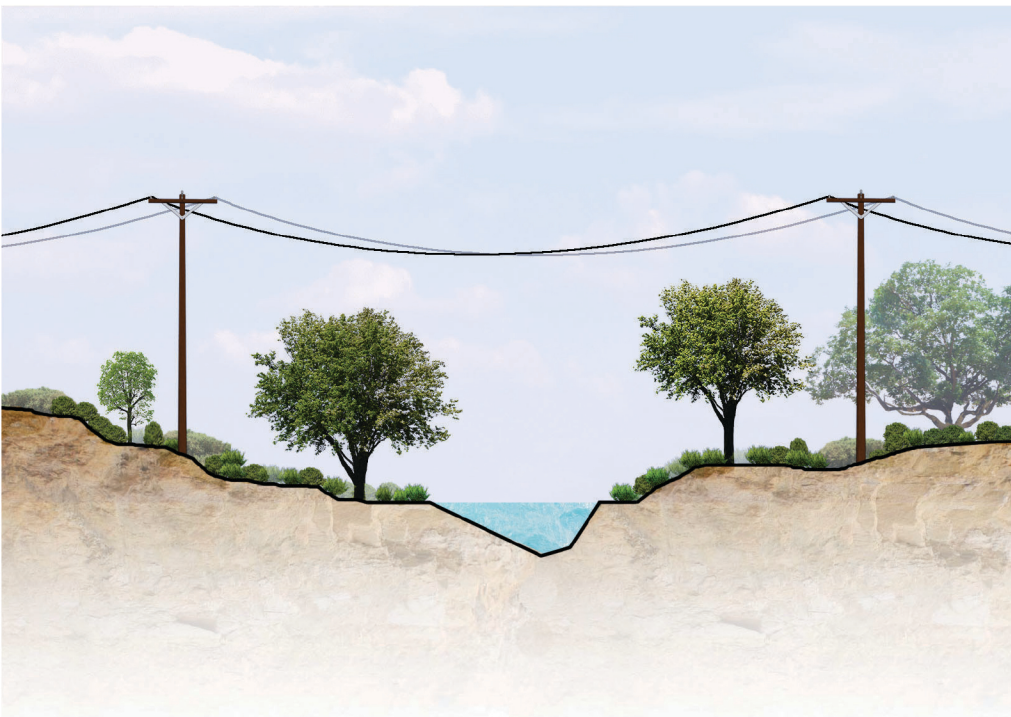


Figure 4. Example of a Best Management Practice for utility pole relocations from wetlands and waterways to uplands. When and where identified, utility poles in wetlands and waterways are relocated to upland areas, as feasible, in accordance with land rights, engineering design, and agency approvals (when required).

2.2.1.6 Pole Anchors and Stubs

Anchors, guy wires, and stubs are used to support poles. Generally, one end of a guy wire attaches to the upper portion of a wood pole. The other end attaches to the top of a stub or to an anchor buried in the ground. These anchors can be in or out of alignment with the pole line. To maintain pole stability, new anchors or stubs, or replacement anchors or stubs may be needed. Stubs can be made of wood or steel and sometimes require concrete foundations.

2.2.1.7 Insulator Washing

In some areas prone to atmospheric moisture, condensation combines with dust on insulators and can create an electrical discharge. This discharge, known as “arcing,” poses a significant risk of service outages and/or can be a source of possible fire ignition. This risk can be substantially reduced by periodic washing of the insulators. The process of washing insulators involves driving a water truck to within 60 feet of the Facility. A high-pressure hose is used to spray water at the insulator.

2.2.2 Underground Facilities

Underground Facilities can include transmission and distribution of natural gas as well as electric infrastructure.

2.2.2.1 New Underground Facility Alignment

New underground Facilities will be designed to minimize habitat fragmentation and disruption of wildlife movement and breeding areas by avoiding siting Facilities in habitat and by utilizing dead-end/spur roads to the extent possible. When Facilities must be sited in undisturbed areas, they will, to the extent possible, be sited in lower-quality habitat.

2.2.2.2 Underground Facility Access

Underground Facilities are regularly inspected visually and mechanically for any conditions that can potentially impair their function. Inspections involve driving along the top of/or parallel to the underground Facility. Access roads from public streets are utilized to reach the underground alignment. Access road maintenance is therefore a key component in installing, maintaining, and inspecting underground Facilities. Helicopters/Unmanned Aircraft Systems (UASs) may be used to assist with inspections of gas transmission lines located in isolated areas or areas of rough terrain where vehicle and pedestrian ground patrol is not feasible.

2.2.2.3 Protection of Underground Facilities in Waterways

Underground infrastructure may cross a variety of shallow waterways ranging from blue-line streams designated on U.S. Geological Survey (USGS) maps to agricultural irrigation ditches. When the integrity of the Facility is threatened due to scouring, erosion, or other surface disturbance, measures to protect the Facility and to minimize

future erosion must be taken. Typical maintenance actions utilized to protect the underground Facilities include grading, addition of fill material to repair erosion damage, repair of adjacent slopes with placement of rip-rap or concrete, compaction of soil, hydroseeding with fiber matrix, vegetation control of species with invasive root structures, and other Covered Activities as necessary. These measures may be accomplished by hand or by equipment or machinery. Vegetation is allowed to grow over the underground Facility where it will reduce erosion by wind and water, and stabilize the soil.

2.2.2.4 Trenching

Trenching is required in order to install, replace, reposition, or repair underground Facilities. The width of the trench is dependent on the depth of the underground Facility and the stability of the side slopes. Underground Facilities are typically buried 3 feet to 5 feet deep. Facilities buried over 5 feet deep require side slopes of 1:1 or the use of shoring.

2.2.2.5 Line Markers

Underground infrastructure installed on private property or out of the public ROW is marked above the ground through a variety of methods, including “Transmission Line Markers” (paddle-shaped markers attached at eye level to steel posts). In addition to marking the location of the underground Facilities, the markers contain safety warning messages for digging contractors and the general public. Underground alignment occasionally runs perpendicular to a waterway or other terrain, which prevents walking or driving along the alignment for inspection purposes. In these instances, a line-of-sight free from vegetation from marker to marker must be maintained for visual inspections at a distance.

2.2.3 Substations and Regulator Stations

Electric substations connect the electrical transmission system to the electric distribution system and reduce the electrical voltage to the distribution system in order to maintain safe reliable electric service. Substations are designed and operated to meet the safety standards required in CPUC General Order 131-D for electrical systems. Regulator stations connect the natural gas transmission system to the natural gas distribution system and regulate the supply of gas to that distribution system in order to maintain safe, reliable natural gas service. Regulator stations are designed and operated to meet the safety standards required in CPUC General Order 112-D for natural gas systems.

2.2.3.1 Substation and Regulator Siting

As noted above and explained in Section 4, SDG&E does not anticipate constructing new substations or regulator stations at the rate anticipated in 1995. Nonetheless, to the extent possible, new substations and regulator stations will be sited to avoid habitat in order to minimize fragmentation and disruption of wildlife movement and breeding areas. When habitat must be disturbed, Facilities will, to the extent possible, be sited in

lowest-quality habitat. When Facilities must be sited in a Preserve, they will, to the extent possible, be sited at the outer boundary of the Preserve rather than in the center.

2.2.3.2 Staging and Other Work Areas

The disturbed areas within the property line of a substation or regulator station may be used as a staging area for the temporary storage of large construction equipment used in construction and maintenance. This property may also serve as equipment turn-around areas, wire pulling sites, equipment parking areas, component assembly areas, equipment and material storage sites, and temporary soil stockpile sites. Staging areas are used for equipment laydown areas and pads for equipment positioning during construction. This utilization is intended to be temporary.

2.2.3.3 Geotechnical Failure Protection and Remediation

Geotechnical remediation is necessary when geotechnical failure is imminent or has occurred and threatens the integrity of a Facility, such as a substation or a regulator station. Preventative maintenance includes slope reconstruction and the repair or addition of drainage structures and retaining walls. Access is needed to various sites proposed for electrical substations and gas regulator stations for the purpose of obtaining engineering design information on the soils.

2.2.3.4 Pest Control

Pest control at electric and gas Facilities may be necessary to ensure system integrity. Facilities that may require pest control are electric substations, gas regulator stations, gas valve boxes, utility equipment yards, and various storage Facilities (pest control is not necessary within electric transmission ROW). Nonnative rats, mice, and other rodents have been known to cause electrical outages within substation transformers, eat through gas metering equipment, and eliminate the effectiveness of gas valve boxes. Fortunately, SDG&E Facilities are not normally attractive to these pests and therefore, minimal pest control efforts are able to keep the rodent population down. Pest control is more common to Facilities located adjacent to urbanized areas where food is more plentiful. When necessary, pest control measures will be used in accordance with the written recommendation of a licensed, registered Pest Control Advisor. Pesticides will only be applied by a licensed applicator in accordance with label precautions and applicable law in a manner that does not harm native plants or animals. See Section 5.1 (Operational Protocol [OP] 38) for additional restrictions on pest control Covered Activities.

2.2.4 Use of Helicopters and Unmanned Aircraft Systems (UASs)/Drones

Helicopters and UASs (e.g., drones) are used in the visual inspection and surveying of overhead Facilities. Electric overhead lines are inspected³ regularly via helicopters and/or UASs. These practices are, and will continue to be, undertaken in compliance

³ See, e.g., CPUC General Order 95 (GO95).

with applicable state and federal requirements, and will be updated as these policies are modified over time. Helicopters are also used to deliver equipment, position poles and towers, string lines, and position aerial markers as required by Federal Aviation Administration regulations. Additionally, helicopters and UASs may be used to efficiently gather existing site condition information that can be used for future engineering/design purposes associated with existing or siting of new Facilities.

2.2.5 Vegetation Management

Vegetation management plays a critical role in maintaining reliable and safe gas and electrical service throughout the region. Vegetation is managed within and adjacent to all SDG&E Facilities, including but not limited to, overhead electric lines, substations and regulators, access roads, drainage structures, area around transformers, and buildings. Vegetation is controlled to facilitate the construction and use of roads, allow inspection and maintenance of infrastructure and Facilities, expose hazards such as ruts to drivers, eliminate noxious weeds, prevent fires, and provide safe working areas.

2.2.5.1 Mechanical Removal

The simplest method of removing vegetation is by hand, such as the removal of isolated large shrubs or trees growing in areas where the roots could damage Facilities or where vegetation size restricts visual inspection. Raking is a means of removal usually used only to gather debris in preparation for disposal. Mowing will be used to control vegetation where low vegetation is desirable for erosion control. Clearing and/or grubbing an area of vegetation by grading will also be used where no other means are appropriate.

2.2.5.2 Herbicide Spraying

Herbicide spraying, although not commonly employed by SDG&E, may be used around buildings and where bare ground is required for fire control. Herbicide spraying will not be conducted where it will damage known populations of Covered Species of plants or host plants of Covered Species. The typical regimen for herbicide use includes the application of pre-emergent herbicides during the fall and winter and spot application of contact herbicides during the growing season. All herbicides will be applied by a registered applicator in accordance with label precautions and applicable law.

2.2.5.3 Fire Control Areas

SDG&E conducts ongoing vegetation removal and management around electric and gas infrastructure in order to comply with CPUC General Orders, Public Resources Code Section 4292, and other applicable laws for fire prevention or control. These fire control measures can aid in the prevention of fire caused by arcing and can protect the Facilities from failure due to a fire in a surrounding area. Areas cleared of vegetation are also required around gas line valve complexes and cathodic test stations for fire protection.

Fire control areas around Facilities such as overhead structure are typically 10 feet in circumference but could vary depending on site conditions and/or changes in required regulations as noted above. To be consistent with local guidance and best management practices for fire prevention/protection, structures such as substations and regulator stations may require up to 100 feet of brush management around the perimeter of the Facility to maintain appropriate defensible areas and otherwise comply with applicable law. Frequency of abatement Covered Activities will vary based on vegetation type, density, and height, and shall be undertaken as appropriate to ensure fire-control clearances around Facilities are properly maintained.

2.2.5.4 Wildfire Fuels Management

Wildfire Fuels Management reduces fire fuel load around distribution and transmission lines within the SDG&E service area. Wildfire Fuels Management is conducted inside and outside of SDG&E ROW, when determined necessary and beneficial to reduce fire risk from O&M of infrastructure. Modification of fire fuel loads may additionally reduce the intensity of wildfires that pass through Facility easements and ROW. Wildfire Fuels Management serves the public interest as it reduces wildfire fuel loads in the vicinity of rural communities within High Fire Threat Districts, which are the most vulnerable areas subject to wildfires in San Diego County.

Wildfire Fuels Management practices differ from standard vegetation management practices such as pole brushing where all the vegetation is removed to bare mineral soil and is considered a permanent loss of habitat. In contrast, Wildfire Fuels Management focuses on removing nonnative species, which can counteract the potential spread of such species along utility corridors and benefit the overall ecological value of the surrounding vegetation communities, as well as dead/down woody vegetation that provides fuel for wildfire. In addition, Wildfire Fuels Management may involve the thinning of select native vegetation in Treatment Areas with a focus on preserving habitat value and native species diversity. In other words, Wildfire Fuels Management does not entirely remove vegetation, but instead seeks to leave the Treatment Areas resembling an early successional state of the vegetation community that maintains biodiversity and ecological functionality in combination with adjacent or nearby vegetation structure. Additionally, Wildfire Fuels Management areas also receive annual weed maintenance, which in turn will allow establishment of native annual plant species that generally are not expected to significantly add to the fuel load.

SDG&E will coordinate directly with individual public and private landowners to obtain permission to conduct Wildfire Fuels Management outside of existing ROW. The objectives of the Wildfire Fuels Management in order of priority are:

- (1) removal of nonnative vegetation, especially fire-promoting species,
- (2) removal of dead/down woody vegetation, and
- (3) thinning of select native vegetation in Treatment Areas with a focus on preserving habitat value and native species diversity.

In locations where native thinning is conducted (Treatment Areas), only commonly occurring or dominant native species within a given vegetation community will be targeted for thinning. This is to ensure that native plant diversity within Treatment Areas does not change between the pre-treatment and post-treatment conditions. Additionally, host plant and nectar-source species for sensitive wildlife will be avoided as much as possible. The overarching goal of Wildfire Fuels Management is to reduce wildfire fuel loads while maintaining or enhancing ecological functionality and biodiversity within Treatment Areas (see Figure 5).

2.2.5.5 Tree Trimming

Tree limb contact with electrical lines is a potential cause of power outages and is also a source of possible ignition and, as such, a potential fire hazard. SDG&E's tree trimming practices are continuous and provided throughout the service area, and are necessary to maintain required line clearances. Pursuant to OP 31 (see Section 5.1.4 of the HCP), SDG&E has created environmentally sensitive areas where tree trimming would be scheduled during non-sensitive times such as outside the bird breeding seasons to the extent feasible. This information has been populated into a tree trim computer database managed by SDG&E's Vegetation Management group to inform tree trimming schedules and annual trimming cycles.

Annual tree trimming involves two types of activities: (1) routine pruning of required minimum clearances per state and federal mandates (General Order 95, Rule 35; Public Resources Code 4293; NERC FAC-003-4), and (2) removal of hazard trees that pose a risk to the adjacent overhead electrical Facilities. Routine pruning involves pruning of branches on trees included in the Vegetation Management group tree inventory database. Hazard tree work or removal affects larger portions of a tree (up to, and including, complete removal) and is conducted on dead/dying trees and those with structural defects that increase the risk of electrical line contact. Routine pruning work accounts for the majority of annual tree trimming activities, with a smaller proportion targeting hazard tree removal. Tree work involves small teams (two crew members) using hand tools, such as hand saws, loppers, and chainsaws. Not all distribution and transmission lines require annual tree trimming activities as they are located in scrubland habitats where tree limb interactions with the lines are not expected to occur.

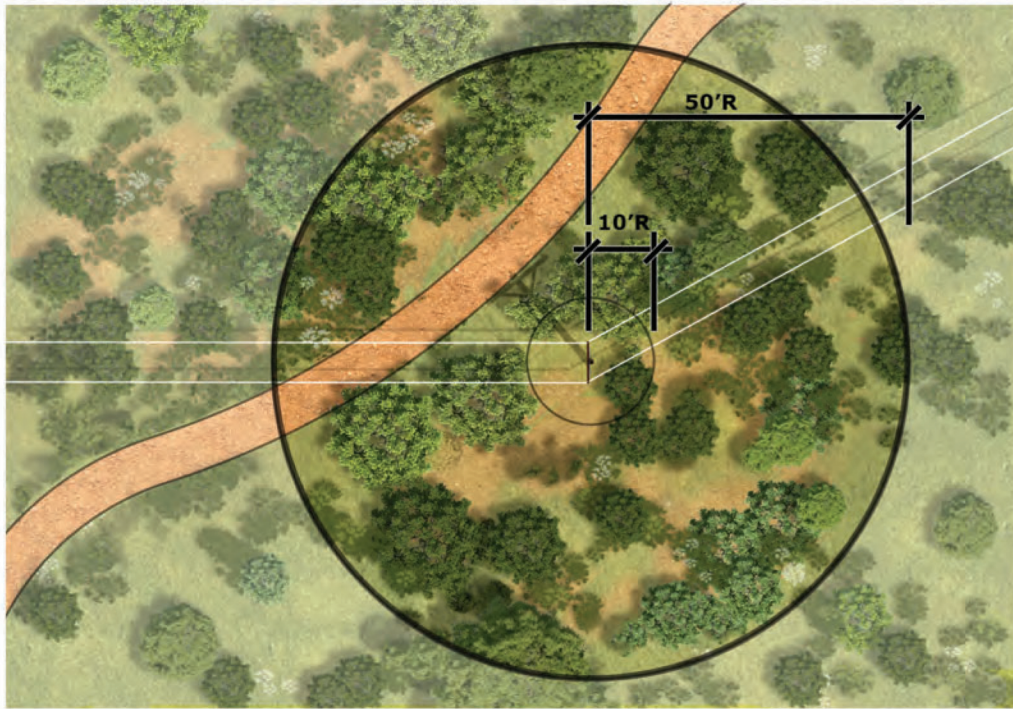
2.2.6 Other Ground Disturbance

Many types of ground disturbance are necessary in order to install, protect, maintain, and repair Facilities. These types of disturbances generally occur in, but are not limited to, the utility ROW and existing access roads.

2.2.6.1 Access Roads

Access roads compose part of SDG&E's Facilities. Cost-effective and efficient installation, maintenance, and repair of its Facilities depend upon the availability of adequate access roads. Most gas and electric transmission Facilities, and some

BEFORE:



AFTER:



Figure 5. Wildfire Fuels Management - Removal of Non-Natives and Thinning of Natives, Increasing Open Space in Treatment Areas

distribution Facilities, require access roads. New access roads will, to the extent possible, be designed to minimize habitat fragmentation and disruption of wildlife movement and breeding areas through the utilization of dead-end/spur roads rather than linking Facilities tangentially. When new access roads must be sited in undisturbed areas, they will, to the extent possible, be sited in lower-quality habitat, as determined by a Biologist performing preliminary surveys.

Within the Plan Area, SDG&E uses and maintains a widespread system of roads to access SDG&E Facilities. In certain areas, SDG&E access roads may be close to road networks maintained by other entities, including, for example, municipalities, private property owners, and/or federal and/or state agencies. Therefore, in the Plan Area, certain SDG&E access roads could potentially be re-aligned or removed entirely to improve local biological resources without sacrificing safe and reliable access to SDG&E Facilities. There is also the potential that SDG&E no longer needs certain existing access roads for Facility maintenance; therefore, these roads, if any, may also be re-aligned or removed entirely without sacrificing SDG&E operations. Accordingly, when SDG&E receives reports or other concerns about roads, including, for example, on Del Mar Mesa, it will work in coordination with the Wildlife Agencies and the landowner (if applicable) to review and address the concerns regarding existing access to SDG&E Facilities. SDG&E may also review the continuing functionality of any of its existing access roads at its discretion. Any SDG&E access road that SDG&E determines is unnecessary for safe and reliable access to its Facilities will be removed and restored to native vegetation. SDG&E will work with applicable stakeholders and agencies to expeditiously undertake any such removal and restoration.

2.2.6.2 Access Roads Crossing Waterways

Access roads may cross a variety of water ways ranging from blue-line streams designated on USGS maps to agricultural irrigation ditches. Culverts may be added when utilization of an unculverted access road would alter the natural flow of a waterway. When the integrity of the access road is threatened, the culverts will be kept clear of vegetation, sediment, and debris to protect the access road. Sediment deposited in the area will be removed by hand or with earth-moving equipment. Other construction and Covered Activities include bank stabilization and repair of subsidence damage. These Covered Activities may be accomplished through the placement of rip-rap and through the use of earth-moving equipment within the access road area.

2.2.6.3 Slopes

Cut and fill slopes are constructed to create pads/foundations for utility structures or access roads. Slopes may require erosion repair.

2.2.6.4 Staging and Other Work Areas

Staging areas are for the temporary storage of large construction equipment and materials used in construction, maintenance, and repair Covered Activities. They can also serve as equipment turn-around areas, wire pulling sites, equipment parking areas,

component assembly areas, equipment laydown areas, equipment and material storage sites, and temporary soil stockpile sites.

2.2.6.5 Fiber Optic Lines/Telecommunications

Installation of fiber optic and other telecommunications lines and equipment requires access to existing overhead and underground Facilities. Fiber optic cable or other telecommunications lines and equipment may be necessary to provide direct communication between two or more locations.

2.2.6.6 Geotechnical Remediation

Geotechnical remediation is necessary when geotechnical failure that may threaten the integrity of a Facility, such as but not limited to an electrical structure or a pipeline, is imminent or has occurred.

2.2.6.7 Geotechnical Testing

Geotechnical tests are conducted to determine soil stability, depth of water table, and engineering design values, and for the presence of hazardous waste. Testing may involve sample drilling, monitoring wells, excavation pits, or trenches.

Access roads may be required for this equipment over existing or potential project sites.

2.2.7 Biological Surveys and Handling

SDG&E's personnel or its contractors will perform biological surveys for Covered Species per the Operational Protocols in Section 5.1. The individuals conducting the surveys will have applicable permits and/or authorizations and meet applicable qualifications established by the Wildlife Agencies. If surveys or Species-Specific Protocols require physical capture and immediate release of Covered Species, such as arroyo toad, California red-legged frog, southwestern pond turtle, Stephens' kangaroo rat, and Pacific pocket mouse, a qualified Biologist will be used. A qualified Biologist is a person who has the educational background, training, and work experience (handling experience or permits) required to perform a specific biological task. For the purposes of the HCP Amendment, the term Biologist also applies to a botanist, where applicable, for specific plant-related tasks. An authorized Biologist is an SDG&E Biologist or SDG&E biological contractor, who is authorized to handle, relocate, salvage, or translocate a Covered Species after being approved by the Wildlife Agencies. Such activities are considered incidental take under the ESA and require permit coverage. Approval will be granted by USFWS, as appropriate, as part of the Take authorized in the Section 7 Biological Opinion for the HCP Amendment and/or the HCP Amendment Section 10(a) ITP.⁴

⁴ Approval by CDFW will be granted through a Scientific Collecting Permit or Memorandum of Understanding until an NCCP Amendment with CESA/NCCPA ITP is complete.

Biologists will also conduct surveys for Covered Species on private land within the Plan Area being considered for purchase to provide mitigation of impacts on Covered Species. Although these surveys are not expected to require handling of individuals in most instances, incidental take of Covered Species may result if handling is needed. Handling may also be required during biological monitoring in order to move Covered Species out of harm's way. Such surveys, handling, and incidental take will be covered by the HCP Amendment.

2.2.8 Habitat Management

SDG&E personnel or its contractors may perform habitat management as mitigation per Sections 5.2, 5.3, and 5.5. Management may include a range of stewardship Covered Activities, such as fencing, signage, and litter removal, and Covered Activities related to biological management such as restoration, enhancement, species salvage/translocation, and weed removal for the betterment of Covered Species and their habitat.

2.3 Conducting Covered Activities during Emergencies

In general, emergencies are those conditions that potentially or immediately threaten the integrity of the SDG&E system, including broken/leaking pipes, downed lines/poles, slumps, slides, surface fault ruptures, erosion, major subsidence, or other natural disaster. Emergencies, including fire, flood, accident, or other serious, unexpected situations requiring an immediate response, are not considered Covered Activities covered by the HCP Amendment.

It is recognized that SDG&E may need to conduct Covered Activities described above during or in response to emergencies, including as an emergency response to a Facility failure or urgent repair to prevent a Facility failure. Covered Activities conducted in response to an emergency are the same as defined in Section 2.2 above. The difference is limited to the timing and urgency of completing the work. Emergency response work typically requires immediate repairs and thus may necessitate an abbreviated environmental review process, or the environmental review process would occur after the emergency work. If not pre-screened, emergency work would require post-project assessments to determine impacts and associated mitigation. As a result, in considering potential impacts to Covered Species or their habitat, adjustments for time of day or seasonal constraints that may otherwise be applicable for Covered Activities may not be possible in the interest of system integrity and public health and safety.

During an emergency, SDG&E will immediately conduct the necessary Covered Activities to alleviate the situation. Covered Activities conducted in response to an emergency will be performed by SDG&E crews and/or contract crews under the direction of SDG&E and in accordance with the Operational Protocols and mitigation contained in Section 5, whenever possible. Typically, Pre-activity Surveys (see Section 5.1.3, OP 14) cannot be conducted prior to the repair Covered Activity. If the emergency is within or adjacent to habitat areas, the Biologist will conduct an assessment during

the event, if possible, or after the event is complete. Once the emergency is stabilized, temporary and permanent habitat impacts will be assessed and recommendations made for revegetation Covered Activities and/or mitigation, as applicable, per Section 5.

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3

Biology

3 Biology

This section identifies Covered Species and their habitat that are the subject of the HCP Amendment, discusses Covered Species conservation policies, and provides a description of potential impacts to Covered Species or their habitat caused by Covered Activities. In support of the HCP Amendment, a supplemental Covered Species Analysis was completed and is included as Appendix A.

3.1 Covered Species

For the purposes of the HCP Amendment, the term Covered Species is as defined in the “all species, subspecies, and populations identified in Section 3, Table 3.1, of the HCP Amendment.” Covered Species that are not listed as threatened or endangered under the ESA are included because, in most cases, they will benefit from the habitat conservation actions to protect Listed Species.

Table 3.1 lists the 41 Covered Species for which the HCP Amendment is intended to provide protective and conservation measures over the term of the Take Authorizations. Table 3.1 has been updated in support of the HCP Amendment. Table 3.1 also identifies Covered Species for which additional Specific Protocols have been established. Appendix B contains the ECP that has been developed for golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*), which were Covered Species under the Subregional Plan and will continue to be Covered Species under the HCP Amendment. The ECP assesses eagle use in the Plan Area, estimates impacts, identifies avoidance and minimization measures, and provides a monitoring and mitigation approach to offset eagle impacts. Appendix C contains the Peninsular Bighorn Sheep Evaluation, which assesses impacts and identifies avoidance and minimization measures to offset peninsular bighorn sheep impacts.

The Covered Species have been updated based on coordination with USFWS and review of existing information. The SDG&E Subregional Plan, as approved in 1995, originally covered 110 species. These original 110 species, as well as additional sensitive species not covered under the 1995 Subregional Plan,⁵ were evaluated for coverage in support of the HCP Amendment and are reviewed more fully in Appendix D. SDG&E principally considered four criteria in determination whether to include or exclude species as Covered Species under the HCP Amendment:

1. Listing Status – Whether the species was currently listed under the ESA or was likely to become listed during the remaining duration of the permit term.

⁵ Review focused primarily on CDFW sensitive wildlife (i.e., species of special concern, fully protected, or watch list species) and California Rare Plant Rank (CRPR) List 1A, 1B, 2A, and 2B species that have been detected within the Plan Area in the last 30 years. Species identified with lower status designations were not considered as likely to be listed over the life of the HCP, unless other supporting information was available that suggested potential for listing.

2. Geographic Range – Whether the species was currently known to occur or was expected to occur in the Plan Area based on knowledge of the species' geographic range and the presence of suitable habitat.
3. Effects of Covered Activities – Whether the species could be adversely affected by Covered Activities that are currently occurring within the Plan Area or are likely to occur over remaining duration of the permit term.
4. Adequacy of Existing Data and Information on the Species – Whether sufficient data and information were available regarding the species' life history, habitat requirements, and presence in the Plan Area to adequately evaluate effects on the species and develop appropriate protocols for avoiding, minimizing, or mitigating impacts.

SDG&E evaluated the four criteria in a stepwise fashion. If a species was neither currently listed under the ESA nor likely to become listed during the remaining duration of the permit term, no further evaluation of the species was undertaken. The remaining species were evaluated for their potential to occur in the Plan Area. Those species listed or with potential to be listed under the ESA that occur within the Plan Area were evaluated on the final two criteria. For those species not covered, the rationale for exclusion was provided.

In 2007, USFWS issued SDG&E a permit for the Low-Effect Habitat Conservation Plan for the issuance of an ITP under Section 10(a)(1)(b) of the Endangered Species Act for the Federally Endangered Quino Checkerspot Butterfly (Quino LEHCP) (SDG&E 2007). The purpose of the Quino LEHCP is to minimize and mitigate the effects of SDG&E's Covered Activities on the Quino checkerspot butterfly over the 50-year term of the USFWS permit. Because the Quino checkerspot butterfly is covered independently under the Quino LEHCP, it is not included as a Covered Species in the HCP Amendment.

3.1.1 Critical Habitat

Critical habitat for 16 federally listed Covered Species occurs in the Plan Area (USFWS 2019). Distribution, location, and acreage of the designated critical habitat, along with the total approximate acreage located in the Plan Area, are provided for each respective federally listed Covered Species in Sections 2 through 6 of Appendix A. Attachment A of Appendix A provides a table summarizing the species with designated critical habitat in the Plan Area. Appendix C provides a table summarizing designated Critical Habitat for peninsular bighorn sheep.

3.2 Vegetation Communities and Other Land Covers in the Plan Area

Vegetation communities and other land cover types addressed by this Plan Area are listed below. Appendix E provides a crosswalk of the vegetation communities below relative to the Holland classification system (Holland 1986; Oberbauer et al. 2008), *Vegetation Classification Manual for Western San Diego County* (Sproul et al.

Table 3.1 HCP Amendment Covered Species List

Scientific Name	Common Name	ESA Status ¹	CESA Status ¹	Other Status ¹	Species-Specific Protocols (Y/N)	Narrow Endemic Protocols (Y/N)	Vernal Pool Protocols (Y/N)
Plants (16)							
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint	T	E	CRPR 1B.1	N	Y	N
<i>Ambrosia pumila</i>	San Diego ambrosia	E	-	CRPR 1B.1	N	Y	N
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	Del Mar manzanita	E	-	CRPR 1B.1	N	Y	N
<i>Baccharis vanessae</i>	Encinitas baccharis	T	E	CRPR 1B.1	N	Y	N
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	T	E	CRPR 1B.1	N	Y	N
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> (<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>)	Salt marsh bird's-beak	E	E	CRPR 1B.2	N	Y	N
<i>Chorizanthe orcuttiana</i>	Orcutt's spineflower	E	E	CRPR 1B.1	N	Y	N
<i>Deinandra conjugens</i> (<i>Hemizonia conjugens</i>)	Otay tarplant	T	E	CRPR 1B.1	N	Y	N
<i>Dudleya brevifolia</i>	Short-leaved dudleya	-	E	CRPR 1B.1	N	Y	N
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	E	E	CRPR 1B.1	N	N	Y
<i>Monardella viminea</i> (<i>Monardella linoides</i> ssp. <i>viminea</i>)	Willow monardella	E	E	CRPR 1B.1	N	Y	N
<i>Navarretia fossalis</i>	Spreading navarretia	T	-	CRPR 1B.1	N	N	Y
<i>Nolina interrata</i>	Dehesa beargrass	-	E	CRPR 1B.1; BLM Sensitive	N	Y	N
<i>Orcuttia californica</i>	California Orcutt grass	E	E	CRPR 1B.1	N	N	Y
<i>Pogogyne abramsii</i>	San Diego mesa mint	E	E	CRPR 1B.1	N	N	Y
<i>Pogogyne nudiuscula</i>	Otay Mesa mint	E	E	CRPR 1B.1	N	N	Y
Invertebrates (4)							
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	E	-		N	N	Y
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	E	-		N	N	Y
<i>Pyrgus ruralis lagunae</i>	Laguna Mountains skipper	E	-		Y	N	N
<i>Lycaena hermes</i>	Hermes copper butterfly	T	-	USFS Sensitive	Y	N	N
Amphibians (3)							
<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	Arroyo toad	E	-	SSC	Y	N	N
<i>Rana draytonii</i> (<i>Rana aurora draytonii</i>)	California red-legged frog	T	-	SSC	Y	N	N
<i>Spea hammondii</i> or <i>Scaphiopus hammondii</i>	Western spadefoot	-	-	BLM Sensitive; SSC	Y	N	Y
Reptiles (2)							
<i>Actinemys pallida</i>	Southwestern pond turtle	-	-	SSC; USFS Sensitive; BLM Sensitive	Y	N	N
<i>Phrynosoma blainvillii</i>	Coast horned lizard	-	-	BLM Sensitive; SSC	N	N	N
Birds (13)							
<i>Agelaius tricolor</i>	Tricolored blackbird	-	T	BLM Sensitive; SCC; BCC	Y	N	N
<i>Athene cunicularia</i> (<i>Athene cunicularia</i> ssp. <i>hypugaea</i>)	Burrowing owl	-	-	SSC; BCC; BLM Sensitive	Y	N	N
<i>Aquila chrysaetos</i>	Golden eagle	-	-	BGEPA; BLM Sensitive; FP; WL	Y	N	N
<i>Campylorhynchus brunneicapillus sandiegensis</i>	Coastal cactus wren	-	-	SSC; USFS Sensitive	Y	N	N
<i>Charadrius nivosus nivosus</i> (<i>Charadrius alexandrinus nivosus</i>)	Western snowy plover (Pacific Coast population distinct population segment)	T	-	SSC	Y	N	N

Scientific Name	Common Name	ESA Status ¹	CESA Status ¹	Other Status ¹	Species-Specific Protocols (Y/N)	Narrow Endemic Protocols (Y/N)	Vernal Pool Protocols (Y/N)
<i>Coccyzus americanus</i>	Western yellow-billed cuckoo (western distinct population segment)	T	E	USFS Sensitive; BLM Sensitive	Y	N	N
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	E	E		Y	N	N
<i>Haliaeetus leucocephalus</i>	Bald eagle	Delisted	E	BGEPA; BLM Sensitive; FP; USFS Sensitive	Y	N	N
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	-	E	BCC	Y	N	N
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	T	-	SSC	Y	N	N
<i>Rallus obsoletus levipes</i> (<i>Rallus longirostris levipes</i>)	Light-footed Ridgway's rail (light-footed clapper rail)	E	E	FP	Y	N	N
<i>Sternula antillarum browni</i> (<i>Sterna antillarum browni</i>)	California least tern	E	E	FP	Y	N	N
<i>Vireo bellii pusillus</i>	Least Bell's vireo	E	E		Y	N	N
Mammals (3)							
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	T	T		Y	N	N
<i>Ovis canadensis nelsoni</i>	Peninsular bighorn sheep	E	T	FP	Y	N	N
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	E	-	SSC	Y	N	N

¹ Sensitivity Status Key
ESA: E = Endangered; T = Threatened
CESA: E = Endangered; T = Threatened; R = Rare
Other:
California Rare Plant Rank (CRPR): Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere;
Rank 3 = Plants about which more information is needed (Review List); Rank 4 = Plants of limited distribution (Watch List). 0.1 = Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat); 0.2 = Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat); 0.3 = Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
SSC = California Department of Fish & Wildlife (CDFW) Species of Special Concern
FP = State Fully Protected
SP = State Specially Protected
WL = CDFW Watch List
BCC = U.S. Fish & Wildlife Service Bird of Conservation Concern
USFS Sensitive = U.S. Forest Service Sensitive Animal
BLM Sensitive = Bureau of Land Management Sensitive Animal
BGEPA = Bald and Golden Eagle Protection Act
Note: Because the Quino checkerspot butterfly is covered independently under the Quino LEHCP (SDG&E 2007), it is not included as a Covered Species in the HCP Amendment.

2011), and the California Manual of Vegetation (Sawyer et al. 2009). Appendix F provides a crosswalk of the habitat types below relative to the broader vegetation grouping in Tables 4.5 and 4.6. Figure 6 displays a generalized map of vegetation in the Plan Area. Table 3.2 summarizes vegetation community acreages in the Plan Area.

- | | |
|--------------------------------|----------------------------------|
| • Southern Foredunes | • Big Cone Spruce |
| • Southern Coastal Bluff Scrub | • Jeffrey Pine |
| • Maritime Succulent Scrub | • Eucalyptus Woodland |
| • Coastal Sage Scrub | • Tecate Cypress Forest |
| • Big Sagebrush Scrub | • Meadow/Seep |
| • Buckwheat Scrub | • Southern Coastal Salt Marsh |
| • Alluvial Fan Scrub | • Alkali Marsh |
| • Desert Scrub | • Freshwater Marsh |
| • Desert Dunes | • Coast Live Oak Riparian Forest |
| • Badlands | • Riparian Forest |
| • Chaparral | • Riparian Woodland |
| • Southern Maritime Chaparral | • Riparian Scrub |
| • Coastal Sage/Chaparral Mix | • Inland Water |
| • Native Grassland | • Shallow Bays |
| • Nonnative Grassland | • Disturbed Wetlands |
| • Open Oak Woodland | • Non-Vegetated |
| • Open Engelmann Oak Woodland | • Floodway/Channel |
| • Dense Engelmann Oak Woodland | • Beach-Saltpan |
| • Coast Live Oak Forest | • Vernal Pool |
| • Black Oak Forest | • Disturbed |
| • Torrey Pine Forest | • Agricultural |
| • Mountain Conifer Forest | • Bare Ground |
| • Coulter Pine Forest | • Landscaped/Ornamental |
| • Mixed Oak/Coniferous Forest | • Developed |

Those land cover types that are not well defined by classification systems commonly used by practitioners in the region are defined below, for the purposes of the HCP Amendment, based on discussion with the Wildlife Agencies:

- **Disturbed:** Disturbed habitat refers to any land in which the vegetative cover comprises less than 10% of the surface area (disregarding natural rock outcrops) and where there is evidence of soil surface disturbance and compaction (i.e., grading); or where the vegetative cover is greater than 10%, there is soil surface disturbance and/or compaction, and/or the presence of building foundations and/or debris (i.e., irrigation piping, fencing, old wells, abandoned farming or mining equipment). Vegetation on disturbed land (if present) will typically have a high predominance of nonnative, weedy species that are indicators of surface disturbance and/or soil compaction, such as Russian thistle (*Salsola tragus*), telegraph weed (*Heterotheca grandiflora*), mustard (*Brassica* spp.), castor bean

(*Ricinus communis*), tumbleweed (*Amaranthus albus*), sweet fennel (*Foeniculum vulgare*), horehound (*Marrubium vulgare*), filarees (*Erodium* spp.), and sow-thistle (*Sonchus oleraceus*). Although nonnative grasses may be present on disturbed lands, they do not dominate the vegetative cover. Disturbed habitat is typically found in vacant lots, roadsides, and material storage areas.

Table 3.2 Vegetation Communities and Cover Types within the Plan Area

Vegetation Communities and Other Cover Types¹	Plan Area (Acres)	Probable Impact Zone (Acres)²
<i>Riparian and Wetlands</i>	119,154	4,093
Alkali Playa	2,007	-
Beach/Coastal Dunes/Saltpan/Mudflats	1,319	94
Disturbed Wetland	191	24
Marsh	5,946	317
Meadows and Seeps	10,635	122
Non-Vegetated Channel	2,718	51
Open Water	26,418	438
Riparian Forest/Woodland	58,972	2,365
Riparian Scrub	10,875	670
Vernal Pools	72	13
<i>Uplands</i>	1,902,591	41,881
Badlands	46,075	-
Chaparral	822,591	15,592
Coastal Scrub	230,825	13,571
Desert Dunes	895	-
Desert Scrub	456,690	2,024
Forest/Woodland	203,954	2,461
Grasslands	130,350	7,917
Great Basin Scrub	11,212	315
<i>Other Cover Type</i>	794,185	306,935
Agriculture	139,636	10,594
Disturbed Habitat	13,719	2,370
Eucalyptus Woodland	2,348	650
Urban/Developed	638,482	293,321
Total³	2,815,930	352,909

¹ Appendix F provides a crosswalk showing the detailed habitat types that SDG&E has historically impacted relative to the grouping in Tables 4.4 and 4.5 below.

² The Probable Impact Zone (PIZ) is the defined area around existing SDG&E Facilities where impacts are reasonably likely to occur. Methodology for development of the PIZ is detailed in Section 4.1.3.2.


³ Values may not total due to rounding after summation.

- **Nonnative Grassland:** Nonnative grassland is characterized by a mixture of annual grasses and broad-leaved, herbaceous species. Nonnative grass species must constitute more than 50% of species present to constitute nonnative grassland. Annual species comprise from 50% to more than 90% of the vegetative cover, and most annuals are nonnative species. Nonnative grasses typically comprise at least 30% of the vegetation, although this number can be much higher in some years and lower in others depending on land use and climatic conditions. The presence of broad-leaved species (e.g., mustard) following winters of abnormally higher


San Diego Gas and Electric Company
HCP Amendment


SDG&E Vegetation Communities
and Cover Types
Figure 6


Legend


-  SDG&E Service Area


Vegetation Communities and Land Cover Types


 Alkali Playa


 Beach/Coastal Dunes/Saltpan/Mudflats


 Disturbed Wetland


 Marsh


 Meadows and Seeps


 Non-Vegetated Channel, Floodway, Lakeshore Fringe


 Open Water


 Riparian Forest/Woodland


 Riparian Scrub


 Vernal Pools
- Uplands**


 Badlands


 Chaparral


 Coastal Scrub

 Desert Dunes


 Desert Scrub


 Forest/Woodland


 Grasslands


 Great Basin Scrub

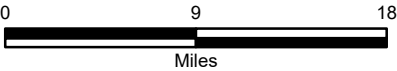
Other Cover Types

 Agriculture

 Disturbed Habitat

 Eucalyptus Woodland

 Urban/Developed



AECOM



Data Date: 03/13/2020

Version Date: 7/31/2023



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Requested By: T. Ware Created By: P.Moreno

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rainfall would still be classified as nonnative grassland if these species make up less than 50% cover. Shrubs and trees may also be present but represent a minority (less than 15%) of the vegetative and canopy cover. Nonnative grassland indicator species include brome grasses (*Bromus* spp.), wild oats (*Avena* spp.), fescues (*Vulpia* spp.), and filarees. Nonnative grassland typically supports habitat for small mammals, reptiles, and raptor foraging. Unimproved or natural grazing lands not subject to cultivation practices (see Agricultural definition) may still be classified as nonnative grassland.

- **Agricultural:** Agricultural habitat refers to lands that are currently disturbed by cultivation or other agricultural activities involving crop production practices and/or improvement of livestock grazing (e.g., field crops, improved pastures). Pastures fall into the agricultural heading if cultivation practices (e.g., disking, mowing, seeding, and irrigation or supplemental feeding and/or watering) are used periodically to improve land for livestock forage and result in a general absence of fossorial species availability for raptors and other predators. Agricultural habitat also includes agricultural practices that use relatively high amounts of labor and resources on relatively small areas of land, which tend to have significant permanent buildings and installations. Examples may include dairies, nurseries, cattle feedlots, and other confined animal feeding operations. Intentional plantings of trees, shrubs, or vines maintained for food production or commercial use, including orchards and vineyards, are also considered agricultural habitat types. These plantings tend to be perennial, can be artificially irrigated and fertilized, and usually do not involve intense annual soil disturbance. Lands that are not currently in production but that are identified as agriculture and have been cultivated in 3 of the last 5 years or according to accepted cultural practices will be considered fallow agriculture, regardless of species composition. Conversely, agricultural lands that have not been cultivated in 3 of the last 5 years, or that are proposed for conversion to non-agricultural land uses (e.g., residential, commercial, industrial), shall be mapped and mitigated according to the actual vegetation type (e.g., nonnative grassland) based on vegetative characteristics, without regard to current or historic land uses.
- **Bare Ground:** Bare ground land cover includes areas of native or imported soils that are unvegetated and consist of mostly exposed ground. These areas may include graded lands or land with other significant topsoil disturbance; naturally occurring bare areas; lands lacking biological value; lands subject to repeated and/or regular clearing for fuel management or O&M purposes (including unpaved access roads); maintained work areas, staging yards, equipment, and other construction-related Covered Activities; off-highway vehicles (OHVs) or hiking trails; and sites from old homes or other structures.
- **Developed:** Developed land refers to areas that have been permanently altered for human use and activities. Developed land may include paved parking lots, residential homes, commercial development and infrastructure, and paved roads.
- **Landscaped/Ornamental:** Landscaped/ornamental habitat includes intentionally planted areas generally associated with aesthetic improvements and urban development. Landscape/ornamental areas may include lawns, public parks, golf

courses, aesthetic plantings associated with sidewalks, medians, residential or commercial developments or other city improvements (e.g., street trees), and golf courses.

Impact Assessment

4 Impact Assessment

As a regional energy provider, SDG&E is responsible for the installation and O&M of Facilities that range from gas and electric transmission lines, local distribution networks, communications, and generation Facilities. The development and ongoing O&M of these Facilities, like all development, have impacts. To support the HCP Amendment process, a comprehensive analysis of Covered Activities and the associated impacts to Covered Species and their habitat is provided in the Covered Species Analysis (Appendix A). The Covered Species Analysis provides updated ecological information on each Covered Species, including its current status within the region and known threats or pressures to its continued survival. It then analyzes potential impacts of Covered Activities on Covered Species and their habitat.

As detailed below, to project future impacts over the remaining life of the HCP Amendment, the analysis relies in part on data collected over the first 23 years of implementation of the Subregional Plan. This approach was found to be an appropriate and conservative estimate of future impacts for several reasons. Because historical data, including both permanent impacts and temporary impacts that were fully restored, was used to estimate future permanent impacts, this approach overestimates permanent habitat impacts and is a conservative estimate of future potential impacts. In addition, virtually all major infrastructure is now largely in place and future impacts will be associated with O&M. To be conservative, projections of future impacts in this analysis assume the same level of New Construction and O&M impacts going forward and estimate that future New Construction impacts would be like those in past decades.

Moreover, impacts associated with energy development are not equated with typical commercial, industrial, and residential development. Typical development can permanently remove large areas of native vegetation, change the topography, and cover much of the developed area with impervious surfaces. In contrast, most of SDG&E's energy development occurs above or below the earth's surface with very small areas of permanent or temporary disturbance. In addition, impacts from energy development include narrow and unpaved access roads, habitat that continues to exist and grow in ROW, energy Facilities (except for generators) that are unoccupied and generate very little traffic, and little or no contribution to edge effects due to predatory pets or extensive human activity. Other than direct habitat loss, negative impacts that may occur from SDG&E's energy development are habitat fragmentation and provision of human/vehicle/equipment access to remote areas leading to potential exotic species invasion and destruction of habitat.

Construction impacts associated with SDG&E's energy development are also less than those of typical developments because (1) energy development projects are completed over a period of days rather than months or years as with other development projects, and (2) construction has less impact; for example, equipment and materials are often delivered by air, thereby minimizing ground disturbances.

4.1 Operations and Maintenance and New Construction Impact Assessment Methodology

The impact analysis herein is based primarily on SDG&E's historical data collected from 1996 through 2018. The historical data is used in conjunction with species habitat modeling data on Covered Species habitat distributions to further estimate potential species-specific impacts. Where appropriate (for example, species identified as having more specialized or restrictive habitat requirements and/or highly limited populations with specific known localities in the Plan Area), additional applicable data is used to further refine estimates of impacts and conclusions based thereon.

Using historical annual average impacts to habitat is a reliable, conservative predictor of anticipated annual average habitat impacts for the remaining duration of the permit term (through 2050). Past data includes habitat impacts associated with the construction of new Facilities to create and expand SDG&E's gas and power system. All major infrastructure is now largely in place, and SDG&E anticipates building new Facilities at a far lower rate than prior decades. Currently, SDG&E anticipates no new large-scale construction in the near term. Accordingly, past data, which incorporates impacts from Covered Activities that will not occur at the same rate in the future, likely overestimates future impacts. Nor is it likely that there will be any large, localized impact footprints associated with the creation of new Facilities that could significantly impact a localized population. In addition, impacts to Preserves and some Covered Species from New Construction may require a Minor Amendment consistent with Section 6.5.1.2 below, to ensure impacts to Preserves and these species are avoided and/or minimized.

Relatedly, in future years, SDG&E will be predominantly maintaining, repairing, and upgrading its existing system. Impacts associated with O&M are likely to be small and occur along long, linear lines across the 2,815,930-acre Plan Area. Given the nature of these Covered Activities, they are unlikely to significantly impact highly localized Covered Species.

In addition to summarizing historical impacts associated with Covered Activities from 1996 through 2018, the following sections describe methodologies for estimating future impacts through 2050 of HCP Amendment implementation for each Covered Species based on the historical and species habitat modeling data. In brief, for each Covered Species, the impact analysis followed a multi-step approach to estimate future impacts, summarized below:

- The analysis first provided an estimate of total Modeled Habitat for each Covered Species in the Plan Area (Section 4.1.3.1).
- It also established a Probable Impact Zone (PIZ), a defined area around existing SDG&E Facilities where impacts were reasonably likely to occur (Section 4.1.3.2).
- Quantified acreages of Modeled Habitat in the undeveloped portion of PIZ and the percentage of the undeveloped portion of PIZ that consisted of Modeled Habitat for each Covered Species were then quantified and multiplied by annual impact estimates to generate potential species-specific habitat impacts.

- Based on species abundance, available occurrence data, and other relevant factors for each Covered Species, the estimate of potential habitat impacts either became the final impact estimate or was further refined. More specifically:
 - For Covered Species that were wide-ranging in the Plan Area, the initial estimate was determined to be the final estimate of impacts.
 - For Covered Species with more specialized or restrictive habitat requirements and/or highly limited populations at known localities (including, e.g., narrow endemics species and vernal pool species):
 - Available occurrence data was summarized in the Plan Area and compared against the PIZ; and
 - From that comparison, a qualitative impact assessment was completed to address potential impacts to species.
- Applicable measures/protocols to avoid, minimize, or mitigate impacts to the Covered Species were then analyzed.

Based on these multiple steps, a conclusion was reached regarding the effect of future impacts through 2050 to the Covered Species as detailed in Appendix A.

4.1.1 Definitions of Permanent and Temporary Impacts

Covered Activities can result in permanent or temporary impacts to Covered Species and their habitat. Permanent and temporary impacts are defined as follows:

Permanent Impacts: Impacts resulting from Covered Activities that result in a permanent loss of habitat. These impacts generally alter soil, topography, and/or hydrological conditions, and typically result in areas maintained clear of vegetative growth and that may be impervious. Covered Activities resulting in permanent impacts occur when, for example, construction for the purposes of expanding, operating, and maintaining gas and electric infrastructure creates new access roads, installs or replaces electric overhead or underground Facilities or gas Facilities (not to include underground conduit), or removes habitat near Facilities for the purpose of fire prevention in areas of high fire potential or the presence of specific overhead hardware (e.g., pole brushing). Permanent impacts may also include injury or mortality of individual species.

Temporary Impacts: Impacts resulting from Covered Activities that do not result in permanent loss of habitat. Impacts associated with temporary habitat loss could include excavation, grading, repeated overland travel, extensive vegetation trimming/removal, or soil stockpiling that alters existing habitat, soils, topography, and hydrology for a period of time before reestablishing to preexisting conditions. For example, temporary impacts to Covered Species may arise from construction-related noise levels; construction-generated fugitive dust accumulation on surrounding habitat; and construction-related erosion, runoff, and sedimentation into plant communities. Impacts to species from Covered Activities would be temporary, as these impacts would end

with cessation of project construction and/or through successful post-construction restoration efforts.

Covered Activities can include overland travel with rubber-tired or tracked vehicles that due to low-intensity/duration may not be a measurable permanent or temporary habitat impact. For example, vegetation that is bent or peripherally damaged is not considered a measurable impact if it is limited enough to avoid causing mortality or habitat removal. In addition, vegetation trimming for footpath access to Facilities and routine tree trimming that does not remove individual shrubs/trees to the point of mortality are not considered measurable habitat impacts. It is considered a measurable habitat impact when individual shrubs or trees are completely removed or there is a potential to cause injury or mortality to a Covered Species. A Biologist will determine if impacts from overland travel or vegetation trimming will be considered no impact, temporary impacts requiring inclusion into the habitat Restoration and Enhancement Program (R/E Program) (see Section 5.2), or a permanent impact on a project-by-project basis through individual review of each Covered Activity just prior to its occurrence; the determination will be documented through the Pre-activity Survey Report (PSR) process.

4.1.2 Historical Habitat Impacts

SDG&E has successfully implemented the Subregional Plan for more than 26 years since its approval in 1995. O&M and New Construction impacts that have occurred to various habitat types as a result of Covered Activities on existing and new Facilities are tracked in acres and were compiled for this impact analysis. Impacts to each habitat type are separated out by impact type (i.e., permanent versus temporary impacts). The majority of annual impacts resulting from Covered Activities have been temporary in nature (Table 4.1). Most Covered Activities tend to result in impacts (62%) to developed or disturbed land cover types (e.g., bare ground, developed, disturbed habitat). Consequently, less than 38% of historic impacts (on an annual average basis) under the Subregional Plan occurred to upland and riparian/wetland habitat (Table 4.1).

The overall average annual O&M and New Construction impacts to habitat across both temporary and permanent impact types on existing and new Facilities was 11.54 acres per year. Table 4.2 provides a detailed breakdown of each habitat type impacted under the Subregional Plan over the past two decades. The historical data demonstrates that SDG&E Operational Protocols have been effective in encouraging avoidance of riparian and wetland habitat, as very few permanent impacts have occurred to these habitat types. The primary upland habitat types impacted from 1996 through 2018 were chaparral, grassland, and coastal sage scrub (Table 4.2).

Table 4.1 SDG&E Subregional Plan Historical Impacts: New Construction and O&M Impact Summary 1996–2018 (acres)

Habitat Type	Total Temporary Impacts	Total Permanent Impacts	Average Annual Temporary Impacts	Average Annual Permanent Impacts	Percent Temporary of Total Impacts ²	Percent Permanent of Total Impacts ²	Total Impacts ³	Average Annual Impacts ³	Percent of Total Impacts ³
Habitat									
Riparian and Wetlands	4.08	1.09	0.18	0.05	0.58%	0.16%	5.18	0.23	0.74%
Uplands	150.79	109.49	6.56	4.76	21.52%	15.63%	260.28	11.32	37.15%
Habitat Subtotal	154.87	110.58	6.73	4.81	22.11%	15.78%	265.45	11.54	37.89%
Non-Habitat Type Subtotal ¹	396.12	39.04	17.22	1.70	56.54%	5.57%	435.16	18.92	62.11%
Total (Habitat and Non-Habitat) ⁴	550.99	149.62	23.96	6.51	78.64%	21.36%	700.61	30.46	100.00%

¹ Non-habitat impacts are shown for context and do not count towards the Subregional Plan impact cap.

² Percent of the combined total of temporary and permanent impacts (i.e., 700.61 acres).

³ Temporary and permanent impacts combined.

⁴ Values may not total due to rounding after summation.

Table 4.2 SDG&E Subregional Plan Historical Impacts: New Construction and O&M Detailed Impact Summary 1996–2018 by Habitat Type (acres)

Habitat Type	Total Temporary Impacts	Total Permanent Impacts	Average Annual Temporary Impacts	Average Annual Permanent Impacts	Percent Temporary of Total Impacts ²	Percent Permanent of Total Impacts ²	Total Impacts ³	Average Annual Impacts ³	Percent of Total Impacts ³
Riparian and Wetlands	4.08	1.09	0.18	0.05	0.58%	0.16%	5.18	0.23	0.74%
Alkali Marsh	0.06	<0.01	<0.01	<0.01	0.01%	<0.01%	0.06	<0.01	0.01%
Coast Live Oak Riparian Forest	0.36	0.03	0.02	<0.01	0.05%	<0.01%	0.39	0.02	0.06%
Disturbed Wetlands	0.33	0.03	0.01	<0.01	0.05%	<0.01%	0.36	0.02	0.05%
Freshwater Marsh	0.03	0.04	<0.01	<0.01	<0.01%	0.01%	0.07	<0.01	0.01%
Inland Waters	0.02	-	<0.01	-	<0.01%	-	0.02	<0.01	<0.01%
Meadow/Seep	0.43	<0.01	0.02	<0.01	0.06%	<0.01%	0.43	0.02	0.06%
Non-Vegetated Flood Channel	0.01	-	<0.01	-	<0.01%	-	0.01	<0.01	<0.01%
Riparian Forest	0.28	0.06	0.01	<0.01	0.04%	0.01%	0.34	0.01	0.05%
Riparian Scrub	1.86	0.32	0.08	0.01	0.27%	0.05%	2.18	0.09	0.31%
Riparian Woodland	0.44	0.19	0.02	0.01	0.06%	0.03%	0.64	0.03	0.09%
Southern Coastal Salt Marsh	0.27	<0.01	0.01	<0.01	0.04%	<0.01%	0.27	0.01	0.04%
Vernal Pool	<0.01	0.42	<0.01	0.02	<0.01%	0.06%	0.43	0.02	0.06%
Uplands	150.79	109.49	6.56	4.76	21.52%	15.63%	260.28	11.32	37.15%
Alluvial Fan Scrub	0.04	<0.01	<0.01	<0.01	0.01%	<0.01%	0.04	<0.01	0.01%
Big Sagebrush Scrub	1.53	0.25	0.07	0.01	0.22%	0.04%	1.78	0.08	0.25%
Black Oak Forest	0.06	0.03	<0.01	<0.01	0.01%	<0.01%	0.09	<0.01	0.01%
Buckwheat Scrub	1.95	1.02	0.08	0.04	0.28%	0.14%	2.96	0.13	0.42%
Chaparral	14.85	22.55	0.65	0.98	2.12%	3.22%	37.39	1.63	5.34%
Coast Live Oak Forest	1.11	0.25	0.05	0.01	0.16%	0.04%	1.37	0.06	0.20%

Habitat Type	Total Temporary Impacts	Total Permanent Impacts	Average Annual Temporary Impacts	Average Annual Permanent Impacts	Percent Temporary of Total Impacts ²	Percent Permanent of Total Impacts ²	Total Impacts ³	Average Annual Impacts ³	Percent of Total Impacts ³
Coastal Sage Scrub	35.75	33.28	1.55	1.45	5.10%	4.75%	69.03	3.00	9.85%
Coastal Sage Scrub/Chaparral Mix	6.74	8.93	0.29	0.39	0.96%	1.27%	15.67	0.68	2.24%
Coulter Pine Forest	<0.01	<0.01	<0.01	<0.01	<0.01%	<0.01%	<0.01	<0.01	<0.01%
Dense Engelmann Oak Woodland	0.03	<0.01	<0.01	<0.01	<0.01%	<0.01%	0.03	<0.01	<0.01%
Desert Scrub	2.30	3.72	0.10	0.16	0.33%	0.53%	6.02	0.26	0.86%
Grassland ⁴	82.64	38.51	3.59	1.67	11.80%	5.50%	121.15	5.27	17.29%
Jeffrey Pine Forest	0.01	0.01	<0.01	<0.01	<0.01%	<0.01%	0.02	<0.01	<0.01%
Maritime Succulent Scrub	0.03	0.04	<0.01	<0.01	<0.01%	0.01%	0.06	<0.01	0.01%
Mixed Oak/Coniferous Forest	0.48	0.07	0.02	<0.01	0.07%	0.01%	0.54	0.02	0.08%
Mountain Conifer Forest	0.08	0.02	<0.01	<0.01	0.01%	<0.01%	0.09	<0.01	0.01%
Open Engelmann Oak Woodland	0.35	0.01	0.02	<0.01	0.05%	<0.01%	0.36	0.02	0.05%
Open Oak Woodland	2.29	0.61	0.10	0.03	0.33%	0.09%	2.89	0.13	0.41%
Southern Coastal Bluff Scrub	-	<0.01	-	<0.01	-	<0.01%	<0.01	<0.01	<0.01%
Southern Maritime Chaparral	0.44	0.20	0.02	0.01	0.06%	0.03%	0.64	0.03	0.09%
Tecate Cypress Forest	0.11	<0.01	<0.01	<0.01	0.02%	<0.01%	0.11	<0.01	0.02%
Torrey Pine Forest	<0.01	-	<0.01	-	<0.01%	-	<0.01	<0.01	<0.01%
Non-Habitat Type¹	396.12	39.04	17.22	1.70	56.54%	5.57%	435.16	18.92	62.11%
Agricultural	19.24	0.13	0.84	0.01	2.75%	0.02%	19.37	0.84	2.76%
Bare Ground	137.27	10.44	5.97	0.45	19.59%	1.49%	147.71	6.42	21.08%
Developed	13.12	0.27	0.57	0.01	1.87%	0.04%	13.39	0.58	1.91%
Disturbed Habitat	188.70	21.00	8.20	0.91	26.93%	3.00%	209.70	9.12	29.93%
Eucalyptus Forest	0.40	0.29	0.02	0.01	0.06%	0.04%	0.68	0.03	0.10%
Landscape/Ornamental	16.70	6.79	0.73	0.30	2.38%	0.97%	23.49	1.02	3.35%
Pavement – Asphalt or Concrete	20.69	0.12	0.90	0.01	2.95%	0.02%	20.81	0.90	2.97%
Total (Habitat and Non-Habitat)⁵	550.99	149.62	23.96	6.51	78.64%	21.36%	700.61	30.46	100.00%

¹ Non-habitat impacts are shown for context and do not count towards the Subregional Plan impact cap.

² Percent of the combined total of temporary and permanent impacts (i.e., 700.61 acres).

³ Temporary and permanent impacts combined.

⁴ Grassland refers to both native and nonnative grasslands.

⁵ Values may not total due to rounding after summation.

Moreover, as detailed above, historical average annual impacts from O&M and New Construction likely overestimate impacts from New Construction as compared to future Covered Activities, which are expected to be overwhelmingly O&M on the existing system.

4.1.3 Potential Species Impacts

As discussed above, the gas and electric system is largely built out and construction of Facilities is essentially complete. Therefore, construction of new Facilities is not anticipated to occur at a rate on par with historical periods related to the development (rather than maintenance) of the system. Nonetheless, to be conservative, based on 23 years of historical data on existing and new Facilities, SDG&E assumes annual O&M and New Construction impacts through 2050 will be similar. Thus, averages of approximately 4.81 acres of permanent impacts and 6.73 acres of temporary impacts are expected on an annual basis as a result of Covered Activities, for a combined average of 11.54 acres of impacts on an annual basis. An estimate of impacts on habitat types can be directly extrapolated from the average annual impacts shown in Table 4.2. To refine the accuracy of the estimate of potential suitable habitat in the Plan Area, other factors beyond vegetation were considered, such as soil type and texture, elevation, slope, and ecoregion in the habitat modeling effort.

Section 4.1.3.1 provides an overview of how suitable habitat in the Plan Area is estimated for each Covered Species, using species habitat models. Section 4.1.3.2 describes how the modeled data is used in combination with historical data and the location of existing infrastructure to estimate the potential impacts to Covered Species habitat that could result from future Covered Activities. It is important to note that the use of habitat models only provides an estimate for analytical purposes.

Critically, however, the habitat modeling is not a substitute for a determination of actual impacts associated with a specific Covered Activity. Rather, actual impacts to Covered Species and their habitat will be quantified through individual review of each Covered Activity just prior to its occurrence and documented through the PSR process, as described in Section 5.1.3, and then summarized in the Annual Report. Thus, the analysis provided herein is for estimation purposes only.

4.1.3.1 Covered Species Habitat Modeling Methodology

This section summarizes the approach to estimating suitable habitat for Covered Species in the Plan Area. Ultimately, the goal of estimating suitable habitat acreage for each species is to quantify approximate potential impacts to each Covered Species resulting from Covered Activities for the remaining term of the existing permits.

County of San Diego Species Habitat Model

Approximate acreage of suitable habitat in the Plan Area was estimated through habitat modeling. As part of the San Diego MSCP, the County of San Diego developed species habitat models for more than 400 species known to occur within San Diego County. These habitat models generate species distribution outputs based on the habitat

requirements for each species. Specifically, the model habitat requirements consider six key environmental factors: vegetation, soil type, soil texture, elevation, slope, and ecoregion.

Regional data sources from the U.S. Department of Agriculture (USDA) and USGS are used to create data layers for each of the habitat factors used in the model, except for vegetation. The vegetation mapping layer incorporated into the habitat models is based on the classification system defined by Holland (1986), as modified by Oberbauer et al. (2008).

The models were originally developed by Technology Associates in cooperation with USFWS, CDFW, local jurisdictions in the San Diego region, and various consulting and academic biologists. The current versions of the species habitat model outputs, as of August 2, 2019, were obtained directly from the County of San Diego and added to the HCP Amendment's database to facilitate species-specific analyses.

Stephens' Kangaroo Rat Model

Stephens' kangaroo rat habitat for the San Diego region was obtained from the Conservation Biology Institute (CBI), who published the Stephens' Kangaroo Rat Rangewide Management and Monitoring Plan (Spencer et al. 2021). CBI modeled and mapped Stephens' kangaroo rat habitat and population units based on size and spatial contagion of habitat patches and the dispersal abilities of Stephens' kangaroo rat. Modeled Habitat included "potentially occupied" and "unconfirmed occupancy" habitat areas. Potentially occupied habitat consisted of areas known to have been occupied by Stephens' kangaroo rat at least once during the period from 1990 through 2018. Habitat polygons created by CBI as part of a Stephens' Kangaroo Rat Rangewide Management and Monitoring Plan provided a more accurate representation of suitable habitat for this species; therefore, this dataset was used in place of the County model.

Pacific Pocket Mouse Model

During coordination with USFWS, it was determined that a suitable habitat data layer from Marine Corps Base Camp Pendleton (MCBCP) was available for use. Suitable habitat data was acquired from MCBCP and was used for the habitat modeling specific to Pacific pocket mouse. Habitat polygons created by USGS as part of a proposed management complex effort provided a more accurate representation of suitable habitat for this species; therefore, this dataset was used in place of the County model.

Peninsular Bighorn Sheep Essential Habitat

During coordination with USFWS, it was determined that peninsular bighorn sheep essential habitat provides the best representation of suitable habitat for this species. Essential habitat includes critical habitat and also extends beyond critical habitat boundaries to include areas that provide the physical and biological resources peninsular bighorn sheep require. The boundary was based on mapping of areas of 20% slope or greater as well as areas needed for peninsular bighorn sheep movement

and is a more accurate representation of suitable habitat than the County model. Therefore, essential habitat was used in place of the County model.

County of San Diego Species Habitat Model Limitations and Associated Modifications

As with any ecological model, the outputs of the species habitat models have several limitations. First, the vegetation mapping used in the models is from a 1995 regional mapping effort that did not reflect more recent vegetation mapping efforts conducted in areas of San Diego County. Second, some areas within San Diego County have undergone urbanization or conversion to agriculture since 1995 and the vegetation layer from 1995 had not been updated to reflect post-1995 urbanization or agricultural development (these areas were still mapped as vegetation). Third, the existing species habitat models did not include two species proposed for coverage or the portion of the Plan Area that extends into Orange County. These limitations, and modifications to address the limitations, are addressed in more detail below.

Vegetation Mapping

To summarize regional vegetation mapping efforts in San Diego County, two major vegetation mapping efforts have been used to describe existing conditions for vegetation communities in the San Diego region: (1) 2014 data, which covers much, but not all, of the western one-third of the region and uses a classification system of groups, alliances, and associations based on the National Vegetation Classification Standard and the California Manual of Vegetation (Sawyer et al. 2009; Sproul et al. 2011; SANDAG/SanGIS 2020); and (2) 1995 data modified and enhanced over the years from a variety of sources and that covers the entire region and uses the Holland classification system (Holland 1986; Oberbauer et al. 2008; SANDAG/SanGIS 2020).

After evaluation, further refining of the vegetation mapping with other information would not improve species habitat model outputs, as the vegetation categories the model uses are very broad. For example, the 168 vegetation classifications in the 1995 vegetation dataset are consolidated into 18 vegetation groups for the model. The 2014 vegetation mapping effort divides vegetation communities into more detail, but once these categories are consolidated into the 18 categories used for the model, they are not materially different from the 1995 vegetation data.

Urbanization and Agricultural Conversion

To address the urbanization and agricultural conversion that occurred since 1995, the most recent San Diego Association of Governments (SANDAG) land use layer was used to remove urban or agricultural development from potential suitable habitat outputs. This three-step process included the following:

1. 2018 SANDAG/SanGIS Regional GIS Data Warehouse land use layers were used to identify parcels coded as urban/developed or agricultural land. The 2018 land use layer (published on May 14, 2019) was the most recent data available at the time of development (SANDAG/SanGIS 2020). Appendix G details which

land use classifications are categorized as undeveloped and developed for purposes of this exercise. Agriculture land use categories Orchard or Vineyard, Intensive Agriculture, and Field Crops were considered developed for purposes of this exercise. It is understood that some species may use agriculture settings.

One agriculture land use category in the County of San Diego model includes all agricultural categories in the Holland classification system lumped together as one and therefore models potential suitable habitat in agricultural areas. Specifically, the model predicts species to occur within agriculture (e.g., burrowing owl). However, because all agriculture categories are combined, the model likely overestimates the suitability of habitat for these species. In addition, as described above, vegetation in the model is based on 1995 data, so some native vegetation (e.g., chaparral or grassland) may have been converted to agriculture since 1995. Not removing agriculture would overestimate Modeled Habitat for species that use other habitat types that may have been converted to agriculture. Therefore, it was determined that, for an analysis at this scale, it would best to remove Modeled Habitat from the agriculture categories defined above, given that, ultimately, the PSR process will evaluate every project based on conditions at the time of the site visit.

2. The most recent conserved lands layer (published on September 23, 2019) from the SANDAG/SanGIS Regional GIS Data Warehouse Conserved Lands database was used to identify permanently conserved portions of parcels that had been coded as a developed land use (SANDAG/SanGIS 2020). The purpose of this step was to correct situations in which an entire parcel is coded in the land use data as a developed land use, but a portion of the parcel is vegetation that is subject to permanent conservation (e.g., a conservation easement). This was an important step to ensure that potential habitat was identified in species habitat model outputs. The process did not correct for situations where vegetation communities remain within a developed parcel and are not legally conserved, and thus are not trackable through SANDAG's Conserved Lands database.
3. A revised 2018 land use layer, with SANDAG's Conserved Lands removed, was then used to remove urban and/or agricultural development from model outputs.

Expanding County of San Diego Models into Orange County for All Covered Species

Expanding the model to include the portion of the Plan Area that extends into Orange County required creating the same data layers for Orange County used for the County of San Diego model. As previously mentioned, the model used six key environmental factors for generating a habitat map. These factors along with the sources of data for the portion of the Plan Area that extends into Orange County were as follows:

- **Vegetation** – Vegetation mapping was completed by Dave Bramlett and Jones & Stokes in 1992 (Bramlett and Jones & Stokes 1993). This map was updated in 2012 for habitat located in both the central and coastal subregions of Orange County by Aerial Information Systems (2015).

- **Ecoregion** – Ecoregion maps available from USGS (Griffith et al. 2016; United States Environmental Protection Agency 2019) were modified to match those from San Diego County.
- **Elevation** – Elevation categories were generated using 1/3 arc-second (approximately 10 meters) resolution Digital Elevation Models (DEMs) from USGS (2019).
- **Topography** – Topography was generated using USGS DEMs.
- **Soil Texture** – Soil texture maps were generated from USDA data from Wachtell (1978).
- **Soil Parent Material** – Soil parent material was identified in the USDA soil descriptions (Wachtell 1978) and used to generate soil parent material maps.

Species Habitat Model Methodology Conclusions

The best publicly available model data to predict species habitat in the Plan Area was used for this analysis. Additional species-specific models were considered, such as those K. Preston (2017) is currently developing for coastal cactus wren (*Campylorhynchus brunneicapillus*) and coastal California gnatcatcher (*Polioptila californica californica*). However, other models being developed have not yet undergone peer review or were not available for public use at the time the data analysis was conducted. Thus, while the model outputs cannot be used to definitively identify occupied habitat, the County of San Diego species habitat models represent the best publicly available data to generate maps of potential suitable habitat for Covered Species for purposes of this analysis.

4.1.3.2 Estimating Impacts to Covered Species Habitat

Probable Impact Zone

The HCP Amendment evaluated potential impacts associated with both O&M, New Construction, and Wildfire Fuels Management. To estimate potential impacts to Covered Species and their habitat in the boundaries of the Plan Area, SDG&E first established a PIZ around all existing SDG&E Facilities. The PIZ widths and corridors identified in Table 4.3 were measured from the center of infrastructure and represent the maximum area within which Covered Activities typically occur. SDG&E then modeled species habitat in the Plan Area and identified where habitat occurred within the PIZ.

Table 4.3 Assumptions for Establishing the Probable Impact Zone (PIZ)

Facility Type	Total Linear Distance in Plan Area (miles)	PIZ Width (feet)	Total PIZ Corridor Width (feet) ¹
Linear Facilities			
Electric Distribution (Overhead and Underground)	23,325	25	50
Electric Transmission (Overhead and Underground)	2,241	200	400
Gas Distribution and Transmission (Underground)	8,652	150	300
Telecommunication (Overhead and Underground)	478	25	50
Access Roads	1,337	20	40
Non-linear Facilities			
Electric Substations	NA	50	NA
Gas Regulator/Compressor Stations ²	NA	50	NA

NA = not applicable

¹ Corridor width is two times the PIZ width.

² The Moreno Compressor Station was not included in the PIZ because the potential impact footprint for any expansion of this Facility is known. See Section 4.1.3.3 for details.

SDG&E's electric and gas Facilities are extensive and have easements and ROW, with width varying depending on many factors, including, *inter alia*; underlying land ownership; year issued; voltage/pressure of the line or pipe; and potential for future expansion. To develop a more consistent analysis, the PIZ standardized the widths for each type of Facility. It then buffered beyond that standard width to capture potential impacts that may occur outside of the easement.

The PIZ captures all components associated with linear infrastructure, such as poles and towers, guy wires, and gates. The PIZ also extends 50 feet from existing substations and regulator and compressor stations. In cases where PIZs overlap, they were merged into a single PIZ boundary using geographic information system (GIS) software. The resulting PIZ encompasses 352,909 total acres in the 2,815,930-acre Plan Area.

Quantification of Modeled Habitat Impacts

The PIZ as detailed above includes many areas that consist of developed or agricultural cover types; this provides a conservative approach for identifying known Covered Species occurrences that have potential to occur in the PIZ. However, the PIZ is overly conservative when calculating impact acreages of Modeled Habitat relative to the PIZ because the Covered Species habitat models do not include developed and agricultural cover types.

Accordingly, SDG&E eliminated developed and agricultural cover types from the PIZ to more accurately quantify impact acreages of Modeled Habitat. In San Diego County, SDG&E removed developed and agricultural cover types from the PIZ using the steps

for the Modeled Habitat described under the “Urbanization and Agricultural Conversion” discussion in Section 4.1.3.1. For the portion of the PIZ in Orange County, SDG&E used vegetation mapping (see Section 4.1.3.1) to remove developed and agricultural cover types. After removing these cover types, SDG&E determined that approximately 48,665 acres of the 352,909-acre PIZ consists of potentially suitable habitat for Covered Species. SDG&E used 48,665 acres to quantify the proportion of Covered Species Modeled Habitat outputs that are present within the undeveloped portion of the PIZ (i.e., the portion of the PIZ that excludes developed and agricultural cover types and consists of habitat for Covered Species).

To calculate species-specific habitat impacts resulting from Covered Activities, SDG&E used GIS software to overlay the undeveloped portion of PIZ on species habitat models (described in Section 4.1.3.1). SDG&E then quantified the percentage of the undeveloped portion of PIZ that consisted of potentially suitable habitat for each Covered Species. SDG&E then multiplied this percentage by the total annual impact (all of which were assumed permanent) and temporary impact estimates as reported in Table 4.1 (i.e., 11.54 acres and 6.73 acres of impacts per year on existing and new Facilities, respectively), to generate species-specific habitat impacts (Figure 7).⁶ To be conservative and account for any unanticipated impacts that may not be included when using the overlay of Modeled Habitat within the PIZ, SDG&E then added a 15% buffer to the anticipated annual impacts. The following is an example of this calculation for both permanent and temporary impacts, using the coastal California gnatcatcher:

Example Calculation of Species-Specific Habitat Impacts:

1. Average Annual Impacts:

- Permanent = 11.54 acres per year (see Table 4.1)⁷
- Temporary = 6.73 acres per year (see Table 4.1)

2. Coastal California Gnatcatcher Modeled Habitat within PIZ: 7,365 acres

3. Percentage of Undeveloped Portion of PIZ Supporting Modeled Habitat⁸:

$$\frac{7,365 \text{ acres (Modeled Habitat within the PIZ)}}{48,665 \text{ acres (Undeveloped Portion of the PIZ)}} = 15.13\%$$

4. Average Annual Impacts to Coastal California Gnatcatcher Habitat:

- Permanent: 11.54 acres (Average Annual Impacts) x 15.13% (% of undeveloped portion of PIZ Supporting Modeled Habitat) = 1.75 acres/year x

⁶ The anticipated annual impacts are provided to demonstrate how total impacts were calculated and to provide an indication of the anticipated average annual impacts; however, the limit on impacts in the HCP Amendment is based on total cumulative impacts, not annual impacts.

⁷ To be conservative, it was assumed that all historical impacts were permanent impacts.

⁸ Removing developed and agricultural cover types from the PIZ for quantification of impacts allows for a more conservative estimate of impacts because, ultimately, impact acres are based on the proportion of Modeled Habitat within the PIZ. If the acres of Modeled Habitat within the PIZ were divided by the total 352,909 acres within the PIZ, then the percentage of Modeled Habitat within the PIZ would be reduced. This would consequently reduce the impact acreages calculated in step number 4.

15% (Unanticipated Impacts Buffer) = 2.01 acres/year [Table 4.4; Appendix A (Covered Species Analysis), Attachment B]

- Temporary: 6.73 acres (Average Annual Impacts) x 15.13% (% of undeveloped portion of PIZ Supporting Modeled Habitat) = 1.02 acres/year x 15% (Unanticipated Impacts Buffer) = 1.17 acres/year [Table 4.4; Appendix A (Covered Species Analysis), Attachment C]

5. Total Impacts to Coastal California Gnatcatcher Habitat:

- Permanent: 2.01 acres/year x 30 years = 60.26 acres [Table 4.4; Appendix A (Covered Species Analysis), Attachment B]
- Temporary: 1.17 acres/year x 30 years = 35.14 acres [Table 4.4; Appendix A (Covered Species Analysis), Attachment C]
- This approach is based on two underlying concepts. First, it assumed that impacts and suitable habitat are distributed uniformly in the PIZ. Actual impacts and suitable habitat are not uniformly distributed in the PIZ, and therefore species impacts each year may differ from the annual estimates calculated by this analysis, depending on the actual location of Covered Activities.
- Second, the majority of historical impacts from O&M have occurred within the PIZ and it is reasonable to conclude the PIZ represents the area where the Covered Activities (i.e., O&M) are expected to take place over the remaining duration of the permit term. While most O&M would occur within the PIZ, New Construction may occur both within and outside the PIZ. The methodology described herein utilizes historical data for both O&M and New Construction impacts to habitat from 1996 through 2018 in the PIZ to estimate future habitat impacts.
- To estimate the proportion of permanent impacts that could arise from New Construction versus O&M impacts, SDG&E analyzed historical data for New Construction impacts from 1996 through 2018. The data showed that average permanent impacts from New Construction was approximately 2.21 acres per year. Going forward, SDG&E assumed all New Construction would occur outside the PIZ. Even though future New Construction is not expected to occur at the same rate as in the past, to be conservative it multiplied the 2.21 acres by 30 years (which is the remaining term of the Subregional Plan to the nearest decade), yielding a total 66.3 acres of permanent impacts. These impacts were estimated to occur to habitat from New Construction outside the PIZ, which represents approximately 16.6% of the overall 400 acres of permanent impacts to habitat. For each species,

1. Review Annual Reports and Calculate Historical Impacts

Habitat Type	Average Annual Temporary Impacts	Average Annual Permanent Impacts	Average Annual Impacts
Riparian and Wetlands	0.18	0.05	0.23
Uplands	6.56	4.76	11.32
Total	6.73	4.81	11.54

2018 NCCP Summary 55 Year Permit Report

Year	Remaining Impact Bank (Acres)	Deduction (Acres)
1995	400,000	0.000
1996	394,167	5.833
1997	394,046	0.121
1998	393,558	0.488
1999	393,090	0.468
2000	391,045	2.045
2001	383,227	7.818
2002	380,484	2.743
2003	376,887	3.597
2004	375,363	1.525
2005	326,052	49,310
2006	298,064	27,988
2007	291,646	6,418
2008	282,363	9,283
2009	263,773	18,590
2010	244,623	19,150
2011	236,728	7,895
2012	227,991	8,737
2013	214,937	13,054
2014	204,512	10,425
2015	186,267	18,244
2016	158,904	27,363
2017	154,274	4,630
2018	134,547	19,727

1996 - 2018 Reports and Impact Data

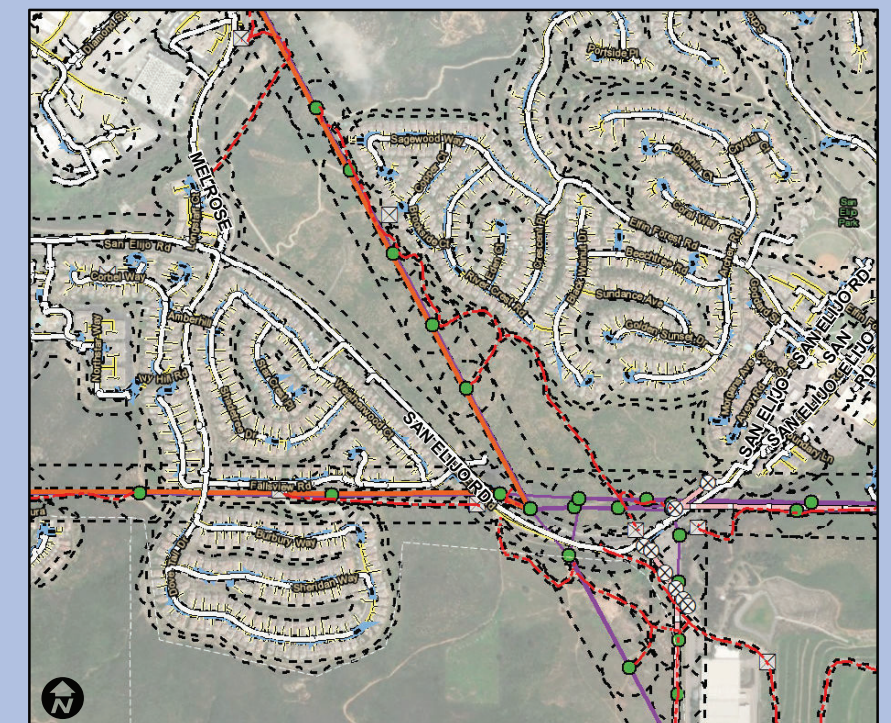
2. Modeling to Estimate Covered Species Habitat in Plan Area



Modeled Habitat

2019 County of San Diego Species Model

3. Probable Impact Zone (PIZ)



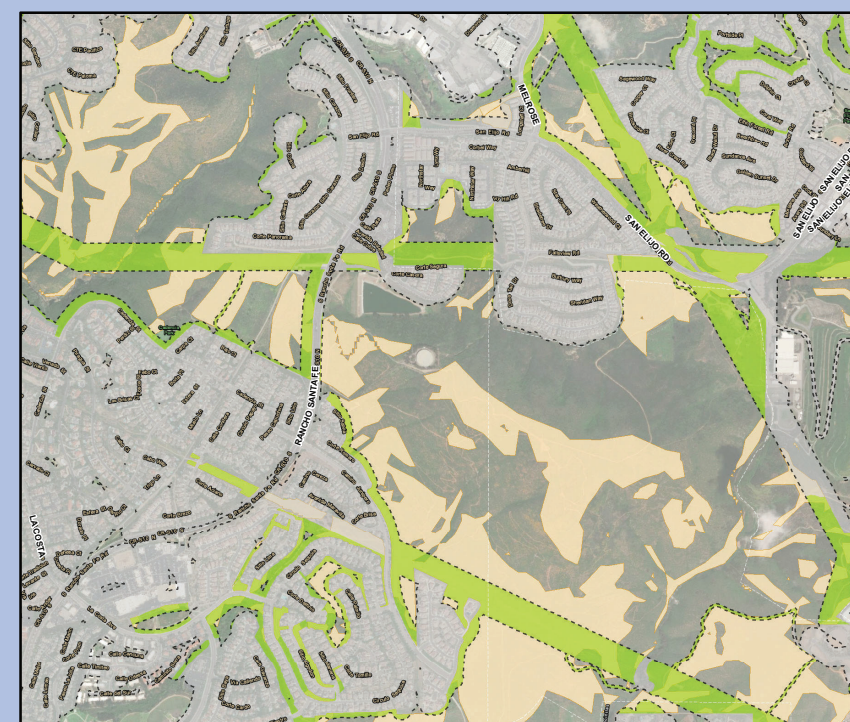
PIZ around SDG&E Facilities

4. Extent of PIZ Undeveloped (i.e., in Habitat): 48,665 acres



PIZ around SDG&E Facilities Developed Undeveloped

5. Calculate Extent of Undeveloped PIZ Supporting Modeled Habitat



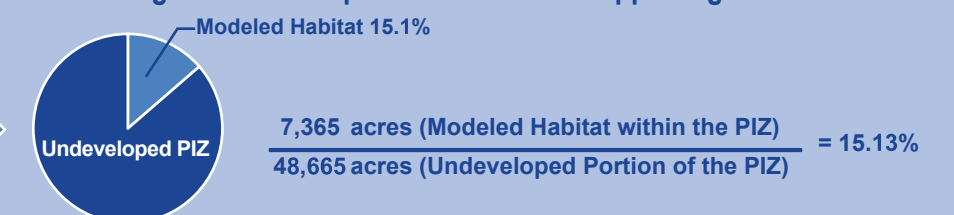
PIZ around SDG&E Facilities Modeled Habitat Developed Undeveloped

6. Calculate Species-Specific Impacts

$$\begin{matrix} \% \text{ of undeveloped} \\ \text{PIZ supporting} \\ \text{Modeled Habitat} \end{matrix} \times \begin{matrix} \text{Average} \\ \text{Annual} \\ \text{Impacts} \end{matrix} = \begin{matrix} \text{Predicted Acres of} \\ \text{Modeled Habitat} \\ \text{Impacts Per Year} \end{matrix}$$

Example: Coastal California Gnatcatcher

1. Percentage of Undeveloped Portion of PIZ Supporting Modeled Habitat



2. Permanent Impacts to Coastal California Gnatcatcher Habitat:

$$15.13\% \times 11.54 \text{ acres}^1 = 1.75 \text{ acre/year}$$

3. Temporary Impacts to Coastal California Gnatcatcher Habitat:

$$15.13\% \times 6.73 \text{ acres} = 1.02 \text{ acre/year}$$

¹To be conservative it was assumed that all historical impacts were permanent impacts.

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SDG&E calculated permanent impacts from New Construction by multiplying the annual impacts from Covered Activities by the proportion of impacts expected to occur from New Construction that SDG&E assumed would occur outside the PIZ (i.e., 16.6%).

SDG&E currently anticipates no new, large-scale construction in the near term or in future years requiring coverage under the HCP Amendment. Nonetheless, New Construction is considered, with limits discussed below, because it is possible that construction of new electric, gas, or other power generation or storage Facilities may be planned, sited, or routed in the Plan Area. The location/siting of new Facilities is dictated by and limited to the development approvals of such projects, and SDG&E often has limited control over the siting of these Facilities. The HCP Amendment, however, includes several limitations on New Construction to minimize its potential impacts (see Sections 5.1.11, 5.1.12, and 5.1.13; 5.4.2; and 6.5.1.3). For example, new Facilities that are within part of a Preserve or Proposed Preserve cannot impact more than 1.75 acres without a minor amendment. Nor does the HCP Amendment allow any impacts from New Construction anywhere in the Plan Area for narrow endemic plant species, vernal pool species, Hermes copper butterfly, Laguna Mountains skipper, arroyo toad, light-footed Ridgway's rail, tricolored blackbird, western yellow-billed cuckoo, Pacific pocket mouse, or Stephens' kangaroo rat. Moreover, the 400 acres of allowed permanent impacts further constrains New Construction as it would have to be balanced with what is needed for O&M impacts.

4.1.3.3 *Moreno Compressor Station Impact Methodology*

The Moreno Compressor Station, located in western Riverside County, encompasses approximately 180 acres of the Plan Area. The Moreno Compressor Station is a stand-alone parcel that is not contiguous with the remainder of the Plan Area. Approximately 14 acres of the property is developed, and the remaining portion of the property consists of sparse, disturbed vegetation and flat, bare terrain that has been disturbed by agricultural activity for more than 26 years.

Given the defined nature of the property and the known habitat impacts from expansion of the Facility, it was not necessary to implement the Covered Species habitat modeling effort and associated impact methodology at this location. The potential presence of each Covered Species in this portion of the Plan Area was instead evaluated based on a desktop analysis of each Covered Species' habitat requirements, an evaluation of current vegetation community and land cover conditions, and historical data collected by SDG&E over the last several years. Habitat impacts of 5 acres were assumed for each Covered Species identified as having suitable habitat in this portion of the Plan Area.

Actual habitat impacts in this portion of the Plan Area will be quantified and documented through individual review of each Covered Activity just prior to its occurrence through the PSR process, and will be specific to each individual project, as described in Section 5.1.3.

4.2 Operations and Maintenance and New Construction Impacts to/Take of Covered Species⁹

SDG&E has implemented the Subregional Plan's Operational Protocols for more than 26 years; as a result, SDG&E Covered Activities have resulted in very few (<10) direct impacts to/take (mortality) of individual Covered Species over that time. Although direct impacts to/take is anticipated to remain minimal, Covered Activities will likely result in habitat impacts that may result in take of Covered Species when incidental to implementation of the HCP Amendment.

As with the Subregional Plan, the HCP Amendment remains intended to avoid incidents resulting in impacts to/take of Covered Species whenever possible and to implement measures to minimize and mitigate any impacts to the maximum extent possible. As fully explained in the Covered Species Analysis appended as Appendix A hereto and incorporated herein by reference, implementation of the HCP Amendment is not anticipated to appreciably reduce the numbers, reproduction, or distribution of any Covered Species population in the Plan Area or rangewide or impair the function of designated critical habitat to the species' survival or recovery.

Impacts to/take of certain Covered Species designated in Table 3.1 as narrow endemic or vernal pool plant species, Laguna Mountains skipper, Hermes copper butterfly, arroyo toad, southwestern willow flycatcher, light-footed Ridgway's rail, western yellow-billed cuckoo, tricolored blackbird, southwestern pond turtle, California red-legged frog, Stephens' kangaroo rat, or Pacific pocket mouse will be limited to unavoidable impacts from repairs to existing Facilities. For New Construction projects, impacts to/take of these Covered Species would not be covered by the HCP Amendment, unless reviewed and approved by USFWS through a Minor Amendment consistent with Section 6.5.1.2.

As noted above, the supplemental Covered Species Analysis, Appendix A hereto, is fully incorporated by reference and is designed to be read as part of Section 4. It further discusses and analyzes impacts to Covered Species. Specifically, the Covered Species Analysis provides detailed and updated information regarding the potential effects of Covered Activities to Covered Species and their habitat as a result of SDG&E's continued implementation of the HCP Amendment. As previously noted, the Covered Species Analysis provides updated ecological information on each Covered Species, including its current status within the region, known threats or pressures to its continued survival, and potential effects of Covered Activities on the Covered Species and its habitat. The Covered Species Analysis considers SDG&E's longstanding conservation strategy for avoidance, minimization, and mitigation of impacts resulting from Covered Activities and includes the vernal pools, narrow endemic plant, and Species-Specific

⁹ There are no prohibitions under the ESA for the take of listed plants on non-federal lands, unless taking of those plants violates state law. Before USFWS issues a permit, however, the effects of the Proposed Action on ESA-listed plants must be analyzed, because Section 7 of the ESA requires that issuance of an ITP not jeopardize any Listed Species, including plants. Under the HCP Amendment, there are 16 Covered Species of plants, of which 14 are listed as endangered or threatened under the ESA. The HCP Amendment uses the phrase "impacts to/take of Covered Species" to account for impacts to both plant species (for which USFWS does not authorize take) and wildlife species (for which USFWS can authorize take).

Protocols as described in Sections 5.1.11, 5.1.12, and 5.1.13, respectively, that will be incorporated to enhance current practices.

4.2.1 Animals

Habitat impacts and take of Covered Species of animals will likely occur as a result of Covered Activities¹⁰ and may include death or harm consistent with the legal definitions. Take from direct killing of or injury to individuals may result from collision with vehicles or equipment or from being crushed during habitat disturbance. Ground-dwelling wildlife species may become trapped and entombed within their burrows. The direct killing or injury to individuals, however, has been exceedingly rare over the past 26 years and is likely to be the least common impact to species.

Indirect impacts, however, will likely occur as an unavoidable and unintentional consequence of conducting certain Covered Activities, including the operation of machinery and equipment, and their associated noise. Indirect impacts may occur in the form of elevated noise, dust, and lighting levels; changes in hydrology, runoff, and sedimentation; decreased water quality; soil compaction; increased human activity; and the introduction of invasive plants. Noise, nighttime lighting, dust, sedimentation, and erosion from nearby construction and equipment operation or new permanent Facilities may degrade the surrounding habitat and could negatively alter breeding behavior and movement patterns. Displacement may occur when habitat for individuals is removed and/or they move away from impacts from edge effects and are subsequently forced to compete with resident animals for food and living space.

Although less common due to the linear nature and permeability of many of SDG&E's Facilities and the restoration efforts following post-construction, habitat fragmentation may also indirectly impact Covered Species. Increased human presence, construction-generated noise and nighttime lighting, and edge effects associated with new Facilities may negatively affect species distribution, habitat connectivity, and wildlife movement.

Table 4.4 provides estimated permanent and temporary impact acreages to Covered Species Modeled Habitat in the Plan Area based on the methodology described in Section 4.1. See Sections 3 through 6 of the Covered Species Analysis (Appendix A) for additional detailed analysis of potential impacts, including estimated habitat acreage impacts, to Covered Species of wildlife.

4.2.2 Plants

In contrast to prohibitions on take of listed fish and wildlife (including that which may result from habitat modification), under the federal ESA (16 U.S.C. Section 1531, *et seq.*), it is only unlawful for any person to “remove and reduce to possession endangered plant species from areas under federal jurisdiction; maliciously damage or destroy any such species on any such area; or remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any law or regulation

¹⁰ Covered Activities, including installation, use, maintenance, and repair of Facilities, are more fully described in Section 2.

of any State or in the course of any violation of a State criminal trespass law.” 16 U.S.C. Section 1538(a)(2)(B).

Direct impacts to individual plants (including mature individuals, bulbs, and viable seeds) may occur from equipment and vehicle crushing and from vegetation trimming required during execution of Covered Activities. Indirect impacts to individual plants may include the introduction of exotic species, soil compaction of suitable soils within proximity to individual plants or populations, and dust cover associated with ground disturbance. Exotic species can quickly establish in disturbed habitat and will outcompete native plant species for resources. Dust settlement atop native habitat associated with ground disturbance may affect overall plant health by interfering with photosynthesis, respiration, and transpiration processes. Runoff, sedimentation, and erosion can also adversely impact plant populations by damaging individuals or by altering site conditions sufficiently to favor other species (native and exotic nonnatives) that would competitively displace the sensitive plant species.

Table 4.4 provides estimated permanent and temporary impact acreages to Covered Species Modeled Habitat in the Plan Area based on the methodology described in Section 4.1. See Section 2 of the Covered Species Analysis (Appendix A) for additional detailed analysis of potential impacts, including estimated habitat acreage impacts, to Covered Species of plants.

4.2.3 Impacts to Habitat

Covered Activities will likely result in impacts to the habitats of Covered Species. Impacts to habitat, including, but not limited to, grading, excavation, and erosion, along with human access to restricted areas, will likely occur in some areas as a result of Covered Activities. Modification of habitat may reduce the prey base or other biological resources for Covered Species and thereby affect an individual's ability to

survive. Implementation of the Operational Protocols in Section 5.1 will avoid or reduce these impacts to the maximum extent possible. Unavoidable habitat impacts will be mitigated, as described in Sections 5.2 and 5.5.

In support of the HCP Amendment, SDG&E evaluated 23 years of data from temporary and permanent impacts that occurred due to Covered Activities. Based on the changes in climate, such as prolonged droughts and an increase in the frequency and severity of wildfires in the region, SDG&E began to focus on O&M that would fire harden the existing electric system within the SDG&E service area. Except for the addition of a Wildfire Fuels Management Program, Covered Activities remain substantially the same. Therefore, reliance on historic impact data is an appropriate way to extrapolate future impacts.

Table 4.4 Anticipated Permanent, Temporary, and Wildfire Fuels Management Species Impacts (acres)

Common Name	Scientific Name	Permanent Impacts ¹					Temporary Impacts ¹			Wildfire Fuels Management ¹		
		Annual Impacts ^{2,3}	Total O&M and New Construction Impacts through 2050 ^{3,5}	O&M Impacts through 2050	New Construction Impacts through 2050	Percentage of Modeled Habitat Impacted through 2050 ⁶	Annual Impacts ^{2,3}	Impacts through 2050 ^{3,5}	Percentage of Modeled Habitat Impacted through 2050 ⁶	Annual Impacts ⁴	Impacts through 2050 ^{3,5}	Percentag e of Modeled Habitat Impacted through 2050 ⁶
Plants												
San Diego thorn-mint	<i>Acanthomintha ilicifolia</i>	1.35	40.58	33.84	6.74	0.09%	0.79	23.66	0.05%	0.71	21.40	0.05%
San Diego ambrosia	<i>Ambrosia pumila</i>	0.18	5.54	4.62	0.92	0.06%	0.11	3.23	0.03%	0.10	2.92	0.03%
Del Mar manzanita	<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	0.23	7.02	5.85	1.17	0.16%	0.14	4.10	0.09%	0.12	3.70	0.08%
Encinitas baccharis	<i>Baccharis vanessae</i>	0.44	13.09	10.92	2.17	0.03%	0.25	7.63	0.02%	0.23	6.90	0.01%
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	0.30	8.92	7.44	1.48	0.11%	0.17	5.20	0.06%	0.16	4.71	0.06%
Salt marsh bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> (<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>)	0.01	0.24	0.2	0.04	0.04%	<0.01	0.14	0.02%	-	-	-
Orcutt's spineflower	<i>Chorizanthe orcuttiana</i>	0.09	2.62	2.19	0.43	0.14%	0.05	1.53	0.08%	0.05	1.38	0.07%
Otay tarplant	<i>Deinandra conjugens</i> (<i>Hemizonia conjugens</i>)	0.10	3.02	2.52	0.5	0.15%	0.06	1.76	0.08%	0.05	1.60	0.08%
Short-leaved dudleya	<i>Dudleya brevifolia</i>	0.09	2.84	2.37	0.47	0.14%	0.06	1.65	0.08%	0.05	1.50	0.07%
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	0.16	4.94	4.12	0.82	0.08%	0.10	2.88	0.04%	-	-	-
Willoway monardella	<i>Monardella viminea</i> (<i>Monardella linoides</i> ssp. <i>viminea</i>)	0.40	11.98	9.99	1.99	0.08%	0.23	6.99	0.05%	0.21	6.32	0.04%
Spreading navarretia	<i>Navarretia fossalis</i>	0.16	4.94	4.12	0.82	0.08%	0.10	2.88	0.04%	-	-	-
Dehesa beargrass	<i>Nolina interrata</i>	0.03	1.01	0.84	0.17	0.04%	0.02	0.59	0.03%	0.02	0.53	0.02%
California Orcutt grass	<i>Orcuttia californica</i>	0.23	6.81	5.68	1.13	0.15%	0.13	3.97	0.09%	-	-	-
San Diego mesa mint	<i>Pogogyne abramsii</i>	0.09	2.79	2.33	0.46	0.11%	0.05	1.63	0.06%	-	-	-
Otay Mesa mint	<i>Pogogyne nudiuscula</i>	0.03	0.95	0.79	0.16	0.14%	0.02	0.55	0.08%	-	-	-
Invertebrates												
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	0.21	6.43	5.36	1.07	0.09%	0.12	3.75	0.05%	-	-	-
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	0.31	9.44	7.87	1.57	0.12%	0.18	5.50	0.07%	-	-	-
Laguna Mountains skipper	<i>Pyrgus ruralis lagunae</i>	<0.01	0.11	0.09	0.02	0.01%	<0.01	0.06	0.01%	<0.01	0.06	0.01%
Hermes copper butterfly	<i>Lycaena hermes</i>	4.91	148.85	124.14	24.71	0.03%	2.89	86.81	0.02%	2.61	78.52	0.02%
Amphibians												
Arroyo toad – breeding and non-breeding riparian habitat ⁷	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	0.32	9.62	8.02	1.6	0.04%	0.19	5.61	0.02%	0.17	5.08	0.02%
Arroyo toad – non-breeding upland habitat ⁷	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	13.00	390.03	325.29	64.74	0.03%	7.58	227.46	0.02%	6.86	205.73	0.02%
California red-legged frog	<i>Rana draytonii</i> (<i>Rana aurora draytonii</i>)	0.71	21.44	17.88	3.56	0.04%	0.42	12.50	0.02%	0.38	11.31	0.02%
Western spadefoot – breeding habitat	<i>Spea hammondii</i> or <i>Scaphiopus hammondii</i>	0.59	17.67	14.74	2.93	0.04%	0.34	10.30	0.03%	-	-	-
Western spadefoot – upland habitat ⁸	<i>Spea hammondii</i> or <i>Scaphiopus hammondii</i>	10.11	303.36	253.00	50.36	0.03%	5.90	176.92	0.01%	5.33	160.01	0.01%

Common Name	Scientific Name	Permanent Impacts ¹					Temporary Impacts ¹			Wildfire Fuels Management ¹		
		Annual Impacts ^{2,3}	Total O&M and New Construction Impacts through 2050 ^{3,5}	O&M Impacts through 2050	New Construction Impacts through 2050	Percentage of Modeled Habitat Impacted through 2050 ⁶	Annual Impacts ^{2,3}	Impacts through 2050 ^{3,5}	Percentage of Modeled Habitat Impacted through 2050 ⁶	Annual Impacts ⁴	Impacts through 2050 ^{3,5}	Percentag e of Modeled Habitat Impacted through 2050 ⁶
Reptiles												
Southwestern pond turtle	<i>Actinemys pallida</i>	0.65	19.36	16.15	3.21	0.04%	0.38	11.29	0.02%	0.34	10.21	0.02%
Coast horned lizard	<i>Phrynosoma blainvillii</i>	7.10	212.86	177.53	35.33	0.02%	4.14	124.14	0.01%	3.74	112.28	0.01%
Birds												
Tricolored blackbird	<i>Agelaius tricolor</i>	0.19	5.67	4.73	0.94	0.03%	0.11	3.31	0.02%	-	-	-
Burrowing owl	<i>Athene cunicularia</i> (<i>Athene cunicularia</i> ssp. <i>hypugaea</i>)	1.78	53.34	44.49	8.85	0.02%	1.04	31.10	0.01%	0.93	28.13	0.01%
Coastal cactus wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	2.97	89.13	74.33	14.8	0.07%	1.73	51.98	0.04%	1.57	47.01	0.04%
Western snowy plover (Pacific Coast population distinct population segment)	<i>Charadrius nivosus nivosus</i> (<i>Charadrius alexandrinus nivosus</i>)	-	-	-	-	-	0.03	0.85	0.05%	-	-	-
Western yellow-billed cuckoo (western distinct population segment)	<i>Coccyzus americanus</i>	0.26	7.88	6.57	1.31	0.06%	0.15	4.60	0.04%	0.14	4.16	0.03%
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	0.61	18.23	15.2	3.03	0.04%	0.35	10.63	0.02%	0.32	9.61	0.02%
Belding's savannah sparrow	<i>Passerculus sandwichensis beldingi</i>	0.03	0.89	0.74	0.15	0.07%	0.02	0.52	0.04%	-	-	-
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	2.01	60.26	50.26	10	0.06%	1.17	35.14	0.04%	1.06	31.78	0.03%
Light-footed Ridgway's rail (light-footed clapper rail)	<i>Rallus obsoletus levipes</i> (<i>Rallus longirostris levipes</i>)	0.08	2.52	2.1	0.42	0.07%	0.05	1.47	0.04%	-	-	-
California least tern	<i>Sternula antillarum browni</i> (<i>Sterna antillarum browni</i>)	-	-	-	-	-	0.01	0.41	0.08%	-	-	-
Least Bell's vireo	<i>Vireo bellii pusillus</i>	0.49	14.71	12.27	2.44	0.04%	0.29	8.58	0.02%	0.26	7.76	0.02%
Mammals												
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	0.16	4.70	3.92	0.78	0.01%	0.09	2.74	0.01%	0.08	2.48	<0.01%
Peninsular bighorn sheep ⁹	<i>Ovis canadensis nelsoni</i>	0.25	7.55	6.30	1.25	<0.01%	0.15	4.40	<0.01%	-	-	-
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	0.05	1.50	1.25	0.25	0.06%	0.03	0.87	0.03%	-	-	-

¹ Note that anticipated impacts to Modeled Habitat have been calculated to provide an approximation of the potential impacts on Modeled Habitat for each Covered Species. Actual impacts on Covered Species habitat would be assessed, avoided, and minimized through the existing Pre-activity Survey Report [PSR] process.

² The sum of anticipated and potential unanticipated (15% of Anticipated Average) impacts in Appendix A (Covered Species Analysis), Attachments B and C.

³ Numbers rounded after summation.

⁴ Based on SDG&E's 2019 pilot program (see Section 4.4), SDG&E assumed that up to 100 acres per year will undergo Wildfire Fuels Management through 2050, and that a 7% net percent reduction of native canopy cover will be consistent, on average, over the remaining permit term; resulting in 7 acres of habitat impacts per year. The percentage of the undeveloped portion of PIZ that consisted of potentially suitable habitat for applicable Covered Species was quantified, and this percentage was multiplied by Wildfire Fuels Management annual impact estimate of 7 acres per year, to estimate the impacts on Modeled Habitat on an annual basis. Species with no impacts within the table will not be impacted by Wildfire Fuels Management because Wildfire Fuels Management would not have direct habitat impacts on peninsular bighorn sheep, vernal pool, marsh, or beach species. Wildfire Fuels Management would also not be conducted within Pacific pocket mouse habitat.

⁵ To be conservative, annual average multiplied by 30 years.

⁶ Total O&M and New Construction impacts divided by all Modeled Habitat within the Plan Area.

⁷ The County of San Diego Species Habitat Model for arroyo toad consists of riparian breeding habitat along the banks of a stream and non-breeding riparian habitat (i.e., riparian habitat outside the banks of a stream channel would not be considered breeding habitat). To estimate non-breeding upland habitat for arroyo toad, all grassland, agriculture, coastal sage scrub, and chaparral within the Plan Area and PIZ were considered suitable non-breeding upland habitat.

⁸ The overall extent of suitable upland habitat within the Plan Area for western spadefoot is overestimated as it includes all grassland, coastal sage scrub, and chaparral within the Plan Area and PIZ regardless if adjacent to breeding habitat.

⁹ Impacts for peninsular bighorn sheep are based on essential habitat as described in Appendix C (Peninsular Bighorn Sheep Evaluation).

SDG&E considered historical annual average impacts to habitat to be a good estimator of anticipated annual average habitat impacts for the duration of the HCP Amendment term. This assumption was reasonable for several reasons: (1) Existing data included impacts that did not result in permanent loss of habitat, thereby overstating permanent habitat impacts from Covered Activities; (2) All major infrastructure is now largely in place; and (3) SDG&E does not anticipate new, major projects that would create large impacts. Future impacts will predominantly be associated with O&M and are likely to be small and distributed along linear areas across the Plan Area.

To estimate impacts through 2050 (the term of the HCP Amendment), SDG&E assumed that future impacts to vegetation communities would be similar to historical impacts. With the assumption that all historical impacts were permanent impacts, to be conservative the historical annual average was extrapolated over 30 years (approximately 11.54 acres per year, for a total of 346 acres of permanent impacts over 30 years) (Table 4.5). This initial estimate was then increased to accommodate reasonable and unanticipated impacts. Specifically, to provide for any unanticipated impacts from HCP Amendment implementation through 2050, a 15% buffer (52 acres) was added to the anticipated total (Table 4.5). Thus, based on historical data and the additional acreage buffer, approximately 400 acres of permanent impacts is estimated to occur to vegetation from HCP Amendment implementation through 2050 (Table 4.5). As discussed in Section 4.1.3.2, based on reviewing historical data and assuming New Construction would occur at the same annual rate moving forward, SDG&E anticipates that approximately 66 acres of permanent impacts from New Construction will occur from HCP Amendment implementation through 2050.

Using the above methodology, SDG&E also estimated that annual temporary impacts will be approximately 6.73 acres per year, for a total of 202 acres of temporary impacts through 2050. As with overall impacts, this initial estimate was increased by 15% to accommodate reasonable unanticipated impacts (Table 4.6). Based on the foregoing calculation, SDG&E estimated that approximately 232 acres of temporary impacts may occur to vegetation from HCP Amendment implementation through 2050 (Table 4.6). Although this methodology resulted in higher estimated temporary impacts as compared to historical averages, to be conservative, SDG&E's request for incidental take for temporary impacts will be reduced to 210 acres, which is in line with historical averages (i.e., approximately 7 acres/year x 30 years).¹¹

¹¹ Acreage was rounded to the nearest whole acre for ease of implementation. A 210-acre limit is also within 4% of historical averages without assuming a 15% contingency.

**Table 4.5 Anticipated Permanent Habitat Impacts
Associated with Operations and Maintenance and New Construction (acres)**

Habitat Type	Total Impacts 1996–2018	Average Annual Impacts 1996–2018	Anticipated Permanent Impacts through 2050 ¹	Unanticipated Impacts from Future Covered Activities (15% of Anticipated Average)	Total O&M and New Construction Permanent Impacts through 2050 ^{2, 3}	O&M Permanent Impacts through 2050	New Construction Permanent Impacts through 2050
Riparian and Wetlands	5.18	0.23	6.75	1.01	7.77	6.48	1.29
Disturbed Wetlands	0.36	0.02	0.47	0.07	0.54	0.45	0.09
Marsh	0.39	0.02	0.51	0.08	0.59	0.49	0.1
Meadow/Seep	0.43	0.02	0.56	0.08	0.65	0.54	0.11
Non-Vegetated Flood Channel	0.01	<0.01	0.01	<0.01	0.01	0.01	<0.01
Open Water	0.02	<0.01	0.02	<0.01	0.03	0.03	<0.01
Riparian Forest/Woodland	1.36	0.06	1.78	0.27	2.04	1.7	0.34
Riparian Scrub	2.18	0.09	2.85	0.43	3.27	2.73	0.54
Vernal Pools	0.43	0.02	0.55	0.08	0.64	0.53	0.11
Uplands	260.28	11.32	339.49	50.92	390.41	325.61	64.8
Chaparral	53.70	2.33	70.05	10.51	80.55	67.18	13.37
Coastal Scrub	72.11	3.14	94.05	14.11	108.16	90.21	17.95
Desert Scrub	6.02	0.26	7.85	1.18	9.03	7.53	1.5
Forest/Woodland	5.51	0.24	7.19	1.08	8.27	6.9	1.37
Grasslands	121.15	5.27	158.03	23.70	181.73	151.56	30.17
Great Basin Scrub	1.78	0.08	2.32	0.35	2.67	2.23	0.44
Grand Total⁴	265.45	11.54	346.24	51.94	398.18	332.09	66.09

¹ Annual average multiplied by 30.

² Sum of anticipated and potential unanticipated impacts.

³ The 5 acres of anticipated impacts to the agricultural and/or disturbed land cover types associated with the expansion of the Moreno Compressor Station is not included; SDG&E does not mitigate for either of these land cover types.

⁴ Values may not total due to rounding after summation.

**Table 4.6 Anticipated Temporary Habitat Impacts
Associated with Operations and Maintenance and New Construction (acres)**

Habitat Type	Total Temporary Impacts 1996–2018	Average Annual Temporary Impacts 1996–2018	Anticipated Temporary Impacts through 2050 ¹	Unanticipated Impacts from Future Covered Activities (15% of Anticipated Average)	Total Temporary Impacts through 2050 ²
Riparian and Wetlands	4.08	0.18	5.33	0.80	6.13
Disturbed Wetlands	0.33	0.01	0.42	0.06	0.49
Marsh	0.35	0.02	0.46	0.07	0.53
Meadow/Seep	0.43	0.02	0.56	0.08	0.64
Non-Vegetated Flood Channel	0.01	<0.01	0.01	<0.01	0.01
Open Water	0.02	<0.01	0.02	<0.01	0.03
Riparian Forest/Woodland	1.08	0.05	1.41	0.21	1.63
Riparian Scrub	1.86	0.08	2.43	0.36	2.80
Vernal Pools	<0.01	<0.01	0.01	<0.01	0.01
Uplands	150.79	6.56	196.68	29.50	226.18
Chaparral	22.03	0.96	28.73	4.31	33.04
Coastal Scrub	37.77	1.64	49.26	7.39	56.65
Desert Scrub	2.30	0.10	3.01	0.45	3.46
Forest/Woodland	4.52	0.20	5.89	0.88	6.78
Grasslands	82.64	3.59	107.79	16.17	123.96
Great Basin Scrub	1.53	0.07	2.00	0.30	2.30
Grand Total⁴	154.87	6.73	202.01	30.30	232.31³

¹ Annual average multiplied by 30.

² Sum of anticipated and potential unanticipated impacts.

³ As noted above, SDG&E's request for incidental take for temporary impacts will be reduced to 210 acres, which is a more conservative approach that is in line with historical averages (i.e., approximately 7 acres/year x 30 years).

⁴ Values may not total due to rounding after summation.

Vegetation categories have been grouped to provide a general habitat-based impact summary. Appendix F provides a crosswalk showing the detailed habitat types that have historically been impacted relative to the grouping in Tables 4.5 and 4.6. To introduce anticipated impacts at the landscape level, Tables 4.5 and 4.6 provide an overview of historical impacts and projected impacts by broad habitat categories. This historical data was used in conjunction with species habitat modeling data on Covered Species habitat distributions to estimate potential species-specific impacts (see Table 4.4 and Attachments B, C, and D of Appendix A).

4.2.3.1 Critical Habitat

Covered Activities may affect proposed and designated critical habitat that has been identified for 16 of the Covered Species (Appendix A, Attachment A and Appendix C). Appendix C provides a table summarizing impacts to designated Critical Habitat for peninsular bighorn sheep.

4.2.4 Duration and Intensity of Impacts

The duration and intensity of impacts to Covered Species will vary depending on the location and type of Covered Activity being conducted. Some Covered Activities will result in occasional indirect impacts to individuals while others may result in greater impacts such as the killing of individuals or permanent habitat loss in the Plan Area. While direct harm to Covered Species is rare, it, along with Covered Activities that modify habitat, may be expected to occur throughout the year and may occur within any or all of the Plan Area. However, with implementation of Species-Specific Protocols in Section 5.1, no direct harm to breeding birds is expected, including CDFW Fully Protected species.

For example, Covered Activities such as the installation, use, maintenance, or repair of Facilities may cause temporary harassment of individuals, while grading and clearing of electric substation pads, gas Facilities, or access roads may result in permanent disturbance. Most Covered Activities will allow a majority of Covered Species to re-occupy habitat after the completion of installation, maintenance, and repair of a Facility and during its use (e.g., transmission line).

4.3 Impacts Associated with Habitat Management

Habitat management will include a range of Covered Activities, such as fencing, signage, litter removal, restoration, enhancement, species salvage/translocation, and weed removal for the betterment of Covered Species and their habitat. However, habitat management may result in some impacts to Covered Species and their habitat. The magnitude of these potential impacts would depend on the size and type of activity, proximity to individuals or a population, life stage of the species, and duration of the impacts on habitat characteristics. Management plans would maximize beneficial impacts and minimize adverse impacts through the incorporation of avoidance and minimization measures for Covered Species and their habitat.

4.4 Wildfire Fuels Management Program Impact Assessment Methodology

The Wildfire Fuels Management Program impact analysis herein is based primarily on SDG&E's Wildfire Fuels Management Program, which was launched as a pilot program in 2019 and was described in *SDG&E Wildfire Fuels Management Program 2019 Annual Report for BLM, USFS, and Private Lands* (SDG&E 2020a). Information from the 2019 Annual Report was used in conjunction with species habitat modeling data on Covered Species habitat distributions to further estimate potential species-specific impacts. The framework for the methodology is based on that described in Section 4.1.

Based on information in the 2019 Annual Report, the following section estimates total habitat impacts from the HCP Amendment implementation through 2050. It also describes methodologies for estimating Covered Species that may be impacted by Wildfire Fuels Management from HCP Amendment implementation through 2050 based on the pilot and species habitat modeling data.

4.4.1 Projected Habitat Impacts

SDG&E successfully implemented Wildfire Fuels Management in 2019 and anticipates continuing to reduce wildfire fuels along infrastructure during the remaining permit term. The Wildfire Fuels Management Program aimed to reduce fire fuel load around distribution and transmission lines within the SDG&E service area. Reducing fire fuel load was anticipated to reduce the risk of point source wildfire ignitions in high fire risk areas along SDG&E's ROW caused by infrastructure, O&M, or environmental hazards. Additionally, reducing fuel load may protect SDG&E infrastructure by reducing the intensity of wildfires that enter from outside the ROW.

Based on 2019 information, on average, for every 100 acres treated, 9 acres of native vegetation cover was removed, and 2 acres of nonnative vegetation cover was removed. All Wildfire Fuels Management in 2019 occurred in eastern San Diego County. Treatment Areas in 2019 targeted upland habitat and primarily occurred within chaparral and forest/woodland habitat types within or adjacent to an easement for SDG&E Facilities (specifically, transmission and distribution electric infrastructure).

As noted in Section 2.2.5.4, Wildfire Fuels Management focuses on removing nonnative species, which can counteract the potential spread of such species along utility corridors and benefit the overall ecological value of the surrounding vegetation communities, as well as dead/down woody vegetation that provides fuel for wildfire. In addition, Wildfire Fuels Management may involve the thinning¹² of select native vegetation in Treatment Areas with a focus on preserving habitat value and native species diversity. Treatment Areas where native, mostly mature dominant species were thinned will be maintained in an early successional state of the vegetation community.

To maintain this state, Treatment Areas will need ongoing vegetation management. Annual maintenance of Treatment Areas solely consists of weed control Covered Activities to remove fine fuels similar to practices conducted for habitat restoration Covered Activities. Thinning of native shrub species, after the initial treatment, is anticipated to occur on a 3- to 5-year basis depending on growth rates. During these treatments, native vegetation will not be completely removed in Treatment Areas, but thinning will reduce total cover of individual native shrubs. This reduction in cover by individual native plants (hereinafter referred to as canopy cover) is anticipated to remain relatively constant so long as continuing treatments occur in the Treatment Area. If treatments cease, it is anticipated that native shrub species would regrow, and the percentage canopy cover would increase towards a native climax state.

¹² Thinning involves the selective removal of parts of native vegetation to increase space between plants and make room for future growth.

To estimate future habitat impacts associated with Wildfire Fuels Management, SDG&E focused on the reduction in canopy cover (i.e., the decrease in native shrub cover post-treatment as compared to pre-treatment) that could be expected from continued treatment in future Treatment Areas. It then applied that anticipated reduction in cover to the estimated annual acres that will undergo Wildfire Fuels Management through 2050.

Specifically, SDG&E relied on the average percent difference between pre-thinning and post-thinning cover values of native and nonnative vegetation as reported in the 2019 Annual Report. As noted above, on average, for every 100 acres treated, 9 acres of native vegetation cover was removed and 2 acres of nonnative vegetation cover was removed. Because removal of nonnative vegetation benefits Covered Species and their habitat and promotes the establishment of native vegetation, the average acreage of nonnative vegetation cover loss was subtracted from the acreage of native vegetation cover loss, yielding a net vegetation cover loss of 7 acres per 100 acres treated. SDG&E assumed that this 7-acre net reduction of native canopy cover for every 100 acres treated will be consistent, on average, over the remaining permit term.

Based on the total acres treated as reported in the 2019 Annual Report and planned impact acreage for future years, it is assumed that up to 100 acres per year will undergo Wildfire Fuels Management through 2050. Applying the above methodology for estimating impacts related to reduction in canopy cover, the acreage of estimated impacts for the remaining permit term is as follows:

1. Average Annual Wildfire Fuels Management Impacts:

For every 100 acres of Wildfire Fuels Management, 7 acres of habitat impacts per year (see Section 4.4.1).

2. Total Wildfire Fuels Management Impact over Remaining 30 Year Permit Term:

7 acres of habitat impacts per year x 30 years = 210 acres.

The majority of the 210 acres of impacts is expected to occur within upland habitats (primarily chaparral). Some minor impacts may occur within riparian or wetland habitat, such as riparian forests or scrub, in situations where vegetation is causing a high ignition risk. Treatment Areas will be selected in future years by evaluating the areas of greatest risk for ignition within and adjacent to Facilities. An anticipated acreage by habitat communities cannot be accurately predicted as the location selected is dependent on many factors, including existing site conditions that can change from year to year. Impacts will be monitored and tracked as described in Section 5.5.1.2.

4.4.2 Estimating Impacts to Covered Species

To calculate species-specific habitat impacts resulting from Covered Activities, the same conceptual process used for O&M and New Construction was applied to Wildfire Fuels Management (Section 4.1.3). The methodology described herein was applied to those Covered Species that have some potential to be impacted by Wildfire Fuels Management. Wildfire Fuels Management would not have direct habitat impacts on

vernal pool species, marsh species, desert species, or species inhabiting beach habitat. Accordingly, the methodology was not applied to these species.

Applicable Covered Species included upland and riparian scrub/forest species. For these Covered Species, the impact analysis followed a multi-step approach to estimate future impacts. The analysis first used the estimate of total Modeled Habitat for applicable Covered Species in the Plan Area (Section 4.1.3.1) and Modeled Habitat was overlaid on the PIZ to estimate where impacts were reasonably likely to occur (Section 4.1.3.2).

The percentage of the undeveloped portion of PIZ that consisted of potentially suitable habitat for each Covered Species was quantified (Section 4.1.3.2), and this percentage was multiplied by the Wildfire Fuels Management annual impact estimate of 7 acres per year (Section 4.4.1), to generate species-specific habitat impacts. The following is an example of this calculation, using the coastal California gnatcatcher:

Example Calculation of Species-Specific Habitat Impacts:

1. Average Annual Wildfire Fuels Management Impacts:

For every 100 acres of Wildfire Fuels Management, 7 acres of habitat impacts per year (see Section 4.4.1).

2. Coastal California Gnatcatcher Modeled Habitat within PIZ:

7,365 acres

3. Percentage of Undeveloped Portion of PIZ Supporting Modeled Habitat:

$$\frac{7,365 \text{ acres (Modeled Habitat within the PIZ)}}{48,665 \text{ acres (Undeveloped Portion of the PIZ)}} = 15.70\%$$

4. Average Annual Wildfire Fuels Management Impacts to Coastal California Gnatcatcher Habitat:

7 acres (Average Annual Impacts) x 15.70% (% of undeveloped portion of PIZ Supporting Modeled Habitat) = 1.1 acres/year.

The Covered Species Analysis (Appendix A) provides estimated habitat acreage impacts to Covered Species that may be directly impacted by Wildfire Fuels Management. The effect of future impacts through 2050 to the Covered Species is detailed in Appendix A relative to applicable measures/protocols to avoid, minimize, or mitigate impacts to the Covered Species.

4.4.3 Impacts to/Take of Covered Species

4.4.3.1 Animals

Habitat impacts and take of Covered Species of animals inhabiting habitat undergoing Wildfire Fuels Management may occur as a result of these Covered Activities.

Terrestrial species could be impacted due to loss of habitat for nesting and foraging, from collision with vehicles or if they are crushed as a result of construction. In addition, personnel enter Treatment Areas on foot and utilize chain saws, weed whackers, and hand tools to thin vegetation. Indirect impacts will likely occur as an unavoidable and unintentional consequence of conducting Wildfire Fuels Management, including the operation of machinery (e.g., chipper) and equipment, and their associated noise. Indirect impacts may occur in the form of elevated noise and increased human activity. Displacement may occur when habitat for individuals is modified and/or they move away from impacts and are subsequently forced to compete with resident animals for food and living space, thus impacting breeding behavior and movement patterns. SDG&E will implement the Operational Protocols and Species-Specific Protocols in Section 5.1 to avoid or minimize impacts to covered animal species.

The loss of canopy cover may prove beneficial for some Covered Species (e.g., coast horned lizard), but may negatively impact habitat for other Covered Species. Modification of habitat may reduce biological resources for Covered Species and thereby affect an individual's ability to survive. The thinning of native habitat and associated disturbance to the habitat may also introduce nonnative weeds to areas that are currently not disturbed. However, removal of nonnative weeds can counteract the potential introduction of such species and Wildfire Fuels Management areas will also receive annual weed maintenance. By removing and/or thinning nonnative vegetation, removing dead and down woody vegetation, and focusing on nonnative fire-promoting species, wildfire occurrences within backcountry portions of the Plan Area may lessen in severity, thereby allowing established areas of native habitat to remain intact and provide breeding and foraging opportunities to Covered Species. In addition, the removal of nonnative vegetation may aid in the reestablishment of native vegetation by reducing competition among plants and therefore improving the quality of existing native habitat and resources essential for Covered Species survival. Implementation of the Operational Protocols and Species-Specific Protocols in Section 5.1 will avoid or reduce these impacts to the maximum extent possible. Unavoidable habitat impacts will be mitigated, as described in Section 5.5.

Table 4.4 provides estimated Wildfire Fuels Management impact acreages to Covered Species Modeled Habitat in the Plan Area based on the methodology described in Section 4.4.2. See Sections 3 through 6 of the Covered Species Analysis (Appendix A) for additional detail on impacts to Covered Species of wildlife.

4.4.3.2 Plants

Direct impacts to individual plants (including mature individuals, bulbs, and viable seeds) may occur from trampling by field crews associated with vegetation trimming

required during implementation of Wildfire Fuels Management. Direct take of Covered Species will likely be rare because personnel can avoid mature individuals, and seed banks are not expected to be impacted by foot traffic within Wildfire Fuels Management areas.

Although Wildfire Fuels Management may result in negative impacts as described above, it should be noted that, in some cases, indirect impacts could result in benefits to certain Covered Species of plants. By removing and/or thinning nonnative vegetation, removing dead and down woody vegetation, and focusing on nonnative fire-promoting species, wildfire occurrences within backcountry portions of the Plan Area may lessen in severity, thereby allowing established areas of native habitat supporting native plant species to remain intact. In addition, the removal of nonnative vegetation may aid in the reestablishment of native plant species by reducing competition among plants for surrounding resources.

Table 4.4 provides estimated Wildfire Fuels Management impact acreages to Covered Species Modeled Habitat in the Plan Area based on the methodology described in Section 4.4.2. See Section 2 of the Covered Species Analysis (Appendix A) for additional detail on impacts to Covered Species of plants. SDG&E will implement the Operational Protocols and Species-Specific Protocols in Section 5.1 to avoid or minimize impacts to plant Covered Species.

4.4.3.3 Critical Habitat

Wildfire Fuels Management may affect proposed and designated critical habitat that has been identified for 16 of the Covered Species (Appendix A, Attachment A and Appendix C). Appendix C provides a table summarizing impacts to designated Critical Habitat for peninsular bighorn sheep.

4.4.4 Duration and Intensity of Impacts

Wildfire Fuels Management is of short duration and low impact/intensity. Little to no ground disturbance occurs while thinning vegetation. These activities may occur throughout the year and work during the avian nesting season may have an increased effect during this time; however, with implementation of Species-Specific Protocols in Section 5.1, no direct harm to breeding birds is expected. The loss of canopy cover would result in a long-term effect to Covered Species habitat as it may be beneficial for some Covered Species, but may negatively impact habitat for other Covered Species. Overall, the long-term impacts are expected to be a net benefit due to the reduction in nonnative weeds and fire risk.

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Protocols and Mitigation

5 Protocols and Mitigation

5.1 Operational Protocols and Species-Specific Protocols

Operational Protocols represent an environmentally sensitive approach to traditional utility construction, maintenance, and repair. Covered Activities recognizing that slight adjustments in construction techniques can yield major benefits for the environment. The appropriate Operational Protocols for each individual project shall be determined and documented by the Biologist. The following Operational Protocols shall be adhered to by SDG&E. Species-Specific Protocols shall supersede general Operational Protocols where applicable. SDG&E and USFWS recognize that methods for reducing and minimizing impacts may change over time, and these measures were developed with the best available information. Where new or improved measures provide more efficient or effective conservation, changes to Operational Protocols may be mutually agreed to by SDG&E and USFWS via a Minor Amendment.

5.1.1 General Behavior for All Field Personnel

1. When environmentally sensitive areas/limits have been established, employees and contract workers shall strictly limit their activities, vehicles, equipment, and construction materials to avoid impacts beyond the delineated limits.
2. Vehicles must be kept on access roads. A 15 miles-per-hour speed limit shall be observed on dirt access roads to allow species to disperse. Vehicles must be turned around in established or designated areas only.
3. No wildlife, including rattlesnakes, may be harmed, except to protect life and limb.
4. Firearms shall be prohibited on the ROW except for firearms used by security personnel.
5. Feeding of wildlife is not allowed.
6. SDG&E personnel are not allowed to bring pets on the ROW in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive domestic animal diseases to native wildlife populations.
7. Parking or driving underneath oak trees is not allowed except in established traffic areas in order to protect root structures.
8. Plant or wildlife species may not be collected as pets or any other reason.

9. Littering is not allowed. SDG&E personnel shall not deposit or leave any food or waste on the ROW or adjacent property.
10. Wildfires shall be prevented or minimized by exercising care when driving and by not parking vehicles where catalytic converters can ignite dry vegetation. SDG&E vehicles shall carry all required fire tools such as water backpack pumps, shovels, and/or fire extinguishers while operating in the field in accordance with SDG&E's Wildland Fire Prevention Plan (SDG&E 2020b). Shields, protective mats, or other fire prevention methods shall be used during grinding and welding to prevent or minimize the potential for fire. Smoking may only occur in designated smoking areas or in a 10-foot clearing void of all grass or other vegetation as in accordance with SDG&E's Wildland Fire Prevention Plan (SDG&E 2020b) or as discussed in the most current internal fire prevention standard and practices.
11. Field crews shall refer environmental issues, including wildlife relocation, dead or sick wildlife; hazardous waste; the presence of highly invasive nonnative species that are not known to be established in California, especially perennial species rated as high or moderate threat by the California Invasive Plant Council (Cal-IPC); or questions about avoiding environmental impacts, to the Biologist. Biologists or experts in wildlife handling may need to be brought in for assistance with wildlife relocations.

Field crews shall coordinate with the Biologist to implement preventative invasive weed control best management practices found in Prevention BMPs for Transportation and Utility Corridors – California Invasive Plant Council (Cal-IPC. 2012) when requested by a land manager and/or where feasible and practicable to minimize the spread of invasive weed species. Best management practices may include vehicle washing, use of weed free substrates, educating staff and contractors on protocols like washing/brushing boots between sites, and removing weed biomass from sites during weed control activities.

5.1.2 Training

12. All SDG&E personnel and contractors working within the project area shall participate in SDG&E's employee training program, which includes annual training, project-specific training, and as-needed training. The scope of each type of training is included in Section 6.3.1.
13. Designated SDG&E staff shall conduct selected reviews of SDG&E operations. Any proposed modifications to Operational Protocols, procedures, or conditions shall be in coordination with USFWS as prescribed in Section 6.5.

5.1.3 Pre-activity Surveys

14. The Biologist shall conduct Pre-activity Surveys for all Covered Activities as outlined in Section 6.3.2 occurring within or adjacent to habitat with potential to support Covered Species. The Biologist shall complete a PSR to document the environmental review of the potential impacts to Covered Species as a result of implementing a Covered Activity.
15. To ensure that habitats are not inadvertently impacted, the Biologist shall determine the extent of habitat and flag boundaries of habitats that must be avoided. When necessary, the Biologist should also demarcate appropriate equipment laydown areas; vehicle turnaround areas; and pads for placement of large construction equipment such as cranes, bucket trucks, augers, etc. When appropriate, the Biologist shall make office and/or field presentations to field staff to review and become familiar with natural resources to be protected on a project-specific basis.

5.1.4 Maintenance, Repair, and Construction of Facilities

16. Maintenance, repair, and construction of Facilities shall be designed and implemented to minimize new disturbance, erosion on manufactured and other slopes, and offsite degradation from accelerated sedimentation, and to reduce maintenance and repair costs.
17. Routine maintenance of all Facilities includes visual inspections on a regular basis, conducted from vehicles driven on the access roads where possible. If it is necessary to inspect areas that cannot be seen from the roads, the inspection shall be done on foot, or from the air.
18. When the view of a gas transmission line marker becomes obscured by vegetation on a regular basis requiring repeated habitat removal, consideration shall be given to the replacement of markers with taller versions.
19. Erosion shall be minimized on access roads and other locations primarily with water bars. The water bars are mounds of soil shaped to direct flow and prevent erosion.
20. Hydrologic impacts shall be minimized through the use of state-of-the-art technical design and construction techniques to minimize ponding; eliminate flood hazards; and avoid erosion and siltation into any creeks, streams, rivers, or bodies of water by use of best management practices.
21. When siting new Facilities, every effort shall be made to cross the wetland habitat perpendicular to the watercourse, spanning the watercourse to minimize the amount of disturbance to riparian areas (see Figure 4). To the extent feasible and practicable, new Facilities

shall be sited to provide a minimum 100-foot buffer from wetlands, vernal pools and their watersheds, and narrow endemic populations. To the extent feasible and practicable, new Facilities shall also be sited to avoid habitat in order to minimize fragmentation and disruption of wildlife movement and breeding areas. When habitat must be disturbed, new Facilities shall, to the extent feasible and practicable, be sited in lowest-quality habitat. When Facilities must be sited in a Preserve, they shall, to the extent feasible and practicable, be sited at the outer boundary of the Preserve rather than in the center.

22. Gas and other Facilities cross streambeds and require maintenance and repair. During such times, water may be temporarily diverted as long as sensitive fish are not stranded and, after disturbance, natural drainage patterns are restored to minimize the impact of the disturbance and help to reestablish or enhance the habitat. Erosion control during construction in the form of intermittent check dams and culverts should also be considered to prevent alteration to natural drainage patterns and prevent siltation.
23. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities shall occur in designated areas at least 100 feet away from waters of the United States within the fenced project impact limits. These designated areas shall be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering waters of the United States. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. Impacts to wetlands shall be minimized by avoiding pushing soil or brush into washes or ravines.
24. During work on Facilities, all trucks, tools, and equipment should be kept on existing access roads or cleared areas, to the extent possible. Insulator washing is allowed from access roads if other applicable protocols are followed.
25. If night work is necessary, night lighting shall be of the lowest illumination necessary for operational safety, selectively placed, shielded, and directed away from natural habitats. Any permanent lighting adjacent to all on- or off-site habitat shall be directed away from and/or shielded so as not to illuminate native habitats.
26. Landscaping for new Facilities within 300 feet of native habitat shall not include exotic plant species that are listed on Cal-IPC's "Invasive Plant Inventory" list. This list includes such species as pepper tree (*Schinus molle*), pampas grass (*Cortaderia selloana*), fountain grass (*Pennisetum setaceum*), iceplant (*Carpobrotus edulis*), myoporum (*Myoporum laetum*), black locust (*Robinia pseudoacacia*), capeweed (*Arctotheca calendula*), tree-of-heaven (*Ailanthus altissima*), periwinkle (*Vinca*

major), sweet alyssum (*Lobularia maritima*), English ivy (*Hedera helix*), French broom (*Genista monspessulana*), Scotch broom (*Cytisus scoparius*), and Spanish broom (*Spartium junceum*). A copy of the complete list can be obtained from Cal-IPC's website at <http://www.cal-ipc.org>. In addition, landscaping plans should encourage the adoption of drought-tolerant plants and native vegetation appropriate to the adjacent habitat and should discourage the use of plants that require intensive irrigation, fertilizers, or pesticides adjacent to native habitat. Water runoff from landscaped areas should be directed away from native habitats and contained and/or treated within the development footprint.

SDG&E shall confirm that any planting stock for landscaping shall be or has been inspected by a qualified pest inspector to ensure it is free of pest species that could invade native habitats, including but not limited to, Argentine ants (*Linepithema humile*), fire ants (*Solenopsis invicta*) and other insect pests. Any planting stock found to be infested with such pests shall not be allowed on the project site or within 300 feet of native habitats unless these pests already occur around the project site. The stock shall be quarantined, treated, or disposed of according to best management practices by qualified experts in a manner that precludes invasions into native habitats. Temporary irrigation shall be for the shortest duration possible, and permanent irrigation shall only be used if needed.

27. Brush clearing around Facilities for non-emergency fire protection shall not be conducted from March through August without prior approval by the Biologist. The Biologist shall make sure that the habitat contains no active nests, burrows, or dens prior to clearing.
28. Wire stringing is allowed year-round in sensitive habitat if conductor is not allowed to drag on the ground or in brush, and vehicles remain on access roads. Pre-activity Surveys shall be conducted in accordance with the HCP Amendment and shall determine if nesting will be potentially impacted from all Covered Activities including stringing. Recommendations shall be made to avoid impacts to nesting birds.
29. Maintenance of cut and fill slopes shall consist primarily of erosion repair. In situations where revegetation would improve the success of erosion control, planting or seeding with native hydroseed mix may be done on slopes.
30. Spoils created during maintenance operations shall be disposed of only on previously disturbed areas designated by the Biologist or used immediately to fill eroded areas. Cleared vegetation shall be hauled off the ROW to a permitted disposal location.

31. Environmentally sensitive tree trimming locations shall be identified in the tree trim computer database system utilized by tree trim contractors. (This database also tracks the date of each tree trim, type of tree, where threatening dogs reside, etc.) The Biologist shall be contacted to perform a Pre-activity Survey when trimming is planned in environmentally sensitive areas from March through August. Whenever possible, trees in environmentally sensitive areas (determined by USFWS and SDG&E) shall be scheduled for trimming in the non-sensitive times. If additional environmentally sensitive tree trimming locations are identified, USFWS shall coordinate with SDG&E on the potential inclusion into the database.
32. If any previously unidentified dens, burrows, or plants are located on any project site after the Pre-activity Survey, the Biologist shall be contacted. The Biologist shall determine how to best avoid or minimize impacting the resource by considering such methods as project or work plan redevelopment, equipment placement or construction method modification, seasonal/time of day limitations, etc.
33. The Biologist shall review and approve new ground-disturbing activities prior to working in sensitive areas where disturbance to habitat may be unavoidable and previously not reviewed. The Biologist shall conduct biological monitoring as recommended in the PSR. At completion of work, the Biologist shall check to verify compliance, including observing that flagged areas have been avoided and that reclamation, including site stabilization and/or erosion control, has been properly implemented. Also, at completion of work, the Biologist is responsible for removing all habitat flagging from the construction site.
34. The Biologist shall conduct checks on mowing procedures, to ensure that mowing is limited to a 12-foot-wide area on straight portions of the road (slightly wider on radius turns), and that the mowing height is no less than 4 inches.
35. Supplies and equipment where wildlife could hide (e.g., pipes, culverts, pole holes) shall be inspected prior to moving or working on them to reduce the potential for injury to wildlife. Supplies or equipment that cannot be inspected or from which animals could not be removed shall be capped or otherwise covered at the end of each workday. Old piping or other supplies that have been left open shall not be capped until inspected and any species found within allowed to escape. Ramping shall be provided in open trenches when necessary. If an animal is found entrapped in supplies or equipment, such as a pipe section, the supplies or equipment shall be avoided and the animal(s) left to leave on its own accord, except as otherwise authorized by USFWS.

36. All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment. If wildlife are located in the trench or excavation, the Biologist shall be called immediately to remove them if they cannot escape unimpeded.
37. Large amounts of fugitive dust could interfere with photosynthesis. Fugitive dust created during clearing, grading, earth-moving, excavation, or other construction shall be controlled by regular watering. At all times, fugitive dust emissions shall be controlled by limiting vehicle speed to 15 miles per hour.
38. Pest control Covered Activities as described in Section 2.2.3.4 shall conform to existing laws and in accordance with underlying property owner restrictions. In areas adjacent to Preserves and/or known locations of Covered Species, SDG&E shall employ limited use of pest control management and avoid effects to non-targeted species to the extent practical.

5.1.5 Maintenance of Access Roads

39. In each case of repair of erosion by grading, addition of fill, and compacting, the total area of disturbance shall be minimized by careful access and use of appropriately sized equipment. Repairs shall be done after Pre-activity Surveys conducted by the Biologist and in accordance with the recommendations regarding biological monitoring and relevant protocols. Consideration should be given to source of erosion problem, when source is within control of SDG&E.
40. Vegetation control through grading should be used only where the vegetation obscures the inspection of Facilities, access may be entirely lost, or the threat of Facility failure or fire hazard exists. The graded access road area should not exceed 12 feet wide on straight portions (radius turns may be slightly wider). New access roads shall be designed to current width standards, as appropriate.
41. Mowing habitat can be an effective method for protecting the vegetative understory while at the same time creating access to a work area. Mowing should be used when permanent access is not required because, with time, total revegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing shall be necessary to maintain permanent access.
42. Maintenance work on access roads should not expand the existing roadbed.

43. Material for filling in road ruts should never be obtained from the sides of the road that contain habitat without approval from the Biologist.

5.1.6 Construction of New Access Roads

44. SDG&E access roads shall be designed and constructed according to the Standards Regarding SDG&E Transmission Corridors (SDG&E 2020c) or as discussed in the most current guidance.
45. Access roads shall be made available to managers of the regional preserve system subject to coordination with SDG&E.
46. New access roads shall be designed to be placed in previously disturbed areas and areas that require the least amount of grading in sensitive areas during construction whenever possible. Preference shall be given to the use of stub roads rather than linking Facilities tangentially.
47. SDG&E shall consider providing access control on access roads leading into the regional preserve system where such control provides benefit to sensitive resources.
48. Every effort shall be made to avoid constructing new roads during the nesting season. If construction of new roads is necessary during the nesting season, the presence or absence of nesting species shall be determined by a Biologist and appropriate avoidance and minimization recommendations followed.

5.1.7 Construction and Maintenance of Access Roads through Streambeds

49. Construction of new access roads through streambeds requires a Streambed Alteration Agreement from CDFW and/or consultation with the U.S. Army Corps of Engineers. Construction in marsh areas, soft sand, or open water in most cases shall be accomplished through the use of helicopters for the delivery of materials, poles, personnel, and platforms. Roads should be avoided to the extent feasible.
50. Maintenance or construction vehicle access through shallow creeks or streams is allowed. However, no filling for access purposes in waterways is allowed without the installation of appropriately sized culverts. The use of geotextile matting should be considered when it would protect wetland species.
51. Staging/storage areas for equipment and materials shall be located outside of riparian areas.

5.1.8 Survey Work

- 52. Brush clearing for footpaths or line-of-sight cutting is not allowed from March through August in sensitive habitat without prior approval from the Biologist, who shall ensure that activity does not adversely affect a Covered Species.
- 53. SDG&E survey personnel must keep vehicles on existing access roads. No clearing of brush for panel point placement is allowed from March through August without prior approval from the Biologist.
- 54. Hiking off roads or paths for survey data collection is allowed year-round so long as other protocols are met.

5.1.9 Emergency Repairs

- 55. Emergency repair of Facilities is required in situations that potentially or immediately threaten the integrity of the SDG&E system, such as pipe leaks, or downed lines, slumps, slides, major subsidence, etc. Repairs conducted in response to an emergency situation would follow the Operational Protocols contained herein to fullest extent possible.
- 56. Once the emergency has stabilized, any unavoidable environmental damage shall be reported to the Biologist by the foreman. The Biologist shall develop a mitigation plan and ensure its implementation is consistent with the HCP Amendment.

5.1.10 Activities of Underlying Fee Owners

- 57. Most SDG&E Facilities are owned, operated, and maintained on public and private land through easements where access is granted through ROW; SDG&E does own land in fee for various Facilities. The actions of underlying fee owners cannot be controlled by SDG&E and are not covered by the HCP Amendment.
- 58. When sensitive habitat exists on either side of a ROW, SDG&E shall not oppose underlying fee owners dedicating said property to conservation purposes. Underlying fee owners are expected to comply with applicable federal, state, and local regulations.

5.1.11 Vernal Pool and Road Rut Protocols¹³

Term	Definition
Vernal Pool	Seasonal, depression-type wetlands that result from a unique set of physical parameters and support a specific biological assemblage of plant and animal species. Functional vernal pool ecosystems form under specific physical conditions when small, shallow depressions collect precipitation to create a seasonally perched water table.
Vernal Pool Complex	A collection of vernal pools that occur in proximity, on the same soil series, and are typically biogeographically and hydrologically connected.
Vernal Pool Watershed	A topographically defined catchment area from which surface water flows to a vernal pool.
Road Rut	Man-made road ruts and other seasonal depressions that are not vernal pools may contain wildlife associated with vernal pools, such as fairy shrimp, but will not contain vernal pool plant indicator species.

5.1.11.1 Vernal Pools (*naturally occurring, non-man-made*)

59. Impacts to vernal pools and/or their watersheds (vernal pool habitat) shall be avoided through project design considerations, to the maximum extent practicable. Vehicular traffic through dry vernal pools shall not be considered an impact that requires mitigation.
60. If impacts to vernal pool habitat cannot be avoided, a survey shall be conducted by a Biologist using established survey protocols for vernal pool Covered Species. If project timing does not allow for surveys, SDG&E shall confer with USFWS to determine if any vernal pool Covered Species should be assumed present.
61. If surveys determine a vernal pool is occupied (or is assumed occupied), permanent impacts that cannot be avoided shall be mitigated per the occupied vernal pool mitigation ratios in Table 5.5., or through other alternatives outlined in Section 5.5, as agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within the vernal pool, complex, or watershed.
62. If surveys determine vernal pools are not occupied, permanent impacts that cannot be avoided shall be mitigated per the unoccupied vernal pool mitigation ratios in Table 5.5., or through other alternatives outlined in Section 5.5, as agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within the vernal pool, complex, or watershed.
63. Prior to permanent and temporary impacts, SDG&E shall confer with USFWS on whether soil (inoculum) and/or vernal pool plant seed shall be salvaged from the impacted vernal pools. Seed from vernal pool

¹³ The Vernal Pool Protocols detailed herein were adapted from and supersede the Vernal Pool Clarification dated July 26, 2004.

indicator plants shall be collected from the pools that will be impacted when the plants have dried and before the seed disperses. Seed collection may not be possible when precluded by weather or physical constraints, such as the Covered Activity occurring at a time of year when no seed is present. However, it is assumed that salvaged soil would contain a seed bank for these species, and they would be allowed to recover once the soil was reinstalled.

Inoculum shall be collected only from vernal pools that are free of versatile fairy shrimp (*Branchinecta lindahli*), and when it is dry to avoid damaging or destroying fairy shrimp cysts. Hand tools (i.e., shovels and trowels) shall be used to remove the first 2 inches of soil from the pools. Whenever possible, the trowel shall be used to pry up intact chunks of soil, rather than loosening the soil by raking and shoveling, which can damage the cysts. The soil from each pool shall be stored individually in labeled boxes that are adequately ventilated and kept out of direct sunlight in order to prevent the occurrence of fungus or excessive heating of the soil and stored offsite at an appropriate facility for vernal pool inoculum. Inoculum from different source pools shall not be mixed for seeding any restored pools, unless otherwise approved by USFWS.

64. For all construction occurring adjacent to vernal pools, SDG&E shall work with a Biologist having local experience with vernal pool resources, to conduct Covered Activities in a manner that avoids potential impacts to vernal pools. The Biologist shall oversee and monitor, as needed, Covered Activities occurring adjacent to vernal pools. The biological monitor shall hold a preconstruction meeting to brief the crew on the location of sensitive resources and construction boundaries. Vernal pools adjacent to impact areas shall be fenced as appropriate with orange safety fencing to ensure no people or equipment impact the vernal pools during construction. A silt fence shall be installed along the base of the roadway to prevent increased erosion or sedimentation during construction adjacent to vernal pool areas. Gravel bags shall be placed along the bottom of the fence to minimize erosion or sedimentation into vernal pools and removed upon completion of construction. Best management practices placed near and around vernal pools shall be appropriately installed to not impact vernal pool watersheds, with oversight from a Biologist.
65. Grading Covered Activities immediately adjacent to vernal pools shall be timed to avoid wet weather to minimize potential impacts (e.g., siltation) to the vernal pools unless the area to be graded is at an elevation below the pools. To achieve this goal, grading adjacent to avoided pools shall comply with the following:
 - a. Grading shall occur only when the soil is dry to the touch both at the surface and 1 inch below. A visual check for color differences

(i.e., darker soil indicating moisture) in the soil between the surface and 1 inch below indicates whether the soil is dry.

- b. After rainfall of greater than 0.2 inch, grading shall occur only after the soil surface has dried sufficiently as described above, and no sooner than 2 days (48 hours) after the rain event ends.
 - c. If rain occurs during grading, work shall stop and resume only after soils are dry, as described above.
 - d. Grading shall be done in a manner to prevent runoff from entering preserved vernal pools.
 - e. If necessary, water spraying shall be conducted at a level sufficient to control fugitive dust but not to cause runoff into vernal pools.
 - f. If mechanized grading is necessary, grading shall be performed in a manner to minimize soil compaction (i.e., use the smallest type of equipment needed to feasibly accomplish the work).
66. If SDG&E needs to temporarily work in vernal pools or complexes under wet conditions, vehicular and foot traffic shall be directed away from the pools. If vehicular and foot traffic cannot be directed away from the pools due to construction requirements, other impact minimization measures shall be used, such as the installation of steel plates or fabric mats. A qualified Biologist shall be present to oversee implementation of minimization measures.
67. When vernal pools are located above gas lines and repair work is necessary, work areas shall be minimized and soil shall be stockpiled for replacement after repairs.
68. To the extent feasible, all construction equipment shall be fueled, staged, and maintained at least 100 feet from the nearest vernal pools. If this is not feasible, drip pans or other means shall be implemented to protect vernal pools from accidental spills.
69. For new projects, impacts to vernal pools and vernal pool Covered Species shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

5.1.11.2 Road Ruts and Other Seasonal, Man-Made Depressions

70. Impacts from Covered Activities to road ruts and other seasonal, man-made depressions where there is potential for fairy shrimp to occur shall be avoided through project design considerations, to the extent feasible.

Vehicular traffic through dry road ruts and other seasonal, man-made depressions shall not be considered an impact that requires mitigation.

71. If impacts to road ruts and other seasonal, man-made depressions where there is potential for fairy shrimp cannot be avoided, a survey shall be conducted by a Biologist using established survey protocols for fairy shrimp to determine species presence. If project timing does not allow for surveys, it shall be assumed that the road ruts and other seasonal, man-made depressions are occupied.
72. If surveys determine that road ruts and other seasonal, man-made depressions are occupied (or assumed occupied), permanent impacts that cannot be avoided shall be mitigated per the vernal pool mitigation ratios in Table 5.5 or through other alternatives outlined in Section 5.5 as agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring to the road ruts and other seasonal, man-made depressions.
73. If surveys determine road ruts and other man-made depressions are not occupied by Covered fairy shrimp species, Covered Activities and impacts shall be allowed without mitigation.
74. Prior to permanent and temporary impacts to occupied road ruts, soil (inoculum) shall be collected as described in Section 5.1.11.1, Protocol 63 for vernal pools.
75. Grading Covered Activities on existing access roads shall not take place when the soils are wet, as described in Section 5.1.11.1, Protocol 65 for vernal pools, to minimize indirect impacts from erosion and sedimentation. Prior to grading Covered Activities, a Biologist shall demarcate a road rut proposed for grading and a Biologist shall be present during grading Covered Activities. Direct impacts when grading existing access roads shall be avoided by lifting the blade of the grader over the demarcated road rut within the road. Any windrows resulting from grading in the vicinity of vernal pools or complexes shall be flattened with equipment tires to avoid affecting hydrology in the area.

5.1.12 Narrow Endemic Plant Protocols

76. Impacts to narrow endemic plants as identified in Table 3.1 are to be avoided to the extent practical.
 - a. When work occurs within a known or potential area of occurrence of a narrow endemic plant, then focused surveys shall occur within the appropriate blooming seasons. If project timing does not allow for surveys, it shall be assumed that all habitat to be impacted is occupied.

- b. If a narrow endemic plant is observed or assumed to be within the work area, it shall be avoided to the greatest extent practicable. A Biologist shall be onsite to assist crews in avoiding impacts to the extent practicable. The Biologist shall use flagging as needed and monitor Covered Activities to ensure avoidance of impacts. The Biologist shall have the authority to immediately stop any Covered Activity that does not adhere to the project environmental constraints to avoid the unanticipated impacts. Additional measures, such as installing matting within temporary work areas to avoid soil compaction, may also be recommended.
- c. If avoidance is not feasible, SDG&E shall confer with USFWS to determine the best approach for minimization of impacts, including additional measures such as restoration, enhancement of suitable habitat, and salvage/relocation of species to a suitable location. Permanent impacts to narrow endemic plants that cannot be avoided shall be mitigated in kind per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS.
- d. For new projects, impacts to narrow endemic plants or their supporting habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

5.1.13 Species-Specific Protocols

SDG&E's long-standing conservation strategy for avoidance, minimization, and mitigation of impacts has effectively avoided and minimized impacts from Covered Activities. Based upon over 26 years of experience and the current status of certain Covered Species, the following additional Species-Specific Protocols are incorporated to enhance current practices. Not all measures may be relevant or applicable in all cases. For Species-Specific Protocols, the applicable measures shall be identified within the PSR and submitted to USFWS for review.¹⁴

77. Laguna Mountains Skipper (*Pyrgus ruralis lagunae*)

- a. Impacts from Covered Activities where there is a potential for Laguna Mountains skipper to occur on Palomar Mountain or designated critical habitat with physical and biological features (PBFs) in the Lagunas (LMS-Habitat) shall be avoided through project design considerations, to the extent feasible. PBFs include:

¹⁴ Species-Specific Protocols for golden eagle and bald eagle are provided in the Eagle Conservation Plan included as Appendix B.

- i. The host plants, Cleveland's horkelia (*Horkelia clevelandii*) or Sticky cinquefoil (*Drymocallis glandulosa*), in meadows or forest openings needed for reproduction.
 - ii. Nectar sources suitable for feeding by adult Laguna Mountains skippers, including *Lasthenia* spp., *Pentachaeta aurea*, *Ranunculus* spp., and *Sidalcea* spp. found in woodlands or meadows.
 - iii. Wet soil or standing water associated with features such as seeps, springs, or creeks where water and minerals are obtained during the adult flight season.
- b. If impacts to LMS-Habitat cannot be avoided, a Biologist shall survey LMS-Habitat that has the potential to be impacted by Covered Activities. Surveys are to be conducted during the adult flight season (April 15 through August 15) using appropriate survey techniques to determine presence of Laguna Mountains skipper. If project timing does not allow for adult flight season surveys, it shall be assumed that all LMS-Habitat to be impacted is occupied.
- c. If surveys determine that LMS-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within LMS-Habitat.
- d. If surveys determine LMS-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied LMS-Habitat shall be mitigated per Section 5.5, Table 5.3a.
- e. When work shall occur within or adjacent to LMS-Habitat, timing of Covered Activities shall be evaluated to ensure minimization of impacts to Laguna Mountains skipper. A qualified Biologist shall provide recommendations to avoid and minimize impacts to this species. Depending on the Covered Activity and construction methods required, minimization of impacts may be increased by conducting work within the diapause phase, or in the flight season for this species. Recommendations shall be included in the PSR for USFWS review. Measures that may be implemented include, but are not limited to, the following:
 - i. Flag Cleveland's horkelia for avoidance. The host plants shall be avoided to the extent feasible.
 - ii. When trampling Cleveland's horkelia is necessary to conduct work, plywood boards shall be placed where

crews shall be working in order to distribute weight more evenly and reduce impacts to Cleveland's horkelia.

- iii. Pole replacement may be conducted by helicopter, where feasible, to reduce impacts on the ground from vehicle and equipment travel and staging.
- iv. Incorporate Cleveland's horkelia seed collection and dispersal into native habitat restoration Covered Activities, where appropriate.
- v. For new projects, impacts to Laguna Mountains skipper and LMS-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

78. Hermes Copper Butterfly (*Lycaena hermes*)

- a. Impacts from Covered Activities where there is known/historical Hermes copper butterfly occurrences and/or habitat with PBFs (HCB-Habitat) shall be avoided through project design considerations, to the extent feasible. PBFs include spiny redberry (*Rhamnus crocea*) and nectar sources (e.g., California buckwheat [*Eriogonum fasciculatum*]). HCB-Habitat shall be updated annually as new Hermes copper butterfly sightings are documented. A 1-kilometer radius (or approximately 0.6 mile) circle shall be placed around each new Hermes copper butterfly sighting and included in HCB-Habitat. USFWS shall be responsible for updating HCB-Habitat and providing the updated information to SDG&E by December 1 of each year, for use the following year.
- b. If impacts to HCB-Habitat cannot be avoided, a survey of HCB-Habitat with potential to be impacted shall be conducted by a Biologist during the adult flight season using appropriate survey techniques to determine presence of Hermes copper butterfly. If project timing does not allow for adult flight season surveys, it shall be assumed that all HCB-Habitat to be impacted is occupied.
- c. If surveys determine that HCB-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within HCB-Habitat.

- d. If surveys determine HCB-Habitat is not occupied, Covered Activities and impacts shall be allowed. Permanent impacts to unoccupied HCB-Habitat shall be mitigated per Section 5.5, Table 5.3a.
- e. When work shall occur within or adjacent to HCB-Habitat, timing of Covered Activities shall be evaluated to ensure minimization of impacts to Hermes copper butterfly. A qualified Biologist shall provide recommendations to avoid and minimize impacts to this species. Depending on the Covered Activity and construction methods required, minimization of impacts may be increased by conducting work within the diapause phase, or in the flight season for this species. Recommendations shall be included as part of the PSR for USFWS review. Measures that may be implemented include, but are not limited to, the following:
 - i. Flag spiny redberry and California buckwheat for avoidance. The host plants shall be avoided to the extent feasible.
 - ii. Pole replacement may be conducted by helicopter, where feasible, to reduce impacts on the ground from vehicle and equipment travel and staging.
 - iii. Incorporate larval host plant species (i.e., spiny redberry) and California buckwheat) into native habitat restoration plans, where appropriate.
 - iv. When SDG&E routine road maintenance shall be conducted in HCB-Habitat, individual shrubs along the road edge and the edges of established work pads shall be flagged by the Biologist and avoided to the maximum extent practicable. Trimming of spiny redberry individuals shall be limited to those encroaching into access road and established work pads. Removal of habitat encroaching within the roads and work pads is anticipated to be minimal as cyclical, routine maintenance is conducted to maintain 24/7 access to Facilities. Vegetation trimming as described is not anticipated to incur measurable impacts.
- f. For new projects, impacts to Hermes copper butterfly and HCB-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

79. Arroyo Toad (*Anaxyrus californicus*)

- a. Impacts from Covered Activities where there is a potential for arroyo toad to occur or in designated critical habitat with PBFs (ARTO-Habitat) shall be avoided through project design

considerations (e.g., use of elevated roadway segment placed on top of the existing road surface), to the extent feasible. PBFs include:

- i. Rivers or streams with hydrologic regimes that supply water to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads. Breeding pools must persist a minimum of 2 months for the completion of larval development. However, due to the dynamic nature of southern California riparian systems and flood regimes, the location of suitable breeding pools may vary from year to year. Specifically, the conditions necessary to allow for successful reproduction of arroyo toads are:
 - (1) Breeding pools less than 6 inches deep;
 - (2) Areas of flowing water with current velocities less than 1.3 feet per second; and
 - (3) Surface water that lasts for a minimum of 2 months during the breeding season (a sufficient wet period in the spring months to allow arroyo toad larvae to hatch, mature, and metamorphose).
- ii. Riparian and adjacent upland habitats, particularly low-gradient (typically less than 6%) stream segments and alluvial streamside terraces with sandy or fine gravel substrates that support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding and rearing of tadpoles and juveniles; and adjacent valley bottomlands that include areas of loose soil where toads can burrow underground, to provide foraging and living areas for juvenile and adult arroyo toads.
- iii. A natural flooding regime, or one sufficiently corresponding to natural, that:
 - (1) Is characterized by intermittent or near-perennial flow that contributes to the persistence of shallow pools into at least mid-summer;
 - (2) Maintains areas of open, sparsely vegetated, sandy stream channels and terraces by periodically scouring riparian vegetation; and
 - (3) Also modifies stream channels and terraces and redistributes sand and sediment, such that breeding pools and terrace habitats with scattered vegetation are maintained.

- iv. Stream channels and adjacent upland habitats that allow for movement to breeding pools, foraging areas, overwintering sites, upstream and downstream dispersal, and connectivity to areas that contain suitable habitat.
- b. If impacts to ARTO-Habitat cannot be avoided, a Biologist shall survey ARTO-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all ARTO-Habitat to be impacted is occupied.
- c. If surveys determine that ARTO-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within ARTO-Habitat.
- d. If surveys determine ARTO-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied ARTO-Habitat shall be mitigated per Section 5.5, Tables 5.3a and 5.3b.
- e. When work shall occur within or adjacent to ARTO-Habitat, timing of Covered Activities shall be evaluated to ensure minimization of impacts to arroyo toad. A qualified Biologist shall provide recommendations to avoid and minimize impacts to this species. Recommendations shall be included in the PSR for USFWS review. Measures that may be implemented include, but are not limited to, the following:
 - i. A Biologist shall be present during construction as needed in order to avoid impacts to arroyo toad.
 - ii. A Biologist shall lead a worker environmental awareness training for crews and conduct a sweep of the work area prior to the beginning of work each day, as needed. If arroyo toad individuals are found, the individuals shall be relocated by a Biologist out of harm's way.
 - iii. A Biologist shall guide the crews to select an appropriate area for equipment and material staging that specifically excludes or minimizes any areas with the high potential for arroyo toad to occur.
 - iv. A Biologist shall escort construction vehicles along an overland travel route that minimizes potential impacts to sensitive species.

- v. Covered Activities shall be designed to avoid or minimize the placement of equipment or personnel within the stream channel, on sand and fine gravel bars, on intermittent shallow pools, on banks, on sparsely vegetated sandy terraces, and/or on flats within waters of the United States. A qualified Biologist shall be present during construction within suitable habitat in order to avoid impacts, including to arroyo toad.
- vi. Covered Activities within uplands that may support arroyo toad shall take place from approximately March 15 through August 15 when practicable during the arroyo toad breeding season when arroyo toads are typically more active and closer to breeding habitat.
- vii. Covered Activities within stream channels that may support arroyo toad breeding shall take place from approximately August 16 through March 14 when practicable to avoid the arroyo toad breeding season. When practicable, Covered Activities shall be timed so that work within a stream channel is conducted when flows are at their lowest or are nonexistent.
- viii. Where feasible, prior to clearing, grubbing, and construction, arroyo toad exclusionary fencing shall be installed around the perimeter of all work areas within potential arroyo toad breeding habitat and non-breeding habitat (typically within about 500 feet, but up to 0.7 mile, of breeding habitat) as determined by a qualified arroyo toad Biologist and USFWS.¹⁵ In areas without water flows, the fence shall consist of woven nylon fabric or similar material at least 2 feet high, staked firmly to the ground. In areas with water flows, an appropriate fabric shall be used to permit water movement while restricting arroyo toads from entering the exclusion area. In areas where soils are suitable for burrowing, the lower 1 foot of material shall stretch outward along the ground and be secured with a continuous line of sandbags to prevent burrowing beneath the fence. Doubling this line (i.e., stacking sand or gravel bags two-deep) may reduce maintenance and should be considered to improve the integrity of the fencing. In areas where soils are not suitable for burrowing, (i.e., hardpack soils), fencing may be buried to reduce maintenance concerns and improve the integrity of the fencing over time. Decisions on the appropriate fencing installation method

¹⁵ A qualified arroyo toad Biologist will be approved by USFWS and must be able to identify arroyo toad visually and vocally and should have experience in handling and translocating arroyo toads. In addition, the Biologist should be familiar with all life stages and habitat of the arroyo toad.

for a given reach shall be made by the qualified arroyo toad Biologist. All fencing shall be removed following completion of all project-related Covered Activities. Ingress and egress of equipment and personnel shall use a single access point to the site, which shall be as narrow as possible and closed off by exclusionary fence when personnel are not on the work site.

- ix. Prior to vegetation grubbing or construction, but after exclusionary fence has been installed around the impact footprint where feasible, at least three surveys for arroyo toads of any life stages or clutches shall be conducted within the project footprint and/or fenced area by a qualified Biologist knowledgeable of arroyo toad biology and ecology. Surveys shall be conducted during the appropriate climatic conditions during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If climatic conditions are not appropriate for arroyo toad movement during the surveys, a qualified Biologist may attempt to elicit a response from the arroyo toads, during nights (i.e., at least 1 hour after sunset) with temperatures above 50 degrees Fahrenheit (to the extent practicable depending on time of year), by spraying the project area with water to simulate a rain event. If arroyo toads of any life stages or clutches are found within the project area, they shall be captured and translocated, by the Biologist, to the closest area of suitable habitat. Before each workday begins, the qualified Biologist shall also check to see if arroyo toads have entered the impact footprint. If arroyo toads are found within the impact footprint, the individuals shall be moved outside of the impact footprint, if suitable habitat exists, or out of harm's way.
- x. The qualified Biologist shall be present each morning before construction begins to inspect all arroyo toad exclusionary fencing for damage or holes, conduct a sweep of the work area for arroyo toad of any life stages, and inspect any covered stockpiles for gaps or sign that arroyo toads have accessed the soils underneath, and shall be present when these covers are removed. If burrows characteristic of arroyo toads are found, the burrows shall be hand excavated. The qualified Biologist shall relocate any arroyo toads found to suitable habitat adjacent to the construction site but at least 200 feet away.
- xi. Nighttime construction shall be avoided in and/or adjacent to occupied ARTO breeding habitat. If critical work during

nighttime hours is necessary, a biological monitor shall conduct a clearance survey of the access road and work areas within 500 feet of occupied ARTO breeding habitat year-round.

- xii. In areas with the potential for arroyo toad, stockpiled soils shall be covered with plastic or other material at the end of each workday. Any covered stockpile edges shall be held in place by sandbag, fabric-wrapped wattles, or hydromulch at soil storage sites to avoid creating an attractive nuisance for toads.
 - xiii. Holes or trenches created by Covered Activities that have the potential to trap arroyo toads shall be covered with cover plates or other materials at the end of each workday. Holes or trenches that are covered shall have the edges sealed with sandbags, bricks, or boards to prevent arroyo toads from becoming trapped in holes or trenches. Sonotubes (i.e., round, concrete forming tubes) in lieu of hardware cloth nets may also be used to restrict arroyo toads from falling into open holes. The qualified Biologist shall inspect all holes and trenches (covered and uncovered) for the presence of arroyo toads prior to disturbance of soils or removal of cover plates. The qualified Biologist shall be present when the cover plates are removed and shall inspect and relocate any arroyo toads that may have entered the trench during the night to suitable habitat adjacent to the construction site but at least 200 feet away.
- f. For new projects, impacts to arroyo toad and occupied ARTO-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

80. California Red-legged Frog (*Rana draytonii*)

- a. Impacts from Covered Activities where there is a potential for California red-legged frog to occur (CRLF-Habitat)¹⁶ shall be avoided through project design considerations, to the extent feasible. CRLF-Habitat includes:
 - i. wetlands, both natural and altered, including ponds, rivers and creeks that are suitable for breeding and upland habitat within a 325-foot buffer from water.

¹⁶ This species was previously extirpated from the Plan Area and reintroduced to a single locale in March of 2020. Assessment of potential habitat shall consider the vicinity of the habitat to known locations.

- b. If impacts to CRLF-Habitat cannot be avoided, a Biologist shall survey CRLF-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all CRLF-Habitat to be impacted is occupied.
- c. If surveys determine that CRLF-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Tables 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within CRLF-Habitat.
- d. If surveys determine CRLF-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied CRLF-Habitat shall be mitigated per Section 5.5, Tables 5.3a and 5.3b.
- e. Covered Activities within wetlands that may support California red-legged frog breeding shall take place from approximately April 16 through October 31 when practicable to avoid the California red-legged frog breeding season (i.e., time period when eggs and tadpoles are absent).
- f. Nighttime construction shall be avoided in and/or adjacent to occupied CRLF-Habitat. If critical work during nighttime hours is necessary, a biological monitor shall conduct a clearance survey of the access road and work areas within 325 feet of occupied breeding Habitat year-round.
- g. Within 14 days prior to the onset of construction, a qualified Biologist shall conduct preconstruction surveys for California red-legged frog within areas that fall within 300 feet of any suitable aquatic habitat for this species. If California red-legged frogs are observed during the preconstruction survey, they shall be avoided to the greatest extent practicable. If avoidance is not feasible, SDG&E shall confer with USFWS to determine the best approach for minimization of impacts, including additional measures such as restoration, enhancement of suitable habitat, and salvage/relocation of species to a suitable location.
- h. For new projects, impacts to California red-legged frog and its habitat would only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

81. Southwestern Pond Turtle (*Actinemys pallida*)

- a. Impacts from Covered Activities where there is a potential for southwestern pond turtle to occur (SWPT-Habitat) shall be avoided through project design considerations, to the extent feasible. SWPT-Habitat includes:
 - i. wetlands, both natural and altered, including ponds, rivers, and creeks that are suitable for breeding; and
 - ii. 165-foot upland buffer.
- b. If impacts to SWPT-Habitat cannot be avoided, a Biologist shall survey SWPT-Habitat that has the potential to be impacted by Covered Activities to determine species presence. If project timing does not allow for surveys, it shall be assumed that all SWPT-Habitat to be impacted is occupied.
- c. If surveys determine that SWPT-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Tables 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within SWPT-Habitat.
- d. If surveys determine SWPT-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied SWPT-Habitat shall be mitigated per Section 5.5, Tables 5.3a and 5.3b.
- e. Covered Activities within SWPT-Habitat shall take place outside the breeding/nesting season from approximately April 1 through September 30 when practicable to avoid female southwestern pond turtle that are moving upland to nest and to avoid impacting hatchling southwestern pond turtle.
- f. Within 14 days prior to the onset of construction, a qualified Biologist shall conduct preconstruction surveys for western pond turtle within areas that fall within 100 feet of any suitable aquatic and upland nesting habitat for this species. If western pond turtles are observed during the preconstruction survey, they shall be avoided to the greatest extent practicable. If avoidance is not feasible, SDG&E shall confer with USFWS to determine the best approach for minimization of impacts, including additional measures such as restoration, enhancement of suitable habitat, and salvage/relocation of species to a suitable location.
- g. For new projects, impacts to western pond turtle and its habitat would only be covered through the Minor Amendment process as

discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

82. Tricolored Blackbird (*Agelaius tricolor*)

- a. Impacts from Covered Activities where there is a potential for the tricolored blackbird to occur (TRBL-Habitat) shall be avoided through project design considerations, to the extent feasible.
- b. If impacts to TRBL-Habitat cannot be avoided, a Biologist shall survey TRBL-Habitat that has the potential to be impacted by Covered Activities using appropriate survey techniques to determine species presence. If project timing does not allow for surveys, it shall be assumed that all TRBL-Habitat to be impacted is occupied.
- c. If surveys determine that TRBL-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within TRBL-Habitat.
- d. If surveys determine TRBL-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied TRBL-Habitat shall be mitigated per Section 5.5, Table 5.3b.
- e. Whenever practicable, minimize impacts through timing of work in freshwater marsh TRBL-Habitat to avoid the nesting season for tricolored blackbird and conduct TRBL-Habitat removal prior to the initiation of the riparian avian breeding season breeding season (March 15 through September 15).
- f. If work is scheduled during the riparian avian breeding season and within suitable habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no tricolored blackbird active nests are present within 500 feet of Covered Activities.
- g. If nesting surveys indicate an active nest is likely or an active tricolored blackbird nest is observed, no Covered Activities shall be implemented within 500 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.

- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.
- j. For new projects, impacts to tricolored blackbird and TRBL-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

83. Burrowing Owl (*Athene cunicularia*)

- a. Impacts from Covered Activities where there is known or a potential for burrowing owl to nest (e.g., in the vicinity (within 600 meters [or approximately 0.4 mile] of known nesting occurrences) (BUOW-Habitat) shall be avoided through project design considerations, to the extent feasible. Vegetation communities considered suitable for burrowing owl nesting shall include low-lying open vegetation such as open coastal sage scrub, native and nonnative annual grassland, landscape/ornamental, and disturbed habitats.
- b. If impacts to BUOW-Habitat cannot be avoided, a Biologist shall survey BUOW-Habitat that has the potential to be impacted by Covered Activities following current protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all BUOW-Habitat to be impacted is occupied.
- c. If surveys determine that BUOW-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within BUOW-Habitat.
- d. If surveys determine BUOW-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied BUOW-Habitat shall be mitigated per Section 5.5, Table 5.3a.
- e. During the breeding season (February 1 through August 31) and non-breeding (September 1 through January 31), a preconstruction survey (i.e., take avoidance survey) shall be conducted no less than 14 days prior to initiating ground disturbance Covered Activities when there is the presence of small mammal burrows that have potential to support burrowing owl. The Biologist shall conduct a preconstruction survey to

ensure that no active burrows are present within 300 feet of Covered Activities. The Biologist shall also survey irrigation pipes, culverts, and other depressions or non-natural “burrows” that may provide shelter for burrowing owl.

- f. If active burrowing owl nests or burrow shelters are identified, no Covered Activities shall be conducted within a minimum distance of 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.
- g. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize potential impacts to individuals.
- h. During the non-breeding season, individual burrowing owls that shall be directly impacted by the Project may be passively relocated with concurrence from USFWS. Passive relocation methodologies shall be outlined in a project-specific plan and follow the most current guidelines accepted by USFWS.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.
- j. Pesticides are prohibited in areas where burrowing owls are present.

84. Golden Eagle (*Aquila chrysaetos*)

- a. Species-Specific Protocols for golden eagle are provided in the ECP included as Appendix B.

85. Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegensis*)

- a. Impacts from Covered Activities where there is a potential for coastal cactus wren to occur, especially individuals or groupings of cactus greater than 2 feet tall (CACW-Habitat), shall be avoided through project design considerations, to the extent feasible.
- b. If impacts to CACW-Habitat cannot be avoided, a Biologist shall survey CACW-Habitat that has the potential to be impacted by Covered Activities using appropriate survey techniques to determine species presence. If project timing does not allow for surveys, it shall be assumed that all CACW-Habitat to be impacted is occupied.

- c. If surveys determine that CACW-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within CACW-Habitat.
- d. If surveys determine CACW-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied CACW-Habitat shall be mitigated per Section 5.5, Table 5.3a.
- e. Whenever practicable, minimize impacts through timing of work in CACW-Habitat and conduct CACW-Habitat removal prior to the initiation of the upland avian breeding season (February 15 through August 31).
- f. If work is scheduled during the breeding season and within CACW-Habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no active cactus wren nests are present within 300 feet of the Covered Activities.
- g. If an active nest is observed, no Covered Activities shall be conducted within 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.
- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize potential impacts to individuals.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.
- j. Salvage native cactus to be impacted within CACW-Habitat and make available for use in restoration projects per County of San Diego guidelines for cactus salvage or other appropriate references.

86. Western Snowy Plover (*Charadrius nivosus nivosus*)

- a. Permanent impacts from Covered Activities where there is a potential for western snowy plover to occur or in designated critical habitat with PBFs (SNPL-Habitat) shall be avoided. PBFs include sandy beaches, dune systems immediately inland of an active beach face, salt flats, mud flats, seasonally exposed gravel

bars, artificial salt ponds and adjoining levees, and dredge spoil sites, with:

- i. Areas that are below heavily vegetated areas or developed areas and above the daily high tides;
 - ii. Shoreline habitat areas for feeding, with no or very sparse vegetation, that are between the annual low tide or low-water flow and annual high tide or high-water flow, subject to inundation but not constantly under water, that support small invertebrates, such as crabs, worms, flies, beetles, spiders, sand hoppers, clams, and ostracods, that are essential food sources;
 - iii. Surf- or water-deposited organic debris, such as seaweed (including kelp and eelgrass) or driftwood located on open substrates that supports and attracts small invertebrates described above for food, and provides cover or shelter from predators and weather, and assists in avoidance of detection (crypsis) for nests, chicks, and incubating adults; and
 - iv. Minimal disturbance from the presence of humans, pets, vehicles, or human-attracted predators, which provide relatively undisturbed areas for individual and population growth and for normal behavior.
- b. Temporary impacts from Covered Activities to SNPL-Habitat shall be avoided through project design considerations, to the extent feasible.
 - c. Schedule work within 800 feet of western snowy plover nesting sites between September 15 and March 1 to the maximum extent possible. If work is scheduled to occur during the breeding season, no Covered Activities shall be implemented within 800 feet of the nesting site. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by a western snowy plover Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures and/or biological monitoring approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.
 - d. For projects scheduled within 200 feet of potential SNPL-Habitat during the non-breeding season (September 16 through February 28), the western snowy plover Biologist shall conduct preconstruction surveys for western snowy plovers in and within 200 feet of the project footprint.

- i. If western snowy plovers are observed within 200 feet of the project footprint, a western snowy plover Biologist shall monitor the western snowy plovers at least once per day during construction activities.
 - ii. If western snowy plovers are observed within the project footprint, the western snowy plover Biologist may slowly walk towards the western snowy plovers, allowing the western snowy plovers to move away from the project footprint, prior to commencing project activities. The western snowy plover Biologist shall guide the western snowy plovers at least 200 feet from the project footprint.
- e. To the extent feasible, new linear Facilities within 800 feet of western snowy plover nesting sites shall be placed underground. If overhead structures (poles) are necessary, SDG&E shall explore engineering designs that shall reduce available perch location for potential avian predators.
- f. To control the spread of weeds that may degrade western snowy plover nesting sites, all earth-moving construction equipment shall be thoroughly power-washed before working within 200 feet of western snowy plover nesting sites.
- g. Any stockpiled soils within 200 feet of western snowy plover nesting sites shall be covered with plastic or other material and the edges shall be held in place by sandbags at the end of each workday.
- h. Direct take of nesting individuals and destruction of active nests are not allowed.
- i. Temporary impact areas within western snowy plover nesting sites shall be re-contoured to mimic the natural landscape.

87. Western Yellow-billed Cuckoo (*Coccyzus americanus*)

- a. Impacts from Covered Activities where there is a potential for the western yellow-billed cuckoo to occur (WYBC-Habitat) shall be avoided through project design considerations, to the extent feasible.
- b. If impacts to WYBC-Habitat cannot be avoided, a Biologist shall survey WYBC-Habitat that has the potential to be impacted by Covered Activities using appropriate survey techniques to determine species presence. If project timing does not allow for surveys, it shall be assumed that all WYBC-Habitat to be impacted is occupied.

- c. If surveys determine that WYBC-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within WYBC-Habitat.
- d. If surveys determine WYBC-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied WYBC-Habitat shall be mitigated per Section 5.5, Table 5.3b.
- e. Whenever practicable, minimize impacts through timing of work in WYBC-Habitat to avoid the nesting season for riparian avian species and conduct WYBC-Habitat removal prior to the initiation of the riparian avian breeding season (March 15 through September 15).
- f. If work is scheduled during the riparian avian breeding season and within WYBC-Habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no western yellow-billed cuckoo active nests are present within 300 feet of the Covered Activities.
- g. If nesting surveys indicate an active nest is likely or an active nest is observed, no Covered Activities shall be implemented within 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures to be approved by USFWS. Specific buffer requirements may be reduced, with approval of USFWS, on a project-by-project basis as appropriate.
- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.
- j. For new projects, impacts to yellow-billed cuckoo and WYBC-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

88. Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

- a. Impacts from Covered Activities where there is a potential for southwestern willow flycatcher to occur or in designated critical

habitat with PBFs (SWFL-Habitat) shall be avoided through project design considerations, to the extent feasible. PBFs include:

- i. *Riparian vegetation.* Riparian habitat along a dynamic river or lakeside, in a natural or man-made successional environment (for nesting, foraging, migration, dispersal, and shelter) that is composed of trees and shrubs (that can include Gooddings willow (*Salix gooddingii*), coyote willow (*Salix exigua*), Geyer's willow (*Salix geyeriana*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), yewleaf willow (*Salix taxifolia*), pacific willow (*Salix lucida*), boxelder (*Acer negundo*), tamarisk sp. (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolia*), buttonbush (*Cephalanthus occidentalis*), cottonwood (*Populus deltoides*), stinging nettle (*Urtica dioica*), alder sp. (*Alnus* sp.), velvet ash (*Fraxinus velutina*), poison hemlock (*Conium maculatum*), blackberry (*Rubus ursinus*), seep willow (*Baccharis salicifolia*), oak sp. (*Quercus* sp.), rose sp. (*Rosa* sp.), sycamore (*Platanus occidentalis*), false indigo (*Baptisia australis*), Pacific poison oak (*Toxicodendron diversilobum*), grape sp. (*Vitis* sp.), Virginia creeper (*Parthenocissus quinquefolia*), Siberian elm (*Ulmus pumila*), and walnut sp. (*Juglans* sp.) and some combination of:
 - (1) Dense riparian vegetation with thickets of trees and shrubs that can range in height from about 6 to 98 feet. Lower-stature thickets 6 to 13 feet tall are found at higher elevation riparian forests and tall-stature thickets are found at middle and lower-elevation riparian forests;
 - (2) Areas of dense riparian foliage at least from the ground level up to approximately 13 feet above ground or dense foliage only at the shrub or tree level as a low, dense canopy;
 - (3) Sites for nesting that contain a dense (about 50% to 100%) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);
 - (4) Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.25 acre or as large as 175 acres.

- b. If impacts to SWFL-Habitat cannot be avoided, a Biologist shall survey SWFL-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all SWFL-Habitat to be impacted is occupied.
- c. If surveys determine that SWFL-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within SWFL-Habitat.
- d. If surveys determine SWFL-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied SWFL-Habitat shall be mitigated per Section 5.5, Table 5.3b.
- e. Whenever practicable, minimize impacts through timing of work in riparian SWFL-Habitat to avoid the nesting season for riparian avian species and conduct SWFL-Habitat removal prior to the initiation of the riparian avian breeding season (March 15 through September 15).
- f. If work is scheduled during the riparian avian breeding season, and within suitable SWFL-Habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no active southwestern willow flycatcher nests are present within 300 feet of the Covered Activities.
- g. If an active southwestern willow flycatcher nest is observed, no Covered Activities shall be implemented within 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.
- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.
- j. For new projects, impacts to southwestern willow flycatcher and SWFL-Habitat shall only be covered through the Minor

Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

89. Bald Eagle (*Haliaeetus leucocephalus*)

- a. Species-Specific Protocols for bald eagle are provided in the ECP included as Appendix B.

90. Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*)

- a. Impacts from Covered Activities where there is a potential for Belding's savannah sparrow habitat to occur (BSS-Habitat), shall be avoided through project design considerations, to the extent feasible.
- b. If impacts to BSS-Habitat cannot be avoided, a Biologist shall survey BSS-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all BSS-Habitat to be impacted is occupied.
- c. If surveys determine that BSS-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within BSS-Habitat.
- d. If surveys determine BSS-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied BSS-Habitat shall be mitigated per Section 5.5, Table 5.3b.
- e. Whenever practicable, minimize impacts through timing of work in Belding's savannah sparrow habitat (BSS-Habitat) to avoid the nesting season and conduct BSS-Habitat removal outside the breeding season (March 15 through September 15).
- f. If work is scheduled during the Belding's savannah sparrow breeding season, and within suitable BSS-Habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no active Belding's savannah sparrow nests are present within 300 feet of the Covered Activities.
- g. If an active Belding's savannah sparrow nest is observed, no Covered Activities shall be implemented within 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be

achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.

- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- i. Direct take of individuals and destruction of active nests are not allowed.

91. Coastal California Gnatcatcher (*Polioptila californica californica*)

- a. Impacts from Covered Activities where there is a potential for coastal California gnatcatcher to occur, or in designated critical habitat with PBFs (CAGN-Habitat), shall be avoided through project design considerations, to the extent feasible. PBFs include sage scrub and non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.
- b. If impacts to CAGN-Habitat cannot be avoided, a Biologist shall survey CAGN-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all CAGN-Habitat to be impacted is occupied.
- c. If surveys determine that CAGN-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within CAGN-Habitat.
- d. If surveys determine CAGN-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied CAGN-Habitat shall be mitigated per Section 5.5, Table 5.3a.
- e. Whenever practicable, minimize impacts through timing of work in CAGN-Habitat to avoid the nesting season and conduct CAGN-Habitat removal prior to the initiation of the breeding season (February 15 through August 15).
- f. If work is scheduled during the coastal California gnatcatcher breeding season, and within suitable CAGN-Habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no active coastal California gnatcatcher nests are present within 300 feet of the Covered Activities.

- g. If an active coastal California gnatcatcher nest is observed, no Covered Activities shall be implemented within 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.
- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- i. Direct take of individuals and destruction of active nests are not allowed.

92. Light-footed Ridgway's Rail (*Rallus obsoletus levipes*)

- a. Impacts from Covered Activities where there is a potential for the light-footed Ridgway's rail to occur (LFRR-Habitat) shall be avoided through project design considerations, to the extent feasible.
- b. If impacts to LFRR-Habitat cannot be avoided, a Biologist shall survey LFRR-Habitat that has the potential to be impacted by Covered Activities using appropriate survey techniques to determine species presence. If project timing does not allow for surveys, it shall be assumed that all LFRR-Habitat to be impacted is occupied.
- c. If surveys determine that LFRR-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within LFRR-Habitat.
- d. If surveys determine LFRR-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied LFRR-Habitat shall be mitigated per Section 5.5, Table 5.3b.
- e. Whenever practicable, minimize impacts through timing of work in LFRR-Habitat to avoid the nesting season for riparian avian species and conduct LFRR-Habitat removal prior to the initiation of the light-footed Ridgway's rail breeding season (March 1 through August 31).
- f. If work is scheduled during the light-footed Ridgway's rail breeding season and within LFRR-Habitat, a Biologist shall

conduct preconstruction nesting surveys to attempt to identify any active light-footed Ridgway's rail nests within 500 feet of the proposed Covered Activities.

- g. If nesting surveys indicate an active nest is likely or if an active nest is observed, no Covered Activities shall be conducted within 500 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.
- h. If light-footed Ridgway's rail individuals are present within the impact footprint at the time of construction, SDG&E shall halt work until the individuals have left the work area. The Biologist shall direct construction personnel to begin work in portions of the impact footprint farthest away from the light-footed Ridgway's rails. A Biologist shall be onsite during Covered Activities as needed to avoid impacts to individuals.
- i. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- j. Direct take of individuals and destruction of active nests are not allowed.
- k. For new projects, impacts to LFRR-habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

93. California Least Tern (*Sternula antillarum browni*)

- a. Permanent impacts from Covered Activities to California least tern nesting sites shall be avoided.
- b. Temporary impacts from Covered Activities to California least tern nesting sites shall be avoided through project design considerations, to the extent feasible.
- c. Work within 800 feet of California least tern nesting sites shall be scheduled during the non-breeding season (i.e., September 15 through March 31) to the maximum extent possible. If work is scheduled to occur during the breeding season, no Covered Activities shall be implemented within 800 feet of the nesting site. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by a

California least tern Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures and/or biological monitoring approved by USFWS. Specific buffer requirements may be reduced with approval by USFWS on a project-by-project basis as appropriate.

- d. To the extent feasible, new linear Facilities within 800 feet of California least tern nesting sites shall be placed underground. If overhead structures (poles) are necessary, SDG&E shall explore engineering designs, including perch deterrents or other equipment that shall reduce the available perch location for potential avian predators.
- e. For existing linear Facilities within 800 feet of California least tern nesting sites (power poles and lines immediately west of San Elijo Lagoon nest site) or other known predator perches (power pole north and east of Batiquitos Lagoon nest sites W-2 and W-1, power poles and lines along the Silver Strand between Coronado and Imperial Beach), SDG&E shall explore perch deterrents or other equipment that shall reduce the available perch locations for potential avian predators. SDG&E may also contribute to a predator management fund, or directly support predator management at individual California least tern nesting sites, in coordination with USFWS. Nothing herein shall preclude SDG&E from undergrounding Facilities as it determines appropriate.
- f. To control the spread of weeds that may degrade California least tern nesting sites, all earth-moving construction equipment shall be thoroughly power-washed before working within 200 feet of California least tern nesting sites.
- g. Any stockpiled soils within 200 feet of California least tern nesting sites shall be covered with plastic or other material and the edges shall be held in place by sandbags at the end of each workday.
- h. Temporary impact areas within California least tern nesting sites shall be re-contoured to mimic the natural landscape.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.

94. Least Bell's Vireo (*Vireo bellii pusillus*)

- a. Impacts from Covered Activities where there is a potential for least Bell's vireo to occur, or in designated critical habitat with PBFs (LBVI-Habitat), shall be avoided through project design considerations, to the extent feasible. PBFs include riparian woodland vegetation that generally contains both canopy and shrub layers, and includes some associated upland habitats.

- b. If impacts to LBVI-Habitat cannot be avoided, a Biologist shall survey LBVI-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all LBVI-Habitat to be impacted is occupied.
- c. If surveys determine that LBVI-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within LBVI-Habitat.
- d. If surveys determine LBVI-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied LBVI-Habitat shall be mitigated per Section 5.5, Table 5.3b.
- e. Whenever practicable, minimize impacts through timing of work in riparian areas where there is a potential for the least Bell's vireo to occur (LBVI-Habitat) to avoid the nesting season for riparian avian species and conduct LBVI-Habitat removal prior to the initiation of the riparian avian breeding season (March 15 through September 15).
- f. If work is scheduled during the riparian avian breeding season, and within suitable LBVI-Habitat, a Biologist shall conduct a preconstruction nesting survey to ensure that no active least Bell's vireo nests are present within 300 feet of the Covered Activities.
- g. If an active least Bell's vireo nest is observed, no Covered Activities shall be implemented within 300 feet of the nest. Work within nest buffers may not resume until the young fledge and disperse, or the nest has been determined to fail by the Biologist. In the event that the buffer criteria cannot be achieved, SDG&E shall develop alternative measures approved by USFWS. Specific buffer requirements may be reduced with approval of USFWS on a project-by-project basis as appropriate.
- h. When an active nest is present, a Biologist shall be onsite during Covered Activities as needed to avoid and minimize the potential for impacts to individuals.
- i. Direct take of nesting individuals and destruction of active nests are not allowed.

95. Stephens' Kangaroo Rat (*Dipodomys stephensi*)

- a. Impacts from Covered Activities where there is a potential for Stephens' kangaroo rat to occur (SKR-Habitat) shall be avoided to the maximum extent possible. Laydown/staging areas shall not be sited in SKR-Habitat.
- b. If impacts to SKR-Habitat cannot be avoided, a Biologist shall survey SKR-Habitat that has the potential to be impacted by Covered Activities following current USFWS protocols to determine species presence. If project timing does not allow for surveys, it shall be assumed that all SKR-Habitat to be impacted is occupied.
- c. If surveys determine that SKR-Habitat is occupied (or assumed occupied due to lack of survey), temporary, permanent and Wildfire Fuels Management impacts that cannot be avoided shall be mitigated in kind per the mitigation ratios in Table 5.4, through land acquisition as described in Section 5.5.2.1, with the assumption that impacted habitat contains trace, low, medium, or high density occupancy of SKR, and that the mitigation land will support high density occupancy of SKR. This mitigation shall be approved by USFWS and CDFW prior to Covered Activities occurring within suitable SKR-Habitat.
- d. If surveys determine SKR-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied SKR-Habitat shall be mitigated per Section 5.5, Table 5.3a.
- e. Temporary impact areas within SKR -Habitat shall be re-contoured to mimic the natural landscape when feasible. SDG&E shall determine the approach to re-contouring in consultation with the Stephens' Kangaroo Rat Biologist and the approach shall be described in the PSR.
- f. Nighttime construction shall be avoided in and/or adjacent to occupied SKR-Habitat. If critical work during nighttime hours is necessary, a biological monitor shall conduct a clearance survey of the access road and all work areas within 500 feet of occupied SKR-Habitat year-round.
- g. SDG&E vehicles shall remain on existing access roads in SKR-Habitat to the maximum extent practicable. See also OP 2 (speed limits).
- h. Access route(s) shall be clearly marked with pin flags or similar flagging, which shall be followed by the vehicle driver. Vehicles shall proceed into the work site along the marked and designated overland travel route and back out along the same route.

- i. In locations where overland travel is necessary for pole replacement, the pole replacements in SKR-Habitat shall be conducted with the use of a helicopter, if possible. A helicopter shall be used to set the new pole in the pole hole as well as to string in the new conductor.
- j. To distribute vehicle weight, plywood boards or alternate material as approved by the Biologist may be used to cover burrows within overland travel routes and work areas through SKR-Habitat.
- k. All work within SKR-Habitat shall occur during dry conditions when soil is not wet nor following a significant rainfall event.
- l. Except in emergencies, Covered Activities shall not occur off existing access roads when the soil is saturated or after significant rainfall events, as Stephens' kangaroo rat burrows may be more susceptible to collapse and impacts from vehicular traffic.
- m. Berms shall not be impacted within SKR-Habitat.
- n. SDG&E shall retain a Stephens' kangaroo rat Biologist¹⁷ approved by USFWS and CDFW to review and monitor Covered Activities that result in ground disturbance or vegetation clearing within SKR-Habitat. SDG&E shall submit the proposed Stephens' kangaroo rat Biologist's resume to USFWS and CDFW for approval at least 30 days prior to initiation of Covered Activities within SKR-Habitat. The approved Stephens' kangaroo rat Biologist shall conduct the following activities:
 - i. At least 10 days prior to initiating maintenance work within SKR-Habitat, coordinate with USFWS on the implementation of the measures to minimize impacts to Stephens' kangaroo rat.
 - ii. Shall provide a tailgate briefing of the specific biological constraints required during Covered Activities to avoid and minimize impacts to Stephens' kangaroo rat.
 - iii. Prior to ground disturbance or vegetation clearing within SKR-Habitat, conduct a survey to identify all potential Stephens' kangaroo rat burrows within and surrounding the project footprint and mark each one with a pin flag for avoidance.
 - iv. Prior to ground disturbance or vegetation clearing within SKR-Habitat, evaluate all project areas in SKR-Habitat to

¹⁷ The Stephens' kangaroo rat Biologist must have completed at least 40 calendar nights performing small mammal live-trapping surveys and must have handled at least 40 individual Stephens' kangaroo rat. The Stephens' kangaroo rat Biologist must also have experience using exclusion fencing to salvage and exclude small mammals from construction work areas, and/or experience performing small mammal translocations in the wild. If work is occurring on MCBCP, then the Biologist must also be approved by MCBCP.

determine the best available access routes, which shall avoid or minimize disturbance to occupied SKR-Habitat and lead from the nearest dirt access road or route into the project area.

- v. Based on the survey findings, the Stephens' kangaroo rat Biologist may recommend the erection of exclusion fencing and salvage trapping for Stephens' kangaroo rat within discrete work areas (e.g., at drainage improvement work areas and where vegetation will be uprooted) where significant soil disturbance is proposed. Otherwise, the Stephens' kangaroo rat Biologist shall walk a safe distance in front of vegetation trimming personnel, equipment, and any other grading implements or project-related Covered Activities to assist crews in avoiding impacts to burrows potentially occupied by Stephens' kangaroo rat. The Stephens' kangaroo rat Biologist shall have stop-work authority to avoid unauthorized impacts to suitable SKR-Habitat.
- vi. When there is potential for direct impacts to Stephens' kangaroo rat from soil disturbance and the Stephens' kangaroo rat Biologist determines that exclusion fencing is warranted, the fencing design and location shall be reviewed and approved by USFWS to ensure that the fencing is of an appropriate height and is appropriately placed; the bottom of the fence is buried at least 12 inches below ground; and it is constructed in a manner that prevents Stephens' kangaroo rat from digging, crawling, or hopping under or over the fence. All fencing shall remain in place during soil-disturbing Covered Activities and it shall be removed under the direction of the Stephens' kangaroo rat Biologist.
- vii. For applicable work areas where the erection of exclusion fencing is warranted, the Stephens' kangaroo rat Biologist shall also determine the need to conduct salvage trapping to remove Stephens' kangaroo rat from work areas. A final determination regarding the locations and plans for exclusion trapping shall be made by the Stephens' kangaroo rat Biologist in consultation with USFWS and CDFW, and the Stephens' kangaroo rat Biologist shall submit to USFWS and CDFW for review and approval, a detailed Stephens' kangaroo rat trap and release plan prior to any impacts to SKR-Habitat. Trapping of Stephens' kangaroo rat shall be conducted immediately preceding construction so as to minimize the likelihood that Stephens' kangaroo rats have an opportunity to re-inhabit the

disturbance footprint. Trapping shall be conducted for at least 5 nights, with at least 2 consecutive nights of negative results at the end of the trapping session before construction begins. Should exclusion fencing be compromised in such a way that Stephens' kangaroo rat could enter the site during construction, repeat trapping may be conducted at the discretion of the Stephens' kangaroo rat Biologist.

- viii. All Stephens' kangaroo rat individuals captured for removal from work areas shall be released into adjacent habitat.
- ix. Biological monitoring reports shall be provided to USFWS and CDFW reporting the results of any Stephens' kangaroo rat trapping and salvage efforts. Reports shall be provided upon initiation of efforts, when there is a change in circumstance that affects Stephens' kangaroo rat, and at completion of construction.
- x. Check the integrity of all excavation unit covers, soil stockpile tarps, exclusion fencing, and any additional measures meant to exclude the Stephens' kangaroo rat each morning before the start of work and each evening at the culmination of each workday in suitable SKR-Habitat.
- xi. Each morning prior to commencement of work, check all equipment in suitable SKR-Habitat underneath and inside wheel wells for wildlife. Any Stephens' kangaroo rat or other animals encountered shall be removed and released in adjacent open habitat away from construction zones.
- o. For pole replacement work in SKR-Habitat, the first 12 inches of the pole hole shall be dug by hand, when practicable.
- p. Any excavation (i.e., pole holes, trenches, fence posts) in SKR-Habitat shall be done in accordance with the following measures:
 - i. Excavations shall be backfilled with the excavated native soil or covered each day at the completion of work. Excavations shall be covered using rigid boards or plates, which shall then be covered by a sheet of thick plastic sheeting, the edge of which shall be buried by dirt from the excavation or by gravel/sand bags to prevent or minimize intrusion by rodents or ground-dwelling animals.
 - ii. Open holes shall be fitted with a ¼-inch hardware cloth "net" located approximately 24 inches below the top of the hole to capture Stephens' kangaroo rat. The use of Sonotubes (i.e., round, concrete forming tubes) in lieu of

hardware cloth nets may also be used to restrict wildlife from falling into open holes. Development and utilization of alternate techniques are acceptable with review and approval by USFWS and CDFW.

- iii. Excavations shall be checked twice daily (morning and afternoon) to verify no Stephens' kangaroo rat individuals are in the hole or on the net. The number of daily checks may be reduced with approval by USFWS and CDFW. Any Stephens' kangaroo rat present on the net shall be removed and released into surface burrows in the immediate vicinity of the excavation.
- iv. Any potential kangaroo rat burrows (note: gopher burrows are very similar in size to Stephens' kangaroo rat burrows) intersected by the dug holes shall be plugged to prevent or discourage access to the inner edge of the pole hole by rodents. Burrows shall be plugged with a circular cut piece of 2-by-4 slightly larger than the diameter of the burrow and secured in place with a rubber mallet.
- q. To reduce the potential for direct impacts to Stephens' kangaroo rat, SDG&E access roads within SKR-Habitat shall be maintained by mowing or weed whacking with hand tools where this maintenance method is practicable and successful in maintaining reliable SDG&E vehicle and equipment access to SDG&E Facilities at all times.
- r. For new projects, impacts to Stephens' kangaroo rat and SKR-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

96. Peninsular Bighorn Sheep (*Ovis canadensis nelsoni*)

- a. Species-Specific Protocols for peninsular bighorn sheep are provided in Appendix C.

97. Pacific Pocket Mouse (*Perognathus longimembris pacificus*)

- a. Impacts from Covered Activities to Pacific pocket mouse habitat (PPM-Habitat) shall be avoided through project design considerations, to the maximum extent practicable. PPM-Habitat is defined as Mapped Areas by the MCBCP in coordination with USFWS, and any other occupied areas found outside of MCBCP in the future. Mapped Areas of suitable habitat that comprise PPM-Habitat do not include areas of hardscape (i.e., concrete pads, paved roads, Facilities), existing and maintained access roads, and established work areas

associated with SDG&E Facilities. If MCBCP or USFWS provides SDG&E with updated information on Pacific pocket mouse populations, SDG&E shall coordinate, as needed, with MCBCP and USFWS to incorporate the updated information on Pacific pocket mouse populations into PPM-Habitat, including potential expansion or contractions of the PPM-Habitat. For areas outside of MCBCP that are within approximately 2.5 miles of the coast in habitats with fine-grained sandy substrate, including coastal dunes, coastal strands, riverside alluvium, and eroding sandstone, SDG&E shall coordinate with the USFWS to determine if habitat assessments and/or surveys for Pacific pocket mouse are needed. PPM-Habitat shall also be updated to include any additional Pacific pocket mouse populations found outside MCBCP.

- b. Permanent impacts to PPM-Habitat that cannot be avoided shall be mitigated by a one-time in-lieu-fee payment of \$592,950. This in-lieu-fee payment must occur prior to Covered Activities within PPM Habitat and shall be used to fund actions approved by the USFWS to mitigate unavoidable permanent impacts to PPM-Habitat. SDG&E shall provide funds to an in-lieu-fee sponsor, acting on behalf of SDG&E and approved by the Service, for the conservation and recovery of Pacific pocket mouse.
- c. Temporary impact areas within PPM-Habitat shall be re-contoured to mimic the natural landscape when feasible. SDG&E shall determine the approach to re-contouring in consultation with the Pacific pocket mouse Biologist and the approach shall be described in the PSR.
- d. Ground disturbance or vegetation clearing Covered Activities in PPM-Habitat shall be avoided to the maximum extent possible. Laydown/staging areas shall not be sited in PPM-Habitat.
- e. Ground disturbance or vegetation clearing Covered Activities in PPM-Habitat shall be initiated when Pacific pocket mouse are active (April 15 through September 15). If ground disturbance or vegetation clearing Covered Activities cannot be initiated within this period, SDG&E shall coordinate with MCBCP Environmental Security and USFWS to determine if additional conservation measures are necessary.¹⁸ Work during this period shall not be initiated until approved by MCBCP and USFWS.
- f. Nighttime construction shall be avoided in and/or adjacent to occupied PPM-Habitat. If critical work during nighttime hours is necessary, a biological monitor shall conduct a clearance survey

¹⁸ Should Pacific pocket mouse occur outside of MCBCP in the future, then SDG&E will coordinate directly with USFWS.

of the access road and work areas within 500 feet of occupied PPM-Habitat year-round.

- g. Berms along the sides of access roads shall not be impacted within PPM-Habitat. All vehicles shall remain within the road prism during vegetation clearing and routine road maintenance. Overhanging vegetation on the berms shall be trimmed using hand tools and Pacific pocket mouse burrows shall be avoided.
- h. SDG&E vehicles shall remain on existing access roads in PPM-Habitat to the maximum extent practicable. See also OP 2 (speed limits).
- i. Access route(s), including footpaths, shall be clearly marked with pin flags or similar flagging, which shall be followed by the vehicle driver. Vehicles shall proceed into the work site along the designated overland travel route and back out along the same route.
- j. To distribute vehicle weight, plywood boards or alternate material as approved by the Biologist may be used to cover burrows within overland travel routes and work areas through PPM-Habitat.
- k. For pole replacement work in PPM-Habitat, the first 12 inches of the pole hole shall be dug by hand, when practicable.
- l. For ground disturbance or vegetation clearing occurring within PPM-Habitat, spoil piles left overnight shall be covered with tarps or plastic with the edges sealed with sandbags, bricks, or 2-by-4s to prevent Pacific pocket mouse from burrowing. Excavations shall be backfilled with the native soil or covered each day with material (e.g., plywood or solid metal grates with the edges sealed with sandbags, bricks, or 2-by-4s) that is sufficient to prevent Pacific pocket mouse from falling into excavations.
- m. Any potential Pacific pocket mouse burrows intersected by the dug holes shall be plugged with a circular cut piece of 2-by-4 slightly larger than the diameter of the burrow and secured in place with a rubber mallet, to prevent or discourage access to the inner edge of the pole hole.
- n. To reduce the potential for direct impacts to Pacific pocket mouse, SDG&E access roads within PPM-Habitat shall be maintained by mowing or weed whacking with hand tools where this maintenance method is practicable and successful in maintaining reliable SDG&E vehicle and equipment access to SDG&E Facilities at all times.
- o. All work within PPM-Habitat shall occur during dry conditions when soil is not wet and susceptible to compaction from high

moisture content. Because soil compaction potential is greatest when soil moisture is at or exceeds field capacity, as a general rule of thumb, work shall be avoided in wet soil conditions and within 72 hours of 0.5 inch of rainfall, unless someone familiar with soil texture analysis has probed the soil in the work areas and determined it to be sufficiently dry to support Covered Activities without an increased risk of soil compaction.

- p. SDG&E shall retain a Pacific pocket mouse Biologist¹⁹ approved by USFWS to review and monitor ground disturbance or vegetation clearing within PPM-Habitat. SDG&E shall submit resumes of qualified Pacific pocket mouse Biologists annually to USFWS, for approval prior to initiation of ground disturbance or vegetation clearing within PPM-Habitat. USFWS-approved Pacific pocket mouse Biologist shall be approved by MCBCP Environmental Security at least 15 days prior to the initiation of ground disturbance or vegetation clearing within PPM-Habitat. The Pacific pocket mouse Biologist shall be provided with a copy of this consultation. The Pacific pocket mouse Biologist shall be available during preconstruction and construction phases to address protection of sensitive biological resources, monitor ongoing work, and maintain communications with construction personnel to facilitate the appropriate and lawful management of issues relating to biological resources. The Pacific pocket mouse Biologist shall report any non-compliance issues to the SDG&E or contractor crew foreman/supervisor such that work can be halted if necessary and discussed with USFWS to ensure the proper implementation of species and habitat protection measures. SDG&E shall report all non-compliance issues to USFWS within 1 business day of being informed of the incident. The Pacific pocket mouse Biologist shall conduct the following activities that shall be addressed ahead of time in the PSR and approved by SDG&E:
 - i. At least 10 days prior to initiating ground disturbance or vegetation clearing within PPM-Habitat, the Pacific pocket mouse Biologist shall coordinate with MCBCP Environmental Security and USFWS on the implementation of the measures to minimize impacts to Pacific pocket mouse.

¹⁹ The Pacific pocket mouse Biologist will have completed at least 40 calendar nights performing small mammal live-trapping surveys, and will have handled at least 40 individual Pacific pocket mouse or individuals from another subspecies of *Perognathus longimembris*. The Pacific pocket mouse Biologist must also have experience using exclusion fencing to salvage and exclude small mammals from construction work areas, and/or experience performing small mammal translocations in the wild.

- ii. Provide a tailgate briefing of the specific biological constraints required during Covered Activities to avoid and minimize impacts to Pacific pocket mouse.
- iii. Prior to ground disturbance or vegetation clearing within PPM-Habitat, the approved Pacific pocket mouse Biologist shall conduct a survey to identify all potential Pacific pocket mouse burrows within and surrounding the project footprint and mark each one with a pin flag for avoidance.
- iv. Prior to ground disturbance or vegetation clearing within PPM-Habitat, evaluate all project areas in habitat to determine the best available access routes that shall avoid or minimize disturbance to PPM-Habitat. Based on the survey findings, the Pacific pocket mouse Biologist may recommend the erection of exclusion fencing and salvage trapping for Pacific pocket mouse within discrete work areas where significant soil disturbance is proposed. Otherwise, the Pacific pocket mouse Biologist shall walk a safe distance in front of vegetation trimming personnel, equipment, and any other grading implements or project-related Covered Activities to assist crews in avoiding impacts to burrows potentially occupied by Pacific pocket mouse. The Pacific pocket mouse Biologist shall have stop-work authority to avoid unauthorized impacts to PPM-Habitat.
- v. When there is potential for direct impacts to Pacific pocket mouse from ground disturbance or vegetation clearing and the Pacific pocket mouse Biologist determines that exclusion fencing is warranted, the fencing design and location shall be reviewed and approved by USFWS to ensure that the fencing is of an appropriate height and is appropriately placed; the bottom of the fence is buried 6–12 inches below ground; and it is constructed in a manner that prevents Pacific pocket mouse from digging, crawling, or hopping under or over the fence. All fencing shall remain in place during ground disturbance or vegetation clearing Covered Activities, and it shall be removed under the direction of the Pacific pocket mouse Biologist.
- vi. For applicable work areas where the Pacific pocket mouse Biologist determines that the erection of exclusion fencing is warranted, the Pacific pocket mouse Biologist shall also determine the need to conduct salvage trapping to remove Pacific pocket mouse from work areas where there is a potential for direct impacts to Pacific pocket mouse. A final determination regarding the locations and plans for

exclusion trapping shall be made by SDG&E and the Pacific pocket mouse Biologist in consultation with USFWS. SDG&E shall submit these plans in the PSR submittal to USFWS for review and approval including, if applicable, a detailed Pacific pocket mouse trap and release plan prior to any impacts to occupied PPM-Habitat. Trapping of Pacific pocket mouse shall be conducted immediately preceding construction so as to minimize the likelihood that Pacific pocket mice have an opportunity to re-inhabit the disturbance footprint. Trapping shall be conducted for at least 5 nights, with at least 2 consecutive nights of negative results at the end of the trapping session before construction begins.

- vii. Each morning prior to commencement of work, check underneath all equipment for wildlife. Any Pacific pocket mouse or other animals encountered shall be removed and released in adjacent open habitat away from construction.
 - viii. Check the integrity of all excavation unit covers, soil stockpile tarps, and any additional measures meant to exclude the Pacific pocket mouse each morning before the start of work and each evening at the culmination of each workday in PPM-Habitat.
 - ix. Pacific pocket mouse captured from work areas shall either be donated to a pocket mouse captive breeding program, if one is in place, or released by the Pacific pocket mouse Biologist in consultation with USFWS.
 - x. Biological monitoring reports shall be provided to USFWS reporting the results of any Pacific pocket mouse trapping and salvage efforts. Reports shall be provided upon initiation of efforts, when there is a change in circumstance that affects Pacific pocket mouse, and at completion of construction.
- q. For new projects, impacts to Pacific pocket mouse and PPM-Habitat shall only be covered through the Minor Amendment process as discussed in Section 6.5.1.2, including acquiring Mitigation Credits as discussed in Section 5.5.

98. Western Spadefoot (*Spea hammondi*)

- a. Impacts from Covered Activities where there is a potential for western spadefoot to occur (Spadefoot-Habitat) shall be avoided through project design considerations, to the extent feasible. Spadefoot-Habitat includes:

- i. Permanent and temporary wetlands (that maintain water for at least 30 days), both natural and altered, including vernal pools, ephemeral streams, artificial ponds, livestock ponds, sedimentation and flood control ponds, irrigation and roadside ditches, roadside puddles, tire ruts, and borrow pits that are suitable for breeding;
 - ii. Adjacent uplands (including coastal sage scrub, oak woodlands, chaparral, and grasslands) up to 1,500 feet from breeding habitat that allow for movement to breeding habitat, foraging areas and overwintering sites.
- b. If impacts to Spadefoot-Habitat cannot be avoided, a qualified western spadefoot Biologist²⁰ shall survey Spadefoot-Habitat that has the potential to be impacted by Covered Activities using appropriate survey techniques to determine species presence. If project timing does not allow for surveys, it shall be assumed that all Spadefoot-Habitat to be impacted is occupied.
- c. If surveys determine that Spadefoot-Habitat is occupied (or assumed occupied due to lack of survey), permanent impacts that cannot be avoided shall be mitigated in kind with occupied habitat or habitat that will benefit the species per the mitigation ratios in Table 5.4 or Table 5.5 if in vernal pools, or through other alternatives in Section 5.5 agreed to by USFWS. This mitigation shall be approved prior to Covered Activities occurring within Spadefoot-Habitat.
- d. If surveys determine Spadefoot-Habitat is not occupied, Covered Activities and impacts shall be allowed. Impacts to unoccupied Spadefoot-Habitat shall be mitigated per Section 5.5, Table 5.3a and 5.3b, or Table 5.5 if in vernal pools.
- e. When work shall occur within or adjacent to Spadefoot-Habitat, timing of Covered Activities shall be evaluated to ensure minimization of impacts to western spadefoot. A qualified Biologist shall provide recommendations to avoid and minimize impacts to this species. Recommendations shall be included in the PSR for USFWS review. Measures that may be implemented include, but are not limited to, the following:
 - i. A Biologist shall be present during construction as needed in order to avoid impacts to western spadefoot.
 - ii. A Biologist shall lead a worker environmental awareness training for crews and conduct a sweep of the work area

²⁰ A qualified western spadefoot Biologist will be approved by USFWS and must be able to identify the species visually and vocally and should have experience in handling and translocating western spadefoot. In addition, the Biologist should be familiar with all life stages and habitat of the western spadefoot.

prior to the beginning of work each day, as needed. If western spadefoot individuals are found, the individuals shall be relocated by a Biologist out of harm's way.

- iii. A Biologist shall guide the crews to select an appropriate area for equipment and material staging that specifically excludes or minimizes any areas with the high potential for western spadefoot to occur.
- iv. A Biologist shall escort construction vehicles along an overland travel route that minimizes potential impacts to sensitive species.
- v. Covered Activities shall be designed to avoid or minimize the placement of equipment or personnel within breeding habitat. A qualified Biologist shall be present during construction within suitable habitat in order to avoid impacts, including to western spadefoot.
- vi. Covered Activities within uplands that may support western spadefoot shall take place to the extent feasible from approximately December 1 through June 30 (depending upon seasonal rains) when practicable during the western spadefoot breeding season when the species is typically more active and closer to breeding habitat.
- vii. Covered Activities within wetlands that may support western spadefoot breeding shall take place from approximately July 1 through November 30 when practicable to avoid the western spadefoot breeding season. When practicable, Covered Activities shall be timed so that work within pools or ponds is conducted when they are dry (and no recent metamorphs/toadlets are present in cracked soil).
- viii. Where feasible, prior to clearing, grubbing, and construction, western spadefoot exclusionary fencing shall be installed around the perimeter of all work areas within potential western spadefoot breeding and non-breeding habitat (up to 1,500 feet away from breeding habitat) as determined by a qualified western spadefoot Biologist and USFWS. The fence shall consist of woven nylon fabric or similar material at least 2 feet high, and the lower 1 foot of material shall stretch outward along the ground and be secured with a continuous line of sandbags to prevent soil disturbance and burrowing beneath the fence. Doubling this line (i.e., stacking sand or gravel bags two-deep) may reduce maintenance and should be considered to improve the integrity of the fencing. Decisions on the appropriate

fencing installation method for a given reach shall be made by the qualified western spadefoot Biologist. All fencing shall be removed following completion of all project-related Covered Activities. Ingress and egress of equipment and personnel shall use a single access point to the site, which shall be as narrow as possible and closed off by exclusionary fence when personnel are not on the work site.

- ix. Prior to vegetation grubbing or construction, but after exclusionary fence has been installed around the impact footprint, at least three surveys for western spadefoot of any life stage shall be conducted within the fenced area by a qualified Biologist knowledgeable of western spadefoot biology and ecology. Surveys shall be conducted during the appropriate climatic conditions during the appropriate time of day or night to maximize the likelihood of encountering western spadefoot. If western spadefoot of any life stages or clutches are found within the project area, they shall be captured and translocated, by the Biologist, to the closest area of suitable habitat. Before each workday begins, the qualified Biologist shall also check to see if western spadefoot have entered the impact footprint. If western spadefoot are found within the impact footprint, the individuals shall be moved outside of the impact footprint, if suitable habitat exists, or out of harm's way.
- x. The qualified Biologist shall be present each morning before construction begins to inspect all western spadefoot exclusionary fencing for damage or holes, conduct a sweep of the work area for western spadefoot, inspect any covered stockpiles for gaps or sign that western spadefoot individuals have accessed the soils underneath and shall be present when these covers are removed. The qualified Biologist shall relocate any western spadefoot found to suitable habitat adjacent to the construction site but at least 200 feet away.
- xi. Nighttime construction shall be avoided in and/or adjacent to occupied Spadefoot-Habitat. If critical work during nighttime hours within the breeding season is necessary, a biological monitor shall conduct a clearance survey of the access road and work areas within 500 feet of occupied breeding habitat with water present or recently present in breeding pools.

- xii. In areas with the potential for western spadefoot, stockpiled soils shall be covered with plastic or other material at the end of each workday. Any covered stockpile edges shall be held in place by sandbag, fabric-wrapped wattles, or hydromulch at soil storage sites to avoid creating an attractive nuisance.
- xiii. Holes or trenches created by Covered Activities that have the potential to trap western spadefoot shall be covered with cover plates or other materials at the end of each workday. Holes or trenches that are covered shall have the edges sealed with sandbags, bricks, or boards to prevent western spadefoot from becoming trapped in holes or trenches. The qualified Biologist shall inspect all holes and trenches (covered and uncovered) for the presence of western spadefoot prior to disturbance of soils or removal of cover plates. The qualified Biologist shall be present when the cover plates are removed and shall inspect and relocate any western spadefoot that may have entered the trench during the night to suitable habitat adjacent to the construction site but at least 200 feet away.

5.2 Habitat Restoration and Enhancement Measures

During the remaining term of this permit, Covered Activities may cause temporary impacts to habitat in the Plan Area that can be restored to their pre-activity condition. To mitigate these impacts, SDG&E will either withdraw Mitigation Credits or use the R/E Program detailed below. Withdrawing Mitigation Credits is an approach that may be used when impacts are not restored, which would include impacts that do not become part of the R/E Program or do not meet success standards and are removed from the R/E Program. These impacts will also be deducted from the HCP Amendment's 400 acres of authorized permanent impacts.

SDG&E may instead choose to use the R/E Program when onsite mitigation, or offsite mitigation at a location agreed to by USFWS, is anticipated to be more beneficial than withdrawing Mitigation Credits. In that case, acreages for impacts being mitigated through the R/E Program will be deducted from the 210 acres of authorized temporary impacts. Impacts successfully restored pursuant to the success standards detailed below will remain debited from the authorized temporary impacts but will not be deducted from the 400 acres of authorized permanent impacts or require any further mitigation. On the other hand, for impacts not restored according to the success standards detailed below, SDG&E will debit the acreage from the 400 acres of authorized permanent impacts and from SDG&E's mitigation accounts. In addition, SDG&E will credit back the acreage debited from the temporary impact cap. To illustrate this process, please see the mitigation flow diagram in Figure 8.

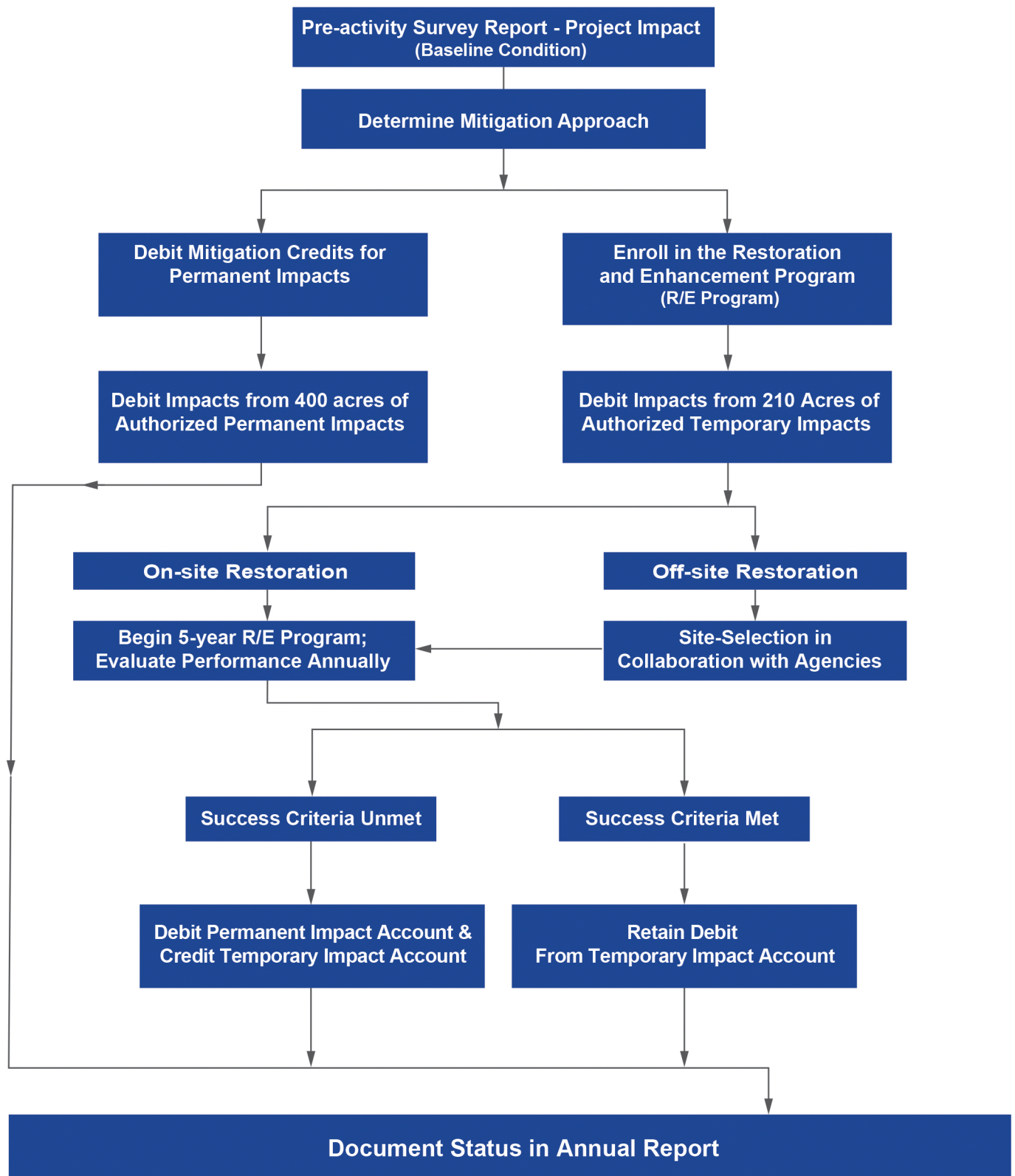


Figure 8. Mitigation Flow Chart

The remainder of this section details SDG&E's R/E Program for mitigating impacts to habitat.

5.2.1 Purpose

Habitat restoration and enhancement can increase the value of biological resources in an impact area, reduce the spread of invasive weed species, and reduce habitat fragmentation for Covered Species and other species that may benefit from habitat connectivity. The goal of the R/E Program is to sustain and, where possible, increase the habitat value of sensitive vegetation communities throughout SDG&E's Plan Area. To accomplish this goal, the R/E Program seeks to establish native vegetation that will continue to propagate, mature, and expand after maintenance and monitoring are complete.

5.2.2 Restoration and Enhancement Program Approach

Summary

The R/E Program is proposed primarily for mitigating temporary impacts but may also be used for mitigating permanent impacts in accordance with Section 5.5.3. It will be conducted under the direction of a habitat restoration specialist, as determined by SDG&E, employ one of three mitigation approaches described below, and last from 1 to 5 years for each site included for mitigation in the R/E Program.

Within the R/E Program, SDG&E will determine the appropriate mitigation approach for all impact areas, including which sites are placed into the R/E Program, which sites are removed from the R/E Program, and which restoration and enhancement methods are applied at each site. Sites selected for the offsite restoration will be decided in cooperation with, and with approval from, USFWS. SDG&E will provide R/E Program updates to agencies in the Annual Report.

Sites that meet the success standards will be documented in the Annual Report. Sites that do not (or are not expected to) meet final success standards within 5 years will be removed from the R/E Program. Sites removed from the R/E Program (or that do not become part of the R/E Program) will be stabilized according to the Operational Protocols described in Section 5.1 and will require Mitigation Credit withdrawal in accordance with Section 5.2.2.9 and at the ratios contained in Section 5.5. To illustrate this process, please see the mitigation flow diagram in Figure 8.

5.2.2.1 R/E Program Timeline

The R/E Program will last from 1 to 5 years; however, SDG&E may choose to continue to undertake R/E Covered Activities beyond that period. Likewise, SDG&E may demonstrate to USFWS that a selected site has achieved the R/E Program's success standards at R/E Program sites at any time during or after the R/E Program ends, with credits and debits from the permanent impact cap, Mitigation Credits, and/or temporary impact cap provided at a rate commensurate with the percent of Target Condition that has been achieved.

The R/E Program years will follow calendar years unless otherwise stated, with Year 1 being the first year of activity within the R/E Program. While dates of construction (i.e., the amount of time that has passed since the close of construction) will directly affect the condition of the site when it enters the R/E Program, these variations will not be included in the R/E Program timeline. Sites will be tracked only by the year of inclusion into the R/E Program. Maintenance, monitoring, and reporting, as described in the following sections, will occur annually for sites within the R/E Program.

5.2.2.2 *Selecting a Site-Specific Approach*

The R/E Program will mitigate impacts using one of three approaches: (1) restoration; (2) enhancement; or (3) offsite restoration. SDG&E will select the appropriate approaches for each site based on the specific needs of the site.

- **Restoration** includes planting, maintenance, and monitoring Covered Activities. Specifically, restoration of sites will include (i) adding native plant material through methods such as seed application or installation of plants salvaged from the impact area; (ii) undertaking R/E Program maintenance, such as weed control, decompaction, erosion control, and access control, to support site success; and (iii) conducting routine monitoring by a habitat restoration specialist at least annually. Restoration will typically be conducted on sites where native vegetation will not recover on its own within the 5-year R/E Program.
- **Enhancement** includes the same R/E Program maintenance and/or monitoring Covered Activities conducted on restoration sites but without the addition of native plant material. This may include eradicating invasive weed species populations in particular locations. Maintenance will be conducted to support recovery of native vegetation that is anticipated to recover on its own within the 5-year R/E Program.
- **Offsite restoration** includes the above habitat restoration methods at one or more offsite locations where goals of the R/E Program can be better served than by either implementing onsite restoration/enhancement or Mitigation Credit withdrawal. For example, SDG&E's standard O&M typically result in small temporary impacts. SDG&E will track temporary impact acreages by project but, rather than mitigate for each temporary impact individually, SDG&E in coordination with USFWS may instead choose to combine temporary impact acreages from multiple projects together and propose to mitigate those impacts on an annual basis through a single larger site. This provides SDG&E and USFWS the flexibility to choose locations where the offsite restoration/enhancement strategy can be applied in a more ecologically appropriate setting. Offsite restoration/enhancement locations will be selected on a case-by-case basis; budget will be determined by SDG&E and site selection will be established cooperatively between SDG&E and USFWS. Specific restoration methods and success standards will be consistent with the R/E Program approach described in this section.

The specific implementation, maintenance, and monitoring approach provided in subsequent sections applies primarily to restoration and enhancement sites being mitigated onsite as part of the standard R/E Program. How these practices are applied

to any offsite restoration/enhancement sites will be decided on a case-by-case basis by SDG&E in coordination with USFWS.

5.2.2.3 Site Selection

For purposes of the R/E Program, a site is defined as an area of contiguous temporary impact and a project may have multiple sites. SDG&E will select temporarily impacted areas for inclusion in the R/E Program on a case-by-case basis. In general, the minimum criterion for selection are sites within habitat where restoration and enhancement would be beneficial for increasing value of biological resources and providing habitat connectivity.

Small Sites (fewer than 1,000 square feet of contiguous temporary impacts)

The size of impacted sites is important because the ecological value of restoring and enhancing temporary impacts onsite increases as the size of the impact area increases. For sites less than 1,000 square feet, many relevant factors are assessed to determine whether to include the site in the R/E Program. These factors include, but are not limited to, quality of adjacent habitat, presence of nonnative species of concern in the service area, proximity to road edges, and individual landowner permissions.

Impacted sites less than 1,000 square feet may not be considered for the R/E Program if restoration and enhancement do not seem feasible or ecologically beneficial. Conversely, sites less than 1,000 square feet with high-quality habitat or sensitive species would likely be entered into the R/E Program. When not included in the R/E Program, sites will be stabilized and may be seeded with native seed mixes to help prevent the introduction and spread of invasive weed species in areas of high-quality native habitat.

Sites Subject to Ongoing Periodic Disturbance

There is the potential that some sites within the Plan Area may be subject to ongoing periodic disturbance by Covered Activities, including areas around electric transmission and distribution overhead Facilities, underground vaults, or gas Facilities.

Rather than include these sites in the R/E Program, SDG&E may choose to treat the site as a permanent impact. In that case, SDG&E will draw down Mitigation Credits and maintain the site for future use. Once the site has been categorized as a permanent impact, no further drawdown of Mitigation Credits, restoration, or enhancement shall be required if the same impact footprint is later impacted by a future Covered Activity. When not included in the R/E Program, sites will be stabilized and/or may be seeded with native seed mixes to help prevent the introduction and spread of invasive weed species in areas of high-quality native habitat.

Other Relevant Factors for Site Selection

Other factors that will be evaluated when selecting sites include the following:

- **Ecological Value:** Sites will be prioritized for inclusion when the value of restoring impacted areas is greatest and the overall goals of the R/E Program are best achieved. Examples of preferred sites include those adjacent to habitat for Covered Species, those adjacent or connected to riparian areas, and those that occur within developed areas with degraded sensitive habitat where enhancement and restoration have greatest opportunity to improve habitat value for Covered Species.
- **Land Ownership:** The type of ownership will be considered for each site that meets the criteria for inclusion in the R/E Program. For example, some private landowners might prefer not to have the R/E Program on their land, whereas public landowners may welcome these Covered Activities. SDG&E will select sites for the R/E Program where landowners are in support of these Covered Activities and will support long-term management to maintain the increased biological values obtained through SDG&E's efforts.
- **Types of Impact:** Types of impacts vary depending on the Covered Activity conducted at the site. Low impact Covered Activities include crushing and minor trimming of vegetation. Moderate impacts include grubbing and mowing of vegetation. High impact Covered Activities include grading (such as for road access) and cut and fill slopes. Preference for the R/E Program will be sites with low to moderate impacts where restoration success standards can be achieved within the timeline of the R/E Program.
- **Vegetation Communities:** Other factors that will be considered include site-specific conditions at each site, such as the specific effect on the vegetation community that was impacted. Some types of impacts do not decrease habitat quality or may increase function for certain species. In many cases, the shift (possible increase or decrease) in functionality is temporary and will recover without action taken. Further, vegetation communities recover at very different rates. For example, a nonnative grassland dominated by annual species will recover within one to two growing seasons, while a mature chaparral community may require 5 years (or more).

The potential for introduction and spread of invasive weed species will be considered for site selection, especially for temporary impacts in high-quality native habitat.

Sites where recovery can be achieved within the timeline of the R/E Program will be prioritized for the R/E Program. Nonetheless, SDG&E in coordination with USFWS may also lengthen the duration of the R/E Program or modify success standards for select R/E Projects where a particular vegetation community would not meet success during the standard 5-year timeframe. For example, SDG&E and USFWS may determine that eradicating a particular invasive weed species population in a particular location is more important than restoring a native vegetation community. In this case, the total area that the invasive weed occupies

would likely exceed the total restoration area requirement. A tailored solution for weed eradication may be appropriate for a modified success criterion; this approach would likely be financially feasible as well because the R/E Program budget is based on the estimated cost for restoring the original impact area, and conducting weed control Covered Activities costs less than conducting weed control and habitat restoration Covered Activities.

5.2.2.4 Establishing Target Condition and Success Standards for Sites

Target Condition

Once a site has been included in the R/E Program, a Target Condition will be determined for that site. The site's Target Condition is that which provides habitat value equivalent to that which was impacted, as defined by final success standards for a site. The Target Condition for each site will be based on (1) baseline condition as documented in the Pre-activity Survey or (2) an appropriate reference site if baseline conditions were not able to be documented before a site is impacted.

The Target Condition includes the preconstruction species composition and the percentage of native and nonnative cover at the site. When the Target Condition has been reached for a site, the amount of native species and cover is greater than or equal to the Target Condition and the amount of nonnative species and cover is less than or equal to the Target Condition. When SDG&E determines that the site has met the success standards articulated below, SDG&E may request USFWS review and approval. SDG&E will include the site in a list of sites meeting final success standards in the Annual Report for the Wildlife Agencies review and approval. See Section 5.2.3. Upon USFWS review and concurrence with SDG&E's determination as provided on the Annual Report, monitoring, restoration, or enhancement Covered Activities may be discontinued. At that time, the habitat management responsibilities would likely be assumed by the underlying owner or land manager.

Use of Baseline Condition

Using the site's baseline (pre-activity) condition as documented in the PSR is the preferred method of establishing a site's Target Condition. Where possible, the PSR should include vegetation species and cover data that can be used to establish success standards. Post-project monitoring, if determined necessary by SDG&E, should be conducted immediately after construction impacts have occurred to ensure the limits of impacts can clearly be identified.

Use of Reference Site

Reference sites will only be used if SDG&E is unable to collect pre-activity baseline condition data (e.g., emergency projects) or when rare plant population trends need to be monitored between more than one site. Reference sites will be of similar size to the impacted area and represent pre-activity conditions to the best extent possible (e.g., similar native and nonnative cover classes). One reference site can be used for multiple

R/E Program sites if appropriate. See Section 5.2.2.7 for additional details on monitoring methods.

Target Conditions will demonstrate native species composition and cover appropriate for the successional stage of the vegetation community being restored and nonnative species cover equal to or less than the baseline condition. This will be documented in the PSR, at an appropriate adjacent reference site if applicable, or as otherwise agreed to in advance by USFWS.

Success Standards

Established success standards provide a reliable metric for confirming that the site (1) has fully established an early successional stage suitable for that site, and (2) is on a trajectory to continue developing into a native climax community. Here, because the successional process may take 15 years or more to achieve, reaching the climax community is often outside the scope and timeline of the R/E Program. Accordingly, the R/E Program focuses on the first 3 to 5 years of establishment to provide a foundation for ecological succession to continue. This is consistent with the R/E Program's goal of establishing native vegetation that will continue to propagate, mature, and expand after maintenance and monitoring are complete.

Success standards for the site's physical condition and percent of Target Condition are provided in Table 5.1. These standards support the goal of the R/E Program, which is to reestablish a functioning native vegetation community that is self-sustaining in perpetuity. The final, 100% success standards can be achieved at any time within the 5-year R/E Program (e.g., if final success standards are met in Year 2, then the Target Condition has been achieved and no further Covered Activities may be required). If SDG&E demonstrates that the final success standards have been achieved beyond that 5-year window, it will receive appropriate credit at that time.

Table 5.1 Final Success Standards

R/E Program Approach	Physical Conditions	Percent of Target Condition (Baseline Condition or Reference Site)	
		Native Cover	Nonnative Cover
Restoration and Enhancement (onsite)	Restored and no significant erosion	Greater than or equal to Target Condition ^{1,2,3,4}	Less than or equal to Target Condition ^{1,2,5}
Offsite Restoration	As determined during agency coordination	As determined during agency coordination	As determined during agency coordination

¹ Values are relative to pre-activity condition or a reference site of the same size. The reference site should represent pre-activity condition to the extent possible and only be used when pre-activity data is not available.

² Percentages are calculated using the midpoint of each cover class. See Section 5.2.2.7, Monitoring.

³ Mitigation Credit and Impact Cap drawdown will be prorated for R/E Program sites with final native cover below 100% at a rate commensurate with the percent of Target Condition that has been achieved. Final review of R/E sites may be requested at any time during the R/E Program.

⁴ Suggested interim guidelines for native cover are ≥20% for Year 1, ≥35% for Year 2, ≥65% for Year 3, and ≥80% for Year 4.

⁵ Suggested interim guidelines for nonnative cover are ≤50% for Years 1–4. Nonnative plant species are those listed by the California Invasive Plant Council (Cal-IPC) as not native to California.

For purposes of monitoring project success (as provided in Section 5.2.2.7), native and nonnative cover is estimated using the method of foliar cover estimation. Foliar cover is defined as vertical projection of exposed leaf area onto the ground surface; it generally equals the percent of the site covered by shadow if the sun were directly overhead. Vegetation cover values are grouped into cover classes, as provided in Table 5.2. Cover classes are an effective way of estimating vegetation cover because they provide easily comparable information that meets project needs while normalizing for small variations in surveyor's perspective (i.e., the difference between 28% and 32%).

Table 5.2 Vegetation Cover Classes

Cover Class	1	2	3	4	5	6	7	8	9
% Cover	<1	1–5	5–10	10–15	15–25	25–35	35–50	50–75	>75

Specific success standards for native and nonnative cover will be calculated independently for each site using the final success standards provided in Table 5.1. Site-specific success standards are calculated based on reference condition, as provided by the Pre-activity Survey or a reference site. For example, if the Pre-activity Survey found native cover to be in cover class 6 (25% to 35%), then the final success standard for native cover at that site would be cover class 6 or higher. If the Pre-activity Survey found nonnative cover to be in cover class 7 (35% to 50%), then the final success standard for that site would be cover class 7 or lower. Additionally, where appropriate, USFWS has discretion to approve lower success criteria or deem that a site has been successfully restored.

For purposes of the R/E Program, nonnative species will be those determined by Cal-IPC as not native to California. SDG&E will coordinate with USFWS to determine a weed control approach for plant species listed as High on the Cal-IPC inventory, and any other weed species not ubiquitous throughout the service area, if that species occurs within and outside of a given site proposed for the R/E Program. Controlling the population within the entire area that these species occupy is the only way to stop their spread within the service area.

5.2.2.5 Implementation

SDG&E will select the implementation approach based on the needs of the site. That approach can be adjusted, as needed, throughout the duration of the R/E Program. SDG&E will select an approach based on available data, including, but not limited to, the baseline condition as provided in PSRs (as described in Section 5.1.3) and post-project monitoring observations (as needed). While SDG&E may discuss methodologies with USFWS, decisions about how best to achieve final success standards and the responsibility to do so will remain with SDG&E.

Restoration will typically be conducted on sites where native vegetation will not reestablish on its own within the 5-year R/E Program. Enhancement will be conducted on sites where native vegetation is anticipated to reestablish on its own but needs

support from maintenance to meet Target Conditions. If a site is expected to fully recover without restoration or enhancement, SDG&E will monitor it to verify that it has met Target Conditions. Sites that do not require restoration will skip the implementation phase and go directly to maintenance.

Once a site is selected for inclusion in the R/E Program, onsite restoration or onsite enhancement Covered Activities, if prescribed, should begin at that site as soon as feasible but would most likely occur between October and February in any given year. As detailed below, SDG&E's standard habitat restoration practice is to only use native seed, collected as close to the restoration site as possible, as determined by SDG&E's qualified restoration ecologist. Container plants may be used in some situations but are not preferred because they require irrigation and could unintentionally introduce soil pathogens. SDG&E will opportunistically salvage and replant native succulent species, which it will water once to settle soil around each individual's roots or pad/stem but will provide no additional watering.

When restoration is selected, native seed will be applied to sites at the appropriate time of year using state-of-the-art methodologies. Native species selected for application will be suitable for the vegetation community being restored and will be sourced from nearby locations when feasible. This method has proven successful for small and/or remote areas where supplemental irrigation is not feasible and has led to SDG&E's practice of only using locally collected native seed and eliminating the need to use the standard container planting and irrigation technique.

Application rates will be determined on a site-by-site basis as-needed to meet success standards. Seed viability testing will not be required, but viability will be considered for all seed applications when selecting seed and determining application rates. SDG&E has extensive knowledge and experience with seed purity and germination rates based on years of experience collecting, testing, and applying seed on company projects. Native seed will be applied by hand and raked into the soil in all cases except where another method is required to meet project goals. Other methods of seed application may include hydroseeding or imprinting but use of these methods will be rare due to the generally small size of sites. Hydroseed application may be used where it is required for purposes of site stabilization and erosion control; imprinting is usually best on very large sites. SDG&E does not use container plants, which eliminates the need for irrigation; however, salvaged native succulent species do receive one watering during the transplanting process.

Plant installation may be used where irrigation is not required, such as with cactus and succulent species. Plant installation will use material salvaged on or near the project site as appropriate.

Sites will be prepared for seed application by removing nonnative vegetation and associated biomass, as needed, to ensure proper seed-to-soil contact prior to seed application. Soil roughening and minor decompaction will be conducted using hand tools, as needed. Mechanical decompaction may be utilized but will be rare due to the

small size of sites. Access will be controlled using signage, artificial barriers, and vertical mulch obtained from native species.

Native seed mixes will contain species suitable for ecological succession at the site and dominant species found in the impacted vegetation community. Seed will be collected from the impact area and surrounding vegetation community or can be purchased if collection is not feasible. Supplemental application of seed during Years 1 through 5 will be conducted as part of annual maintenance and as determined necessary by the habitat restoration specialist.

5.2.2.6 Maintenance

Maintenance will be conducted as needed at sites in the R/E Program and will begin once implementation has been completed. The timing of maintenance and number of visits per year will vary based on the needs of each site, but, in general, maintenance will occur one to four times per year. The timing and need for maintenance will be guided by qualitative and quantitative monitoring (as described in Section 5.2.2.7), which includes assessments for nonnative plant species.

The most common type of maintenance that will be conducted is weed control. For the purposes of the R/E Program, the term “weed” refers to any plant species listed as not native to California by Cal-IPC. All weed species within R/E Program sites are subject to control efforts. SDG&E will coordinate with USFWS to determine a weed control approach for plant species listed as high on the Cal-IPC Inventory and any other weed species that is not ubiquitous throughout the service area.

Methods of weed control will be selected on a case-by-case basis to meet the needs and constraints of each site. Weed control methods may include herbicide application and/or manual removal. Herbicide will be applied in accordance with product labels and all local, state, and federal regulations, as discussed in and consistent with Section 2.2.5.2.

Another common type of maintenance that will be conducted is erosion control. Surface erosion often increases at sites where vegetation cover has been reduced. Common erosion control measures will include straw wattles and soil bag installation. For more severe cases, erosion control blanket installation or hydromulch application may be required. Erosion control products will be composed of fully biodegradable materials that can be left onsite at the end of the R/E Program. Erosion control methods will be selected by SDG&E on a case-by-case basis to meet the needs and constraints of each site and will be in compliance with SDG&E’s standard erosion control practices consistent with current industry standards, as described in Section 5.1.4.

Site access controls will be installed and maintained as needed at sites where unauthorized access is slowing native plant establishment or otherwise compromises project success. Installation of signage advising against unauthorized access can be a very effective control method in many cases; where signage is not effective, visible native plant debris and other material can be placed to form a physical barrier. In more

extreme cases, a physical barrier such as fence or posts with rope may be installed. Site access controls will be selected on a case-by-case basis by SDG&E to meet the needs and constraints of each site.

Where determined necessary by the habitat restoration specialist, native seed may be applied during Years 1 through 5 as part of maintenance where the restoration approach is being undertaken. In addition, other types of maintenance not described here may also be conducted at the discretion of the habitat restoration specialist. Maintenance will be conducted as needed to support project success and could exceed the number of site visits mentioned above. Maintenance is not required if the results of monitoring show that it is not necessary for a site.

5.2.2.7 Monitoring

This section describes qualitative and quantitative monitoring methods that will be utilized for sites in the R/E Program to evaluate the status, inform maintenance needs, and determine if the site is on track to meet the Target Condition.

Qualitative Monitoring

Routine qualitative monitoring by a habitat restoration specialist will be conducted for all sites in the R/E Program. Qualitative monitoring will be conducted at least twice per year with at least one visit during the peak growing season; additional monitoring will be conducted as needed with a maximum of four visits annually. Qualitative monitoring can be conducted concurrently with quantitative monitoring. Monitoring visits may be reduced in situations where monitoring negatively affects restoration.

The purpose of qualitative monitoring is to observe overall site condition and determine maintenance that may be needed at the site. Qualitative monitoring includes, but is not limited to, looking for native seed germination, determining ideal timing for weed treatment, verifying the efficacy of weed treatment, and monitoring for OHV activity and erosion-prone areas.

During qualitative monitoring, special attention will be paid to nonnative species present onsite to determine whether they are common in the area or may pose significant threat to the quality of the surrounding habitat. As a best management practice, the R/E Program will include treatment and/or removal of highly invasive nonnative species, especially perennial species rated as high or moderate threat by Cal-IPC.

Quantitative Monitoring

Quantitative performance monitoring will be conducted for all sites in the R/E Program to evaluate progress towards meeting Target Condition success standards. Quantitative monitoring will be conducted at least once for each site in the R/E Program or as needed each year to track progress of the site towards final success standards. Quantitative monitoring can be conducted concurrently with qualitative monitoring.

The purpose of quantitative performance monitoring is to determine whether a site has reached its Target Condition during each year of the R/E Program. Annual quantitative monitoring is not required but is a standard habitat restoration practice and therefore will be conducted annually unless not warranted; at a minimum, it will be conducted when the site condition appears to have reached the Target Condition. Once the site meets final success standards, it is considered complete within the R/E Program.

Quantitative monitoring will use a modified relevé method that records species composition and cover within the impacted areas; for consistency, the pre-activity baseline condition assessment will use this same method. The relevé will include, at a minimum, a species list, total native cover, total nonnative cover, and site photographs. Quantitative monitoring will be conducted during the peak growing season by a team of Biologists with habitat restoration experience. Vegetation cover will be recorded using the cover classes provided in Table 5.2.

5.2.2.8 Reporting

All maintenance and monitoring Covered Activities conducted at sites in the R/E Program will be tracked internally using a tracking database or other method, as selected by SDG&E. Tracking will include types of Covered Activities conducted, date of the activity, personnel conducting the activity, and general observations (where applicable). The results of quantitative monitoring will be retained along with data collected during the baseline condition assessment or established reference site, if applicable. Trends with native and nonnative cover will be included with all reporting on the R/E Program. A summary of R/E Program status including number of sites active in the R/E Program, number of sites completed, and total acreage as it pertains to impacts being mitigated onsite will be included with the Annual Report.

5.2.2.9 Mitigation Credit Calculation

At the discretion of SDG&E, final review of R/E sites may be requested at any time during the R/E Program, and the duration of the R/E Program may be extended as needed to meet final success. Partial Mitigation Credits will be awarded for R/E Program sites with native cover that does not meet final success standards. For these sites, Mitigation Credits will be calculated as a percent of Target Condition that has been achieved using the midpoints of each cover class. For example, if the native cover success standard for a site is cover class 6 (25% to 35%, midpoint 30%), but it has only achieved native cover class 5 (15% to 25%, midpoint 20%), then Mitigation Credits would be awarded at a rate of 20/30, or 67%.

The final success standards detailed above establish a sliding scale for accounting for permanent and temporary impacts. As shown in Table 5.1, for example, if an R/E site achieves an equal amount of native cover as compared to the Target Condition (100% at any time within the 5-year R/E Program), the impact will not count against the permanent impact cap or require deduction of Mitigation Credits. Mitigation Credits (and impact crediting) for R/E Program sites that achieve a final native cover below 100% of Target Condition will be prorated at a rate commensurate with the percent of Target

Condition that has been achieved. For example, if a 10-acre site achieved 90% of the Target Condition, 1 acre would be deducted from the permanent impact cap and 1 acre at the applicable mitigation ratio in accordance with Section 5.5 would be deducted from the Mitigation Credits. The other 9 acres would remain as a deduction in the temporary impact cap.

5.2.3 Completion of the Habitat R/E Program

A given site will be considered complete when it has reached its Target Condition, as measured by success standards described in Section 5.2.2.4. The R/E Program allows 5 years for each site to reach Target Condition, but a site can be completed at any point within these 5 years when it achieves the Target Condition and/or there is agency concurrence that a site is on trajectory to meet the Target Condition. Additionally, where appropriate, USFWS has discretion to approve lower success criteria or deem that a site has been successfully restored. A site that has achieved the above success standards or is otherwise determined by USFWS to have been successfully restored will remain debited from the 210 acres of authorized temporary impacts.

SDG&E will submit individual reports for each R/E site to the Wildlife Agencies for review and approval. SDG&E will provide a site visit prior to final approval if requested. Each agency will provide final written acceptance of completed sites each year, which will aid in tracking R/E Program site completions and record keeping of each site that has met its success standards and can be removed from the R/E Program. Sites requested for approval will be assumed complete unless otherwise notified by the agencies within 60 days of request submittal although SDG&E would prefer concurrence in writing. A summary of the sites meeting final success standards that were signed off by the Wildlife Agencies during the year will be provided annually as part of the Annual Report.

Restoration status for sites being restored offsite using the adaptive approach will be summarized in the Annual Report as stated above, but sites may have additional reporting associated with them. Specific reporting for offsite restoration conducted as part of the R/E Program will be determined on a case-by-case basis by SDG&E and USFWS at the time of project initiation.

In all cases, SDG&E can choose to remove a site from the R/E Program at any time for any reason. Sites removed from the R/E Program will require deduction from the permanent impact cap and Mitigation Credit withdrawal in accordance with Section 5.2.2.9 and Section 5.5. All other sites will remain in the R/E Program for the next full year. The Annual Report shall include a list of sites selected for removal from the R/E Program. Details of this requirement are provided in Section 6.4.

5.3 SDG&E Access Road Removals within the Plan Area

Within the Plan Area, SDG&E uses and maintains a widespread system of roads to access SDG&E Facilities. In certain areas, SDG&E access roads may be close to road networks maintained by other entities, including, for example, municipalities, private

property owners, and/or federal and/or state agencies. Therefore, in the Plan Area, certain SDG&E access roads could potentially be re-aligned or removed entirely to improve local biological resources without sacrificing safe and reliable access to SDG&E Facilities. There is also the potential that SDG&E no longer needs certain existing access roads for Facility maintenance; therefore, these roads, if any, may also be re-aligned or removed entirely without sacrificing SDG&E operations. Accordingly, when SDG&E receives reports or other concerns about roads, including for example, on Del Mar Mesa, it will work in coordination with USFWS and the landowner (if applicable) to review and address the concerns regarding existing access to SDG&E Facilities. SDG&E may also review the continuing functionality of any of its existing access roads at its discretion. Any SDG&E access road that SDG&E determines is unnecessary for safe and reliable access to its Facilities will be removed and restored to native vegetation. SDG&E will work with applicable stakeholders and agencies to expeditiously undertake any such removal and restoration.

5.4 Relation to Other Regional Habitat Conservation Plans and Preserves

For purposes of the HCP Amendment, the term **Preserve** means those conserved lands within the Plan Area in a current pending or adopted regional habitat conservation plan, or other local, state, or federal conservation plan²¹ that are legally protected from future development (e.g., via conservation or open space easement, through acquisition, deed restriction, or other methods) for the purpose of protecting natural habitat, species, and open space and/or that are actively managed to protect the open space or natural resources into the future. The term **Proposed Preserve** means those lands within the Plan Area that are not yet legally conserved but are planned for conservation in a current pending or adopted regional plan, or other local, state, or federal conservation plan.

Regional habitat conservation plans have been prepared by various local governments or government entities in the Plan Area such as the San Diego County MSCP, finalized in 1997; the San Diego County MHCP, finalized in 2003; the Orange County Southern Subregion Habitat Conservation Plan, finalized in 2007; the Western Riverside MSHCP, finalized in 2004; and the North County MSCP, which is in progress. The geographical areas covered by these regional habitat conservation plans in the Plan Area and associated Preserves and Proposed Preserves are identified in Figure 9.

Because Preserves and Proposed Preserves may change over time, SDG&E will meet with USFWS at least once annually and more frequently as appropriate, to review current local regional plan mapping and update Preserve and Proposed Preserve mapping.

SDG&E has operated Facilities in the Plan Area for more than 100 years and many of its Facilities pre-date regional planning efforts described above. Accordingly, some SDG&E Facilities and ROW are located within habitat areas that were later designated

²¹ Preserve and Proposed Preserve may include, but are not limited to, areas mapped as Multiple Habitat Planning Area, Pre-Approved Mitigation Areas, or Focused Planning Area within regional habitat conservation plans, and/or designated or proposed critical habitat with Primary Biological Features.

as Preserves by other entities as part of their conservation plans or are within Proposed Preserves. Indeed, because the Plan Area covers portions of three counties, it overlaps with the aforementioned regional habitat conservation plans that have Preserve or Proposed Preserve lands on which Covered Activities and Covered Species have the potential to occur.

The majority of Covered Species in the HCP Amendment are also covered and conserved by one or more of these regional habitat conservation plans in the Plan Area. Additionally, even species that are not expressly covered by other regional habitat conservation plans benefit from the regional planning efforts because these species often share similar habitat requirements with Covered Species in these regional habitat conservation plans. As discussed below, as with the Subregional Plan, implementation of the HCP Amendment is expected to contribute to the regional conservation of Covered Species. As shown over the past 26 years, the conservation strategy that the HCP Amendment continues and improves upon promotes conservation and comports with goals and objectives of these other regional conservation efforts. The HCP Amendment will also continue to contribute to the buildout of the regional Preserves through the acquisition and/or restoration of mitigation lands.

5.4.1 SDG&E Operations and Maintenance in Preserves and Proposed Preserves

Without further authorization from USFWS, SDG&E may conduct all necessary O&M with respect to all existing Facilities that are now or may hereafter be located within a Preserve or Proposed Preserve, if conducted in accordance with the provisions of the HCP Amendment. Impacts associated with O&M are likely to be small and occur along long, linear lines across the 2,815,930-acre landscape.

5.4.2 SDG&E New Construction in Preserves and Proposed Preserves

As generally described in Section 2 above, future Covered Activities will predominantly entail the maintenance, repair, upgrading, and replacement of existing Facilities. As previously noted, and discussed in Section 4 hereto, all major infrastructure is now largely in place, and SDG&E anticipates building new Facilities at a far lower rate than prior decades. SDG&E currently anticipates no new large-scale construction in the near term.

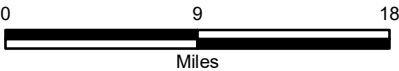
San Diego Gas and Electric Company HCP Amendment

Preserved Lands in the Plan Area
Figure 9

Legend

- SDG&E Service Territory
- Proposed Preserves
- Preserves

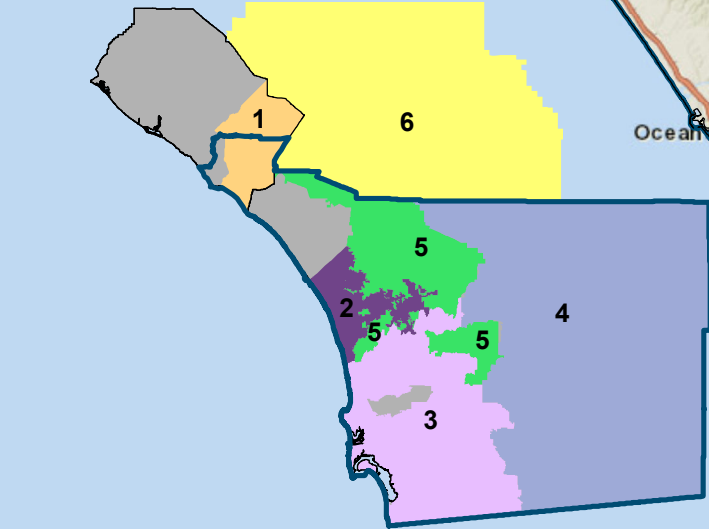
*There are no Preserves or Proposed Preserves within the boundaries of the Moreno Compressor Station parcel.



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Regional Habitat Conservation Plans



- 1 - Orange County Southern Subregion Habitat Conservation Plan (HCP)
- 2 - San Diego County Multiple Habitat Conservation Program (MHCP)
- 3 - San Diego County Multiple Species Conservation Program (MSCP)
- 4 - San Diego East County Multiple Species Conservation Plan (MSCP)
- 5 - San Diego North County Multiple Species Conservation Plan (MSCP)
- 6 - Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)

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Although SDG&E infrastructure is now largely in place, there is the potential that construction of new Facilities (as generally described in Section 2) may occur as a result of the extensive, rapid, and continuing development within the region that overlaps with the Plan Area, Preserves, and Proposed Preserves and may be dispersed among and, in some cases, surrounded by developed areas. As a regulated utility company, SDG&E is obligated to provide safe, reliable, efficient, and cost-effective electric and gas service throughout the developed area of its service area in compliance with the Public Utilities Code and subject to the jurisdiction of the CPUC. The construction of new electric and gas transmission Facilities within Preserve or Proposed Preserve lands may be necessary in certain circumstances to meet the service requirements of developing areas.

In that event, SDG&E intends to minimize New Construction in Preserves and Proposed Preserves such that new Facilities are sited in a manner that avoids or minimizes impacts to Preserves and/or Proposed Preserves, while not impairing SDG&E's ability to meet the service demands of its customers in accordance with its responsibilities as a public utility. If permanent impacts to critical habitat cannot be avoided, then SDG&E will first attempt to mitigate with credits in the existing mitigation lands that have critical habitat for the same species or acquire other lands that are designated as critical habitat. If no critical habitat is available from the existing mitigation lands or as an acquisition of new habitat lands, SDG&E will provide a justification for acquiring, restoring, and/or enhancing suitable habitat land that will benefit the species and/or its critical habitat, with the concurrence of USFWS.

Further, where SDG&E determines that new Facilities with impacts greater than 1.75 acres are necessary within part of a Preserve or Proposed Preserve, SDG&E will:

- Provide USFWS written notice of its intent to install such Facilities. The written notice will contain a detailed description of such Facilities and their location, along with a map of the area. At a minimum, the information collected as part of the PSR is required. Review of the proposed Facility and USFWS approval would occur via the Minor Amendment process outlined in Section 6.5.1.2.
- Coordinate with USFWS and the appropriate preserve manager (if applicable), to plan and construct such new Facilities in a manner that avoids or minimizes any impacts to a Preserve or Proposed Preserve, to the extent possible, while not impairing SDG&E's ability to meet the service demands of its customers in accordance with its responsibilities as a public utility.

5.5 Mitigation Credits

Mitigation Credits associated with the HCP Amendment are debited from SDG&E's mitigation account to compensate for permanent impacts associated with Covered Activities as described below in Section 5.5.1. Temporary impacts associated with sites that meet success standards of the R/E Program or are otherwise determined by USFWS to have been successfully restored through the R/E program would not be debited from SDG&E's mitigation account as discussed in Section 5.2.

SDG&E will ensure that, during the remaining permit term of the incidental take authorizations, available habitat-based Mitigation Credits will be sufficient to provide mitigation for at least 2 years of projected impacts. If available Mitigation Credits are anticipated to be insufficient to offset those projected impacts, SDG&E will acquire additional Mitigation Credits in coordination with USFWS through (1) land acquisition as detailed in Section 5.5.2, or (2) alternative means detailed in Section 5.5.3. Species-specific mitigation as required by Table 5.4 may be identified prior to impacts and must be agreed upon prior to impact.

Mitigation for vernal pools may be satisfied through onsite restoration of vernal pools or the use of areas pre-approved by USFWS. Mitigation Credits, as approved by USFWS, may be accumulated and used through advance creation, restoration, and enhancement of vernal pool basin area. Section 5.5.4 details mitigation requirements for vernal pools and Covered Species that are found in them.

5.5.1 Habitat Mitigation Ratios

5.5.1.1 Operations and Maintenance and New Construction

Habitat modification associated with Covered Activities that permanently impact sensitive upland or wetland vegetation communities as listed in Table 3.2 shall be mitigated at the mitigation ratios required in Tables 5.3a and 5.3b, in-kind or with habitat of equivalent or greater value (e.g., coastal sage scrub mitigation for non-native grassland impacts) as approved by the USFWS. In addition, permanent impacts to habitat confirmed or assumed occupied by any Covered Species listed in Table 5.4 will be mitigated in-kind at existing or acquired mitigation lands that are occupied or through the R/E Program per the mitigation ratios required in Table 5.4, or with measures that will benefit the species as directed in the Species-Specific Protocols in Section 5.1.13. Species-Specific mitigation requirements will also satisfy habitat mitigation requirements where applicable (i.e., impacts will not be double mitigated). Species-specific in-kind mitigation is required for temporary, permanent and Wildfire Fuels Management impacts to Stephens' kangaroo rat occupied habitat at the mitigation ratio outlined in Table 5.4.

Table 5.3a Non-Species-Specific Mitigation Ratios for Permanent Impacts to Upland Habitat

Location*	Ratio
Inside Preserve or Proposed Preserve	2:1
Outside Preserve or Proposed Preserve	1:1

* Preserve and Proposed Preserve are further defined in the Glossary of Defined Terms. Temporary impacts will be addressed consistent with Section 5.2 of the HCP Amendment.

Table 5.3b Non-Species-Specific Mitigation Ratios for Permanent Impacts to Wetland and Riparian Habitat^{1,2}

Habitat	Ratio
Tidal Salt Marsh/Salt Panne	4:1
Non Tidal Salt Marsh/Freshwater Marsh	2:1
Riparian Oak/Forest/Woodland/Scrub	3:1
Disturbed Wetland	2:1

¹ Mitigation required by more than one agency will not be additive to the mitigation ratios included here in Table 5.3b.

² Temporary impacts will be addressed consistent with Section 5.2 of the HCP Amendment

Other cover types, including agriculture, disturbed habitat, urban/developed, and eucalyptus woodland, will not require habitat mitigation.

It is recognized that Covered Activities may possibly impact habitat, only a portion of which is confirmed as occupied by a Covered Species included in Table 5.4. If project timing does not allow for surveys, it will be assumed that all habitat to be impacted is occupied (see Species-Specific Protocols in Section 5.1.13 for more guidance on survey requirements and when/where to assume occupancy). When surveys are conducted to determine occupancy status, those surveys will also determine the extent of habitat occupied by a species listed in Table 5.4.

For example, a Covered Activity occurring within a Preserve is anticipated to impact 1 acre of habitat, but, of that 1 acre, only 0.1 acre is occupied HCB-Habitat. Because Hermes copper butterfly is a Covered Species for which in-kind mitigation is required, the 0.1 acre of occupied habitat will be mitigated in-kind at a 2:1 ratio with occupied habitat or habitat that will benefit the species, per Table 5.4 (or 0.2 acre), while the 0.9 acre of unoccupied HCB-Habitat may be mitigated at the 2:1 ratio with unoccupied habitat, per Table 5.3a (or 1.8 acres). The PSR will clearly identify which portion of the project is known or assumed to be occupied habitat.

It is further recognized that Covered Activities may possibly impact occupied, or assumed occupied, habitat of more than one Covered Species included in Table 5.4. In that case, acquired mitigation must meet the habitat needs of each Covered Species requiring in-kind mitigation, which can be achieved through one or more parcels of land that satisfy mitigation for both species or through an alternative mitigation proposal as detailed in Section 5.5.3, Alternative Mitigation. For example, a Covered Activity is anticipated to impact 1 acre of occupied SWFL-Habitat (with a 3:1 mitigation ratio) and WYBC-Habitat (with a 3:1 mitigation ratio). If Parcel A provides 3 acres of habitat for both Covered Species, it is adequate mitigation for both (for a total of 3 acres). Conversely, if Parcel A provides 3 acres of habitat for only one Covered Species, then an additional 3-acre parcel that provides habitat for the other Covered Species will be needed.

Table 5.4 Species-Specific Mitigation Ratios for Permanent Impacts to Occupied¹ Habitat that Require In-Kind² Habitat³

Species	Inside Preserve	Outside Preserve
Narrow Endemic Plants	Upland – 2:1 Riparian – 3:1 Tidal Salt Marsh/Salt Panne – 4:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1	Upland – 1:1 Riparian – 3:1 Tidal Salt Marsh/Salt Panne – 4:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1
Laguna Mountains skipper	2:1	1:1
Hermes copper butterfly	2:1	1:1
Arroyo toad	Upland – 2:1 Riparian – 3:1	Upland – 1:1 Riparian – 3:1
California red-legged frog	Upland – 2:1 Riparian – 3:1 Freshwater Marsh – 2:1 Disturbed Wetland – 2:1	Upland – 1:1 Riparian – 3:1 Freshwater Marsh – 2:1 Disturbed Wetland – 2:1
Southwestern pond turtle	Upland – 2:1 Riparian – 3:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1	Upland – 1:1 Riparian – 3:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1
Western spadefoot	Upland – 2:1 See Table 5.5 for vernal pool mitigation	Upland – 1:1 See Table 5.5 for vernal pool mitigation
Tricolored blackbird	Upland – 2:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1	Upland – 1:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1
Burrowing owl	2:1	1:1
Coastal cactus wren	2:1	1:1
Western yellow-billed cuckoo	Riparian – 3:1	Riparian – 3:1
Southwestern willow flycatcher	Riparian – 3:1	Riparian – 3:1
Belding's savannah sparrow	Tidal Salt Marsh/Salt Panne – 4:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1	Tidal Salt Marsh/Salt Panne – 4:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1
Coastal California gnatcatcher	2:1	1:1
Light-footed Ridgway's rail	Tidal Salt Marsh/Salt Panne – 4:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1	Tidal Salt Marsh/Salt Panne – 4:1 Non Tidal Salt Marsh/Freshwater Marsh – 2:1 Disturbed Wetland – 2:1
Least Bell's vireo	Riparian – 3:1	Riparian – 3:1
Stephens' kangaroo rat	3:1	3:1
Peninsular bighorn sheep	2:1	1:1

¹ Occupied has been defined for each species in Section 5.1.13, Species-Specific Protocols.

² In-kind mitigation acquired will be occupied by or benefit specific Covered Species or group of Covered Species with similar habitat types. All temporary, permanent and Wildlife Fuels Management impacts to Stephens' kangaroo rat occupied habitat must be mitigated at the ratio in this Table 5.4.

³ Species-Specific Mitigation requirements will also satisfy habitat mitigation requirements where applicable (i.e., impacts will not be double mitigated).

Where a Covered Activity impacts habitat of Covered Species not included in Table 5.4, SDG&E will mitigate the acres impacted at the ratios in Table 5.3a and 5.3b regardless of whether there is habitat for one or more Covered Species not included in Table 5.4.

Regardless of what mitigation may be required in any of the above scenarios, the acreage impacts debited will never exceed the actual acreage impacted. Thus, for example, if a Covered Activity permanently impacts 1 acre of habitat that must be mitigated at a 3:1 ratio for two or more species listed in Table 5.4, SDG&E will debit 1 acre from its permanent impact cap.

5.5.1.2 Wildfire Fuels Management

Acreage impacts from Wildfire Fuels Management will be calculated based on the net percent reduction of native canopy (see Section 4.4.1) and will be separately accounted for. Using this approach, SDG&E will determine the final acres of impact per year that require mitigation as follows.

Conduct field surveys for a Treatment Area to document the pre- and post-activity native and nonnative vegetation cover and mitigate for the actual net difference, if any, at a 1:1 ratio. Under this approach, if, for example, the Treatment Area was 100 acres and SDG&E reduced the cover of native species by 10 acres and the cover of nonnative species by 10 acres, SDG&E would document these results and no mitigation would be required. Alternatively, if the Treatment Area was 100 acres and SDG&E reduced the cover of native species by 10 acres and the cover of nonnative species by 8 acres, SDG&E would document these results and 2 acres of mitigation (i.e., the 2-acre net difference between native and nonnative vegetation mitigated at a 1:1 ratio) would be required. Further, if the Treatment Area was 100 acres and SDG&E reduced the cover of native species by 8 acres and the cover of nonnative species by 10 acres, SDG&E would document these results and may use the excess 2 acres as mitigation for future Wildfire Fuels Management.

If Wildfire Fuels Management is no longer needed at a Treatment Area, SDG&E may choose to restore and/or allow the Treatment Area to return to pre-treatment conditions. Mitigation Credits that were debited for those areas will be credited based on the percent native vegetation restored, per the temporary impact approach described in Section 5.2.

5.5.2 Land Acquisition

At the outset of the Subregional Plan, SDG&E provided USFWS with funds to enable the procurement of approximately 240 acres of high-quality habitat that is now part of the San Diego National Wildlife Refuge. The provision of such established 240 acres of Mitigation Credits for impacts to Covered Species or their habitat that result from Covered Activities. In April 2015, SDG&E purchased an additional 114 acres of Mitigation Credit of high value habitat from the Cielo B property that was obtained by The Escondido Creek Conservancy. The previous Mitigation Credits served as mitigation for Covered Species and habitat impacts, without regard to the type of habitat

and the biological value of the habitat impacted, except with regard to impacts to vernal pools and wetlands.

As of the effective date of the HCP Amendment, SDG&E anticipates having remaining Mitigation Credits from either acquisition that have not been used to offset impacts to the originally authorized 400 acres of habitat modification. Except for wetlands, vernal pool, narrow endemic, and species-specific mitigation as discussed above, SDG&E may use these credits to mitigate impacts associated with Covered Activities for all Covered Species and their associated habitats as defined in Table 5.4.²²

SDG&E may acquire land to obtain additional Mitigation Credits for future permanent impacts. Establishing additional habitat-based Mitigation Credits through land acquisition would be contingent upon successfully establishing a new mitigation agreement with USFWS. This would include developing, funding (i.e., a non-wasting endowment), and implementing a long-term management plan approved by USFWS in perpetuity. In-kind mitigation acquired will directly benefit specific Covered Species or groups of Covered Species with similar habitat types, where possible critical habitat areas may be targeted for acquisition.

5.5.2.1 Acquisitions for Impacts to Stephens' Kangaroo Rat

SDG&E shall mitigate in-kind for all temporary, permanent and Wildfire Fuels Management impacts to SKR through acquiring and conserving land that supports high density occupancy of Stephens' kangaroo rat. SDG&E shall, for all land acquisitions mitigating impacts to Stephens' kangaroo rat, prepare a land management plan that outlines all management activities for Stephens' kangaroo rat. The management plan shall further include a Property Analysis Record (PAR) or similar analysis to establish the annual monitoring and maintenance costs, including a contingency of a minimum of 10%, adaptive management costs, and changed circumstances costs. The land management plan shall be reviewed and approved by the USFWS and CDFW.

SDG&E shall establish an endowment to ensure that the land management activities will be fully carried out in-perpetuity by a land management entity approved by USFWS and CDFW. A conservation easement, approved in advance by USFWS and CDFW, shall be recorded over all mitigation properties naming an entity authorized to hold conservation easements pursuant to Civil Code section 815.3 as grantee. USFWS and CDFW shall be named third-party beneficiaries to the conservation easement(s). The proposed grantee and land manager shall be approved through CDFW's due diligence process.

SDG&E shall provide performance security for full implementation of the HCP Amendment as it pertains to Stephens' kangaroo rat. The performance security shall be a form determined and approved by USFWS and CDFW, in the amount of \$1,253,280.00. SDG&E shall fully complete all compensatory mitigation obligations for anticipated impacts to Stephens' kangaroo rat habitat outlined in the HCP Amendment

²² Mitigation Credits may be used for Covered Species listed in Table 5.4 at the ratios stated therein provided the available habitat is suitable and meets the criteria for that Covered Species.

(i.e., fully mitigate for 14.92 acres of impacts to Stephens' kangaroo rat habitat as described above) within 18 months of issuance of this HCP or otherwise risk forfeiture of the principal performance security sum.

5.5.3 Alternative Mitigation Proposal

The HCP Amendment is intended to provide flexibility in achieving conservation goals. To that end, the HCP Amendment allows for various methods to obtain additional Mitigation Credits. Specifically, rather than acquire additional land, SDG&E may submit a proposal to USFWS for a Mitigation Credit that may include, but is not limited to, any of the following:

1. Restoring and/or enhancing habitat.
2. Contributing funds to other regional conservation efforts, species-specific management programs, or efforts to enhance/preserve critical habitat areas.
3. Where Species-Specific Protocols in Section 5.1.13 are determined impracticable or where the costs of avoidance and minimization are excessive for the duration of a Covered Activity, SDG&E may propose alternative mitigation approaches that provide greater, long-term conservation benefits than would be achieved by the Operational Protocols. For example, SDG&E could propose a one-time, higher mitigation ratio than those identified in Table 5.4 or may propose other alternatives.
4. Propagating species for reintroduction and/or introduction into biologically suitable habitat within the Plan Area in accordance with USFWS-approved restoration and monitoring program.
5. Salvaging and relocating species into suitable, occupiable habitat in accordance with a USFWS-approved restoration and monitoring program.
6. SDG&E and USFWS may identify areas of restoration opportunities that are degraded or are being degraded by anthropogenic factors (e.g., nonnative species) or activities (e.g., habitat degradation by OHVs) not associated with Covered Activities. SDG&E may conduct offsite restoration Covered Activities within these areas, in coordination with USFWS, to credit impacts back to the permanent impact cap and restore Mitigation Credits.

Any of these mitigation approaches would require case-by-case USFWS approval. The following information must be included in the alternative mitigation approach proposal:

1. Definition of the project area.
2. A written description of the project.
3. A written description of biological information available for the project site, including the results of all focused surveys for Covered Species.

4. Quantification of impacts to Covered Species associated with the project, including direct and indirect effects.
5. A written description of project design features that reduce indirect effects, such as edge treatments and landscaping, minimization, and/or compensation through restoration or enhancement.
6. Description of measures proposed to compensate for identified impacts in a manner that demonstrates that the proposed design, including compensation, would result in a long-term benefit to the species of concern that is equivalent to or better than what would occur by conforming to the standard mitigation approach. The equivalency analysis will be based on the particular requirements of the species of concern.

In the Annual Report that will be prepared as a condition of the HCP Amendment, the general condition of the habitat associated with the Mitigation Credits will be discussed, with special attention paid to changes in the habitat such as from stochastic events like wildfires and drought. The Annual Report will also include a table showing how many credits were used from the Mitigation Credits (expressed in acres) and how many are left.

5.5.4 Vernal Pool Mitigation

Vernal pool surveys will be conducted to determine if Covered Species are present or absent as detailed in the Vernal Pool Protocols in Section 5.1.11. If project timing does not allow for surveys, it will be assumed that habitat to be impacted is occupied based on the known range of a species. Mitigation for temporary and permanent impacts is described in the following sections. The Annual Report will include a vernal pool section that tracks and reports the amount and type (temporary or permanent) of impacts to vernal pools and reports the status of restoration/enhancement efforts.

SDG&E will collect baseline conditions (e.g., pool boundary, watershed mapping, plant list and cover, notes on topography, etc.) and prepare a vernal pool restoration/enhancement plan and submit it to USFWS for approval prior to initiating impacts.

5.5.4.1 Temporary Impacts

Covered Activities, such as but not limited to placement of structures, inseting poles, pole anchors and stubs, and underground Facility access may have temporary impacts on vernal pools. Vehicular traffic through dry vernal pool or road ruts on access roads will not be considered an impact that requires mitigation. In those cases where there are ground-disturbing impacts associated with the Covered Activities, SDG&E will restore those pools using topsoil collected prior to impacts, as described in Section 5.1.11.1. Once the Covered Activity is completed, the collected soils shall be spread out and raked into the bottoms of the restored pools.

If seed has been scattered and/or inoculum sediment has been replaced, a qualified Biologist will monitor the vernal pool for successful restoration for two subsequent wet seasons. Successful restoration will be determined/defined as the continued presence of vernal pool indicator species (or Covered Species if present) roughly comparable to the pre-disturbance condition.

Furthermore, Covered Species identified during presence-absence surveys must be observed to be fully mature, with fairy shrimp producing cysts and plant species producing seed. Unsuccessful restoration will be considered a permanent impact and will be mitigated at a 3:1 ratio. If seed or if vernal pool inoculum collection is not possible, mitigation will occur at a 3:1 ratio.

5.5.4.2 Permanent Impacts

Vernal pool mitigation required for permanent impacts to vernal pools will be conducted per the mitigation ratios outlined in Table 5.5. Restoration/enhancement for permanent impacts to vernal pools shall be accomplished by a qualified Biologist and managed and monitored for a minimum of 5 years, with at least 1 year in which the pool completely fills. Mitigation may be satisfied through onsite restoration/enhancement of vernal pools or the use of areas pre-approved by USFWS. Mitigation Credits, as approved by USFWS, may be accumulated and used through advance creation, restoration, and enhancement. Restoration/enhancement will be of high quality (e.g., Carmel Mesa and Otay Mesa) and will support Covered Species. Pre-approved vernal pool mitigation areas must be managed and monitored pursuant to a Management Plan approved by USFWS.

Table 5.5 Vernal Pool Mitigation Ratios

Species	Ratio
No plant Covered Species present, but fairy shrimp, western spadefoot and/or vernal pool indicator plant species are present ¹	2:1
Fairy shrimp and/or western spadefoot (no vernal pool plant Covered Species or indicator species present) ¹	1:1
Vernal Pool Plant Covered Species	3:1

¹ Impacts to unoccupied road ruts and other man-made depressions will not be mitigated.

If SDG&E does not mitigate at a pre-approved vernal pool mitigation area, USFWS concurrence on an acceptable mitigation site is required prior to any impacts to vernal pools. Mitigation may also occur onsite provided that a sufficient number of degraded pools exist in the vicinity and have been approved by USFWS for restoration/enhancement.

5.5.5 Golden and Bald Eagle Mitigation

Impacts to golden and bald eagles will be mitigated consistent with the ECP (Appendix B). Mitigation to offset impacts to golden eagles will be accomplished by retrofitting utility poles to avoid future loss through electrocution. USFWS Resource Equivalency Analysis worksheets were used to calculate the number of short-term or long-term retrofits required to offset estimated impacts (Table 5.6). All calculations in this section assume a mitigation ratio of 1.2:1, per the ECP Guidance, and are in accordance with the 2016 Eagle Rule. Short-term retrofits (i.e., plastic covers) provide 10 years of avoided eagle loss, while long-term retrofits (reframing) provide up to 30 years of avoided loss.

Table 5.6 Summary of Estimated Mitigation for Golden Eagles Over 30-Year Permit Period¹

Form of Take	30-Year Estimated Take	Mitigation Ratio Multiplier	Short-Term Retrofits		Long-Term Retrofits	
			Per Instance of Take	30-Year Eagle Permit Term	Per Instance of Take	30-Year Eagle Permit Term
Nest Disturbance	72	1.2	23.50	1692	10.25	738
Electrocution	26	1.2	35.79	931	15.58	406
Collision	13	1.2	35.79	466	15.58	203
Nest Removal	12	1.2	NA	NA	NA	NA

NA = not applicable

¹ Mitigation for nest disturbance will stay ahead of forecasted impact estimates and will typically be completed within the first year of each 5-year permit period. Mitigation for collisions will be completed throughout each 5-year period and will be based on actual fatalities.

Mitigation in the form of short-term or long-term retrofits as well as compensatory mitigation for impacts to bald eagles is required when all authorized and permitted take exceeds the annual allotment for the flyway. The ECP Area is within the Pacific Flyway South Eagle Management Unit, which has a bald eagle annual take allotment of 15. As of 2020, the authorized take in the Pacific Flyway South Eagle Management Unit is 2.85 out of the 15 allotted eagles per year. The estimated bald eagle take associated with SDG&E activities (fewer than two individuals per year; Section 4.3) will not increase annual take above this threshold. Because SDG&E's estimated take of bald eagles is extremely small and will not exceed the annual allotment for this Eagle Management Unit, mitigation is not required. In the event of direct fatality of a bald eagle caused by contact with SDG&E facilities, SDG&E will conduct reactive pole retrofitting at the incident pole where the take occurred to ensure no further electrocutions could occur on the pole in question.

In coordination with USFWS, SDG&E may contribute compensatory mitigation to San Diego golden eagle conservation by reducing the overall number of short-term retrofits and redirecting a portion of the unit costs of those retrofits to local eagle conservation efforts. All retrofits in the previous sections assume a mitigation ratio of 1.2:1. Of this 1.2:1, up to 0.2:1 of the typical unit cost of a single, short-term retrofit may

be proposed in lieu of installing some short-term retrofits by directly supporting San Diego golden eagle conservation.

With the proposed mitigation, the SDG&E HCP Amendment will result in a net increase in golden eagle survival and reproduction within the Plan Area by reducing the risk of electrocution or implementing other Service-approved measures to benefit golden eagle conservation and recovery. Although compensatory mitigation measures specific to bald eagle are not required under the SDG&E HCP Amendment, electrocution risks will also be reduced for bald eagles as a result of the extensive pole retrofits that will be conducted pursuant to the SDG&E HCP Amendment. Further, the level of impacts to bald eagle as a result of the SDG&E HCP Amendment are well below the level at which it would negatively impact the Pacific Flyway South Eagle Management Unit, which includes all of the bald eagles in the Plan Area. Therefore, the impacts from nest disturbance, electrocutions, collisions, and nest removal will not result in an appreciable reduction in the numbers, reproduction, or distribution of bald eagles or golden eagles within the Plan Area or rangewide.

5.5.6 Pacific Pocket Mouse Mitigation

To mitigate for impacts to the Pacific pocket mouse, SDG&E will provide funds to an in-lieu-fee sponsor, acting on behalf of the SDG&E and approved by the USFWS, for the conservation and recovery of Pacific pocket mouse. This in-lieu fee shall be calculated as follows and paid as described below:

Over the remaining duration of the permit (i.e., next 30 years), implementation of the HCP Amendment is anticipated to permanently impact 1.5 acres of PPM-Habitat within the Plan Area. In addition, a 100-foot buffer in both directions along a hypothetical 1.5-acre road segment was used to estimate potential impacts to an additional 8.55 acres due to construction noise and vibration, for a total impact of about 10.05 acres. See Appendix A, Covered Species Analysis.

To mitigate impacts to 10.05 acres of PPM-Habitat from Covered Activities, SDG&E will contribute an in-lieu fee of \$592,950 which is equal to the total impacts paid at a cost of \$59,000/acre ((i.e., 1.5 + 8.55, or 10.05 acres, multiplied by \$59,000, for a total of \$592,950).

An in-lieu fee program instrument (similar to a conservation banking instrument) will govern the use and operation of the in-lieu fee program. SDG&E will use its best efforts to establish a program instrument and provide its in-lieu-fee sponsor the fee in advance of or contemporaneously with any impact to PPM-Habitat. If an in-lieu-fee sponsor or funding instrument has not yet been approved or established at that time, SDG&E will deposit its in-lieu fee into an escrow account (or prepare a letter of credit, if requested) or similar appropriate account to create a PPM-mitigation fund, which will be disbursed to the in-lieu-fee sponsor as soon as practicable after that sponsor is approved.

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Plan Implementation

6 HCP Amendment Implementation

Over the past quarter-century, SDG&E has conducted its Covered Activities in an environmentally sensitive manner in accordance with the robust avoidance, minimization, and mitigation measures detailed in the Subregional Plan. The HCP Amendment will allow SDG&E to continue implementing its successful habitat conservation program for the remaining term of USFWS's ITP. This section describes those daily and annual implementation tasks (i.e., Plan implementation) and the adaptive management requirements for mitigation lands acquired under this HCP Amendment. It describes how SDG&E will continue to staff, implement, monitor, and report on Covered Activities. It also describes conditions for permit renewal and amendments.

6.1 Term of HCP Amendment

In 1995, USFWS approved SDG&E's Subregional Plan and issued incidental take authorizations that extend to 2050. The term of the Subregional Plan and amended incidental take authorizations are not proposed to change or otherwise be extended from the existing term.

6.2 Daily and Annual Plan Implementation

SDG&E's Environmental Services Department is responsible for environmental planning and supports permitting of the utility's infrastructure and projects. The Environmental Services Department will be responsible for the overall management of the HCP Amendment through a dedicated team of Natural Resources staff that will implement the program. Direct support to the Environmental Services Department will come from SDG&E's multi-disciplinary environmental professionals, including expert consulting firms, who will work with Natural Resources staff to ensure successful implementation of and compliance with the HCP Amendment. Biological monitors and field crews will have direct roles for implementing and following Operational Protocols and Species-Specific Protocols in the field.

6.2.1 Management Oversight

SDG&E will ensure that staffing levels are adequate to fully implement the HCP Amendment. SDG&E's Environmental Services Department has the following responsibilities.

- Ensuring staff resources are available to resolve HCP Amendment program issues.
- Supervising staff to ensure successful implementation of the HCP Amendment program.

- Developing performance metrics and reports to illustrate the status of HCP Amendment implementation.
- Working with the HCP Amendment team to identify, document, and resolve non-compliance issues.
- Supporting and leading HCP Amendment process improvements.

6.2.2 Natural Resources Biologists

SDG&E Natural Resources staff or contract Biologists (i.e., field biologists, environmental compliance monitors, and inspectors) will work closely with project managers, land planners, and field crews and will have the following responsibilities:

- Reporting on Covered Activity impacts.
- Conducting or overseeing environmental training and onsite meetings with crews.
- Conducting biological surveys as directed by the HCP Amendment.
- Prescribing Operational Protocols and any applicable Species-Specific Protocols and overseeing their implementation.
- Serving as the biological monitor for Covered Activities.
- Responding to reports of death or injury of a covered wildlife species.
- Relocating Covered Species out of harm's way at construction sites when necessary and when authorized by USFWS.
- Conducting biological surveys when necessary and conducting biological monitoring when needed to minimize incidental take.

6.2.3 Field Crews

SDG&E's field crews, including contract field personnel, will follow the Operational Protocols and any applicable Species-Specific Protocols as directed by internal environmental release documents. Field crews at the Covered Activity site will work closely with Biologists to ensure compliance with Operational Protocols and any applicable Species-Specific Protocols during field crews' day-to-day Covered Activities.

6.3 Administrative Implementation Tasks

A variety of implementation tasks are associated with the program. These tasks are described in the sections below.

6.3.1 Conduct Education and Training

Three types of training will be available to SDG&E staff and contractors: annual training, project-specific training, and as-needed training. Trainings will consist of a brief discussion of species biology and the legal protections afforded to Covered Species; a

discussion of the biology of the Covered Species; the habitat requirements of these Covered Species; their status under the ESA (and/or CESA); measures being taken for the protection of Covered Species and their habitat under the HCP Amendment; adherence to speed limits; and review of all Operational Protocols. A fact sheet conveying this information will also be distributed to all employees working in the project area.

More specifically, annual training is broad and will cover multiple aspects of the HCP Amendment, including as a program, Covered Activities, Covered Species, Operational Protocols, Species-Specific Protocols, compliance requirements, and the conservation strategy. The targeted audience that will receive HCP Amendment education and training may include construction crew members, project managers, land planners, environmental staff, construction contractors, and environmental management staff. Annual training will be conducted either in person or as computer-based training.

Project-specific training will be provided for work conducted in areas occupied by Covered Species and/or as defined by Species-Specific Protocols.

Training will also be provided for staff on an as-needed basis throughout the implementation of the HCP Amendment. As-needed training could address implementation, Operational Protocols, Species-Specific Protocols, methods for standardizing field work, and other topics.

6.3.2 Conduct Pre-activity Surveys

The purpose of the Pre-activity Survey is to determine the presence or absence of sensitive resources on or in the vicinity of a project area. A Pre-activity Survey shall be conducted, and associated PSR prepared, prior to the start of construction for Covered Activities occurring within or adjacent to habitat with potential to support Covered Species. In those situations where more than one visit may be necessary to identify a given species, such as certain birds, no more than three site visits shall be required. Due to the priority placed on species avoidance as part of conducting Covered Activities, USFWS survey protocols will not be utilized; however, when deemed required, Species-Specific Protocols will be implemented. However, surveys will be appropriately timed, as needed, to assess the potential impacts from Covered Activities. The PSR will document the environmental review of the potential impacts to Covered Species as a result of implementing a Covered Activity. PSRs serve as the record of Covered Activity compliance and will contain, but not necessarily be limited to, the following:

- Covered Activity project description;
- Extent and type of potential impacts from the Covered Activity;
- Potentially affected Covered Species;
- Prescribed Operational Protocols, including applicable Species-Specific Protocols; and

- The potential mitigation required to offset the impacts as a result of carrying out the Covered Activity.

The recommendations regarding how to complete the Covered Activity while avoiding or minimizing disturbance to Covered Species will be detailed verbally to field personnel and followed by written documentation. The PSR memorializes HCP Amendment compliance and is not intended to replace other reports for other agencies or other discretionary permit approvals pursuant to state and federal regulations and laws. The Annual Report, as detailed in Section 6.4, will summarize the data and information contained in these reports to document the prior year's annual impacts and mitigation account balances.

For Covered Activities that will result in an unavoidable, direct impact to a Covered Species, a PSR (or similar document) will be prepared and submitted to USFWS, who will then be given 5 days to confirm whether additional consultation is required.

For all other Covered Activities, PSRs will not be required to be submitted to USFWS; however, they will be made available to USFWS at their request. Additionally, the Annual Report will document all Covered Activities and the total impacts for each and the required mitigation.

6.3.3 Implement Operational Protocols and Species-Specific Protocols

As part of the initial HCP Amendment implementation training, Environmental Services staff will be trained on the Operational Protocols and Species-Specific Protocols as described in Section 5.1 and the ECP. SDG&E will implement applicable Operational Protocols and Species-Specific Protocols as detailed in Section 5.1 and the ECP.

6.3.3.1 Agency Conference and Communication

As defined in many of the Species-Specific Protocols, there are instances where coordination with USFWS may be required and may not always require a defined PSR or may require more information such as a Minor Amendment, as described in Section 6.5.1.2 below. Table 6.1 below summarizes the Operational Protocols and Species-Specific Protocols that would require additional agency communication.

6.3.4 Maintain Mitigation Requirements

SDG&E will secure mitigation for its impacts as described in Section 5.5. The specific details of the approach; determination of habitat mitigation needs; types of mitigation; selection, location, and management considerations; and debit process are described in Sections 5.2 and 5.5.

Table 6.1 Species-Specific Protocols Requiring Agency Coordination

Protocol Reference ¹	Additional Agency Coordination
<u>Section 5.1.11 – Vernal Pool and Road Rut Protocols (OP 60, 61, 62, 63, 72, 74):</u> Assuming species presence and salvage approach	SDG&E will confer with USFWS to determine if any vernal pool Covered Species should be assumed present, mitigation alternatives outlined in Section 5.5 and whether soil (inoculum) and/or vernal pool plant seed shall be salvaged from the impacted vernal pools.
<u>Section 5.1.12 – Narrow Endemic Plant Protocol (OP 76):</u> Unavoidable impacts to narrow endemic plants	SDG&E will confer with USFWS to determine the best approach for minimization of impacts including additional measures such as restoration, enhancement of suitable habitat, and salvage/relocation of species to a suitable location and mitigation alternatives outlined in Section 5.5.
<u>Section 5.1.13 – Covered Activities within Habitat:</u> Covered Activities occur within or adjacent to habitat for Laguna Mountains Skipper (OP 77), Hermes Copper Butterfly (OP 78), Arroyo Toad (OP 79), and/or Western Spadefoot (OP 98).	Avoidance and minimization recommendations will be included as part of the PSR for USFWS review.
<u>Section 5.1.13 – Avian Nesting Buffer Reduction:</u> Tricolored Blackbird (OP 82), Burrowing Owl (OP 83), Coastal Cactus Wren (OP 85), Western Snowy Plover (OP 86), Western Yellow-billed Cuckoo (OP 87), Southwestern Willow Flycatcher (OP 88), Belding's Savannah Sparrow (OP 90), Coastal California Gnatcatcher (OP 91), Light-Footed Ridgway's Rail (OP 92), California Least Tern (OP 93), and Least Bell's Vireo (OP 94).	In the event that the buffer criteria cannot be achieved, SDG&E would develop alternative measures approved by USFWS.
<u>Section 5.1.13 – Arroyo Toad Exclusionary Fencing (OP 79)</u>	Arroyo toad exclusionary fencing shall be installed as determined by a qualified arroyo toad Biologist and USFWS.
<u>Section 5.1.13 – Burrowing Owl Passive Relocation (OP 83):</u> An active burrowing owl burrow/shelter will be directly impacted during the non-breeding season.	Individuals may be passively relocated with concurrence from USFWS. Methods will be outlined in a project-specific plan and follow the most current guidelines.
<u>Section 5.1.13 – California Red-Legged Frog (OP 80) and Southwestern Pond Turtle (OP 81):</u> Species observed during preconstruction survey.	SDG&E will contact USFWS before proceeding with Covered Activities and submit measures to avoid impacts.
<u>Section 5.1.13 – Golden Eagle (OP 84) and Bald Eagle (OP 89):</u> Agency coordination outlined in ECP, Appendix B.	Refer to ECP (Appendix B of the HCP Amendment), hereto.

Protocol Reference ¹	Additional Agency Coordination
<u>Section 5.1.13 – California Least Tern (OP 93)</u>	SDG&E may contribute to a predator management fund, or directly support predator management at individual California least tern nesting sites, in coordination with USFWS.
<u>Section 5.1.13 – Ground Disturbance in Stephens' Kangaroo Rat (SKR) (OP 95) and Pacific Pocket Mouse (PPM) (OP 97) Habitat:</u> Covered Activities that result in ground disturbance and/or vegetation clearing within SKR- and PPM-Habitat; PPM habitat assessments outside of MCBBCP.	SDG&E will retain a SKR/PPM Biologist and submit the Biologist's resume to USFWS for approval. SDG&E will coordinate with USFWS on the implementation of the measures to minimize impacts to SKR/PPM. For areas outside of MCBBCP that are within approximately 2.5 miles of the coast in habitats with fine-grained sandy substrate, including coastal dunes, coastal strands, riverside alluvium, and eroding sandstone, SDG&E shall coordinate with the USFWS or MCBBCO to determine if habitat assessments and/or surveys for Pacific pocket mouse are needed
<u>Section 5.1.13 – Peninsular Bighorn Sheep (OP 96):</u> Covered Activities occur within Peninsular Bighorn Sheep -Habitat. See measures in Appendix C.	Avoidance and minimization recommendations will be included as part of the PSR for USFWS review.

¹ Mitigation for species identified in Tables 5.4 and 5.5 will need USFWS approval prior to Covered Activities.

SDG&E will record the acres of habitat acquired, habitat location, and the Covered Species benefiting from the mitigation. SDG&E will also account for the acres of habitat debited from mitigation lands. SDG&E will track the types of habitat acquired and identify any issues associated with the habitat acquisitions or management. If acquisition or management issues occur, SDG&E will work with USFWS to adjust the acquisition process or clarify management decisions. Additional information on tracking impacts and mitigation is provided in Sections 6.3.6 and 6.3.7.

6.3.5 Mitigation Effectiveness

The HCP Amendment team will ensure that the mitigation program (see Section 5.5) is effective for new lands acquired as part of the HCP Amendment as outlined below. The HCP Amendment team will ensure mitigation lands contribute to a network of permanently protected and managed lands and ensure mitigation lands benefit Covered Species as planned in site-specific management plans. Mitigation properties will be subject to regular management, monitoring, and reporting, and the results of these efforts will be summarized in the Annual Report from all mitigation property managers overseeing conservation land management (see Section 6.4).

As described in Section 5.5, the HCP Amendment provides for multiple mitigation approaches. If SDG&E obtains additional Mitigation Credits through land acquisition, SDG&E will rely on the effectiveness monitoring associated with those management plans to demonstrate the mitigation is effective. If SDG&E purchases mitigation lands through fee title or conservation easement, effectiveness monitoring will be built into the individual management plans. Additional information on maintaining the habitat values on mitigation sites is described in Section 7, Changed and Unforeseen Circumstances and Regulatory Assurances.

6.3.6 Impact Accounting

To conservatively estimate future impacts to Covered Species from Covered Activities, the HCP Amendment used Modeled Habitat, as described in Section 4.1.3. The HCP Amendment further recognizes, however, that Modeled Habitat may be both under and over-inclusive, meaning it may not include all areas of suitable habitat or Covered Species occurrences and include areas that are not suitable habitat for or occupied by a Covered Species. Therefore, SDG&E will use Tracked Habitat to track Covered Species habitat impacts in its PSRs. Tracked Habitat is defined as Modeled Habitat or unmodeled habitat that is known or assumed to be occupied by a Covered Species and will be used to track Covered Species habitat impacts.

The HCP Amendment team will keep a running total of annual temporary, permanent (O&M and New Construction) and Wildfire Fuels Management impacts and Covered Species Tracked Habitat impacts and any observed incidental take, including impacts on critical habitat, over the permit term. For wildlife habitat impacts, SDG&E will record habitat losses in acreage to the nearest hundredth of an acre, or square feet, whichever is necessary to capture the entire impact. For plant Covered Species, SDG&E will record habitat losses as acreage to the nearest hundredth of an acre, or square feet,

whichever is necessary to capture the entire impact; or as individual plant losses; or both. If SDG&E Biologists/habitat restoration specialist determine restoration plans are ineffective and impacts are reclassified as permanent, these impacts will also be tracked and mitigated.

6.3.7 Mitigation Accounting

The HCP Amendment team will calculate the mitigation required to offset the prior year's impacts (as described in Section 6.3.6). Temporary and permanent impacts for the reporting year will be mitigated using (1) the extent of Covered Species habitat and (2) the ratio of compensation based on whether the impacts are (a) temporary or permanent and (b) whether the impacts occurred inside or outside an existing or Proposed Preserve.

6.4 Reporting

Each year, the HCP Amendment team will prepare an Annual Report to document permit compliance and implementation of the conservation strategy. Each Annual Report will summarize the previous calendar year's Covered Activities and will be completed by June 1 following the reporting year. The report delivery date may be changed with mutual agreement of SDG&E and USFWS. The Annual Report will be submitted to designated representatives of USFWS.

The Annual Report will:

- Provide the necessary information to demonstrate SDG&E is implementing the HCP Amendment successfully and in compliance with applicable HCP Amendment requirements.
- Document challenges with HCP Amendment implementation that occurred during the reporting year and the steps taken to resolve those issues.
- Document foreseeable issues, if any, with implementation that may require coordination with USFWS to fix or otherwise address. Such issues could include the infeasibility of implementing Operational Protocols or Species-Specific Protocols or acquiring mitigation for Covered Species.
- Make recommendations for improving the success of the conservation strategy, including revisions to Operational Protocols or Species-Specific Protocols or the implementation process.
- Document mitigation is being secured and benefiting Covered Species.

The Annual Report will organize and summarize reporting information in two ways. First, each Annual Report will summarize the previous calendar year's Covered Activities, documenting all compliance requirements for the reporting year. Second, the Annual Report will compile and summarize impacts and mitigation account balances from the previous years, starting from the date USFWS issues HCP Amendment-related permits

and/or authorizations. At a minimum, each Annual Report will include the following information to document the previous year's Covered Activities.

- A summary of the annual training provided.
- A summary of permanent, temporary, and Wildfire Fuels Management impacts and impacts on Covered Species Tracked Habitat²³ and critical habitat.
- Specifically, the report will include:
 - Summary of Covered Activities completed (including table[s]).
 - Total acreage of permanent (O&M and New Construction), temporary and Wildfire Fuels Management impacts within the Plan Area.
 - Total acreage of permanent, temporary, and Wildfire Fuels Management impacts to Covered Species Tracked Habitat, and critical habitat.
 - Comparison of actual impacts to the anticipated/authorized impacts identified in Table 4.4 for Covered Species Tracked Habitat.
 - Should total permanent, temporary, and Wildfire Fuels Management impacts, impacts to a Covered Species Tracked Habitat, or critical habitat reach 80% of the anticipated/authorized limit, notification will be included in the Annual Report.
 - A summary of any observed injury or mortality-related incidental impacts to/take of Covered Species that occurred during the year.
- Documentation of compliance with mitigation requirements.
 - Total acreage of mitigation available to debit impacts (both approved and pending).
 - Total acreage of mitigation obtained for Covered Species and critical habitat during the year.
 - Total acreage of mitigation applied to offset Covered Species and critical habitat impacts during the year.
 - End-of-year acreage balance of mitigation remaining for each Covered Species.
- Summary of all discoveries; encounters; relocations of Covered Species, including positive survey results and biological monitoring detections; and information on the number and location of species discovered during surveys and biological monitoring Covered Activities.

²³ Impacts will be estimated on a project-by-project basis (in the PSR) and the Annual Report will document (1) actual impacts incurred for each vegetation community and Covered Species Tracked Habitat and (2) the cumulative total of all impacts to all vegetation communities and Covered Species Tracked Habitat. Impacts will be limited by the total impacts authorized under this Plan (i.e., 400 acres permanent, 210 acres temporary, 210 acres Wildfire Fuels Management) and by the total impacts authorized under this HCP Amendment for each Covered Species.

- Description of any adaptive management measures proposed for the following year for new mitigation lands.
- A list of all amendments or other important decisions made to date, starting with the permit issuance.
- Summary of sites active in the R/E Program, number of sites completed, and total acreage as it pertains to impacts being mitigated onsite.
- A list of sites selected for removal from the R/E Program because they did not meet success standards within 5 years or are not expected to do so. Summary of any remedial measures implemented on mitigation lands to address Changed Circumstances or Unforeseen Circumstances as agreed to by SDG&E and USFWS.
- Additional information as mutually agreed to by SDG&E and USFWS.
- An appendix with PSRs for covered activities.

A separate annual report will be prepared and submitted to the USFWS for golden and bald eagles consistent with Section 7 of the ECP.

6.5 Changes to the HCP Amendment

The HCP Amendment addresses potential impacts to Covered Species and their habitat that are associated with Covered Activities for the remaining permit period. Changes may be required during the remaining permit period. Potential changes range from clerical (i.e., administrative, non-substantive) changes with no effect on the implementation of the HCP Amendment's commitments to Minor or Major Amendments, which involve varying degrees of change to the HCP Amendment's implementation obligations.

Substantive changes that could initiate amendments may include, but are not limited to, adding Covered Activities not currently covered by the HCP Amendment, increasing the level of authorized incidental take of Covered Species, extending coverage to newly Listed Species, expanding the geographic region of HCP Amendment coverage, and moving species currently not proposed for coverage to the Covered Species list.

SDG&E will document changes and amendments in addenda to the HCP Amendment. Any accompanying documents necessary to satisfy applicable law also will be prepared. HCP amendments may require additional environmental analysis under CEQA, NEPA, or both. All Minor or Major Amendments require consultation with and concurrence by USFWS. In addition, Major Amendments will require amendments to USFWS's ITPs.

6.5.1 Processing HCP Amendment Changes

The information necessary to document proposed changes to the HCP Amendment will be presented to USFWS in the form of an addendum to the HCP Amendment. The addendum will state the need for the change; the proposed change; and, based on the

type of change, specific information and findings to justify the change(s). While the addendum will be prepared as a separate document, the addendum may also be incorporated as an element of any required CEQA or NEPA document circulated for public review and comment for the proposed action. Three types of changes to the HCP Amendment may occur as described below: clerical or administrative changes; Minor Amendments; or Major Amendments. The Annual Report on the HCP Amendment's implementation will document all changes to the HCP Amendment and amendments for the previous calendar year and include the supporting addenda.

Most changes to the HCP Amendment are expected to be administrative changes or Minor Amendments, and some Major Amendments may be required.

6.5.1.1 Clerical and Administrative Changes

Clerical and administrative changes are intended to be non-substantive edits and updates to the HCP Amendment and include, among other things, typographical corrections and minor editing that do not affect conservation commitments, vegetation mapping, and species occurrence updates.

Administrative and clerical changes may be made by SDG&E on its own initiative or in response to a written request submitted by USFWS and will not require any amendment to the HCP Amendment or permits. All proposed clerical or administrative changes shall be circulated in writing to SDG&E and USFWS by the party proposing the change. Proposed clerical or administrative changes are anticipated to be non-controversial. If no party objects to the proposed clerical or administrative change within 30 days of receipt, the change shall be deemed accepted. If a party objects to a proposed clerical or administrative change, the parties will confer to review the requirements for proposing an administrative and clerical change. If the parties continue to disagree on the contents and requirements for proposing a clerical or administrative change, either party may elect to propose the change as a Minor Amendment to the HCP Amendment. Each Annual Report shall include a summary of all clerical and administrative changes made to the HCP Amendment during the preceding calendar year.

6.5.1.2 Minor Amendments

Minor Amendments are permissible without amending the underlying section 10(a)(1)(B) permit provided that USFWS determines that the changes do not (1) result in additional incidental take of/impacts to Covered Species not analyzed in connection with the original HCP Amendment; (2) result in operations under the HCP Amendment that are significantly different from those analyzed in connection with the original HCP Amendment; or (3) have adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP Amendment. General criteria for determining the applicability of the Minor Amendment process are shown below. Covered Activities that meet the criteria will be processed as a Minor Amendment and reported in the Annual Report.

- The activity requiring coverage must fall within the definition of Covered Activities outlined in Section 2.2, and the cumulative effects of such activity when added to the effects of other Covered Activities may not exceed those analyzed in the original HCP Amendment.
- The activity requiring coverage involves take of/impacts to Covered Species; incidental take of/impacts to Listed Species not covered by the HCP Amendment will not be addressed with a Minor Amendment.
- The activity will occur in the Plan Area.
- The activity requiring coverage will not require that USFWS amend its intra-agency Section 7 Biological Opinion.
- The HCP Amendment provides adequate mitigation to offset impacts.
- The activity requiring coverage, including any measures incorporated to reduce impacts, does not: permanently hinder other conservation programs; or result in any net loss in biological functions and values of Preserves (or Proposed Preserves) within the Plan Area, including maintaining the acreage of habitat for and populations of Covered Species within Preserves (or Proposed Preserves) within the Plan Area.

Additionally, transferring a portion of the authorized 400 acres of permanent impacts to temporary impacts and/or fuel modification impacts (resulting in no net increase in impacts) may be accomplished through a Minor Amendment. Further, Covered Activities supporting new projects that will impact a narrow endemic plant species, vernal pool species, Laguna Mountains skipper, Hermes copper butterfly, arroyo toad, southwestern willow flycatcher, light-footed Ridgway's rail, western yellow-billed cuckoo, tricolored blackbird, southwestern pond turtle, California red-legged frog, Stephens' kangaroo rat, or Pacific pocket mouse, and/or more than 1.75 acres of a Preserve or Proposed Preserve will require Minor Amendments to the HCP Amendment.

SDG&E and USFWS may propose changes to the HCP Amendment requiring a Minor Amendment by providing written notice to the other parties. At a minimum, such written notice shall include the following:

- An explanation of why the change requires a Minor Amendment.
- An analysis of the environmental effects as a result of pursuing the Minor Amendment and an explanation of why the effects of the proposal (i) are not new or significantly different from those considered in the HCP Amendment and (ii) would not result in new impacts to Covered Species and habitat, or levels of incidental take/impact beyond those analyzed in connection with the HCP Amendment and the permits.

USFWS will use reasonable efforts to respond to proposed Minor Amendments within sixty (60) days of receipt of such submission by either approving or denying the Minor Amendment, requesting additional time to review the proposal, or by notifying the

proposing party that the proposed Minor Amendment must be processed as a Major Amendment in accordance with Section 6.5.1.3 of the HCP Amendment. Proposed Minor Amendments will become effective upon written approval of USFWS.

6.5.1.3 Major Amendments

Major Amendments will be required if a proposed action would include but not be limited to:

- increase incidental take of/impact to a Covered Species or habitat impacts beyond the authorized 400 acres of permanent impacts, 210 acres of temporary impacts (without a commensurate decrease in acres of permanent impacts), or 210 acres of Wildfire Fuels Management impacts;
- addition of a Covered Species; and/or
- modify/expand the HCP Amendment to include areas not already included in the Plan Area.

Major Amendments will require analyses of the anticipated effects of the proposed action on Covered Species, on sensitive habitats and species not addressed herein, and on the additional conservation to be provided through the Major Amendment process. Major Amendments will be processed as permit amendments in accordance with all applicable federal and state statutory and regulatory requirements, including NEPA and CEQA. All Major Amendments to the HCP Amendment will be memorialized through an addendum to the HCP Amendment and a permit amendment and will be documented in the Annual Report.

6.6 Future Section 7 Consultations

An important goal of the HCP Amendment is to provide a framework for ESA compliance for all Covered Activities in the Plan Area, including Covered Activities that are implemented on federal lands or require a subsequent federal authorization. The HCP Amendment provides incidental take coverage for wetland/riparian dependent Covered Species and includes Operational Protocols, Species-Specific Protocols, and mitigation for potential impacts to these species and their habitat. While incidental take of wetland/riparian dependent Covered Species is covered by the HCP Amendment, its issuance does not satisfy other applicable laws or agency obligations related to impacts to waters/wetlands. The HCP Amendment also does not alter the obligation of federal agencies to consult with USFWS or the National Marine Fisheries Service pursuant to Section 7 of the ESA for actions related to the Covered Activities.

Consequently, for some future Covered Activities, ESA Section 7 consultation will still be required even though the incidental take of/impact to Covered Species has already been authorized by the HCP Amendment permit (e.g., Covered Activities requiring Clean Water Act Section 404 authorization). Any such impacts would still require the applicant to secure applicable separate permits and satisfy applicable processes (e.g., U.S. Army Corps of Engineers Clean Water Act 404 permits, State Water

Resources Control Board Clean Water Act 401 Certifications, and CDFW Streambed Alteration Agreements, as appropriate) to comply with applicable law. Where Covered Activities require a U.S. Army Corps of Engineers issuance of a 404 permit authorizing discharge of dredged or fill material), Operational Protocols, Species-Specific Protocols, and mitigation measures contained in the HCP Amendment may be utilized and/or considered during the consultation process, but the HCP Amendment does not absolve the U.S. Army Corps of Engineers of its independent responsibility under ESA Section 7. If the project is consistent with the HCP Amendment, USFWS will do a streamlined consultation with the U.S. Army Corps of Engineers.

To help facilitate future Section 7 consultations and other federal agencies' ESA compliance, SDG&E has included template letters and a template Biological Evaluation outline in Appendix H of the HCP Amendment. The goal of future consultations will be to strive for streamlining of consultations where feasible and minimizing duplicative analyses of impacts on Covered Species.

6.7 Relation to Other Regional HCPs/NCCPs

SDG&E's HCP Amendment independently governs Covered Activities in its service area. The HCP Amendment is unlike many regional HCPs/NCCPs and does not depend on the creation of a multi-jurisdictional habitat preserve. Instead, the HCP Amendment is premised upon avoidance of impacts to Covered Species and their habitat and implementation of minimization and mitigation measures where such impacts are unavoidable. The implementation of the HCP Amendment and incidental take coverage are independent of other regional HCPs/NCCPs and SDG&E does not need to participate in other regional HCPs/NCCPs as a special entity to receive incidental take coverage.

The HCP Amendment includes all of SDG&E's service area, which overlaps with existing regional HCPs/NCCPs. The HCP Amendment remains designed to be consistent with all regional HCPs/NCCPs in the SDG&E service area, as described in Section 1.4.2. Though SDG&E will utilize its best efforts to coordinate its implementation of the HCP Amendment with the implementation of other regional HCPs/NCCPs, the HCP Amendment shall be implemented as an overlay of and independent of any other regional HCPs/NCCPs within the boundaries of which any Covered Activity takes place or any Facility is located. However, measures and mitigation requirements may differ as each regional HCP/NCCP has been developed independently. When SDG&E conducts Covered Activities in natural areas, SDG&E and its contractors are required to implement the HCP Amendment's operational protocols, including providing compensatory mitigation, for unavoidable impacts to Covered Species habitat in the HCP Amendment area. Regardless of geographic area, the HCP Amendment controls Covered Activities, including measures and mitigation requirements. In short, with limited exceptions relating to Preserve Areas in such plans, as described in Section 5.4, the HCP Amendment controls Covered Activities and will be implemented independent of such other plans. However, nothing in this HCP Amendment shall be construed to diminish or extend the powers or authority of any local government to regulate any SDG&E Covered Activity or Facility.

Changed and Unforeseen Circumstances and Regulatory Assurances

7 Changed and Unforeseen Circumstances and Regulatory Assurances

Changed Circumstances is defined in 50 C.F.R. 17.3 as changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by applicant (here, SDG&E) and USFWS and that can be planned for. Specific factors analyzed in the HCP Amendment include vandalism, fire, floods, landslide and wind/water erosion, drought, climate change, and invasive species.

Changed Circumstances will be addressed through the implementation of remedial measures on mitigation lands. Remedial measures are specific actions that will be taken in response to Changed Circumstances and are designed to address the adverse impacts to Covered Species on mitigation lands resulting from Changed Circumstances. Remedial measures will generally not include actions beyond those expressly identified in this section, nor for any event not specifically identified as a Changed Circumstance, although the measures may include new actions agreed to by SDG&E and USFWS. Remedial measures differ from adaptive management in that remedial measures are predetermined and defined actions that must be taken in the event of a Changed Circumstance. If a Changed Circumstance occurs within mitigation lands within a plan area as defined by these sections, the land manager will notify USFWS of this Changed Circumstance within 30 days after learning that any Changed Circumstances defined by these sections have occurred. The land manager will implement remedial measures in the manner described below and will report to USFWS on its actions. The land manager will make such modifications without awaiting notice from USFWS. Changed Circumstances do not apply to restoration or enhancement projects until those projects meet their respective success criteria. If repeated damage occurs to a restoration or enhancement site, SDG&E and USFWS will discuss remedies to the situation. Unforeseen Circumstances are defined in 50 C.F.R. 17.3 as changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and USFWS during the plan's negotiation and development, and that result in a substantial and adverse change in the status of the Covered Species.

In the event of Unforeseen Circumstances during the permit term, SDG&E and USFWS would work together to identify opportunities to redirect existing resources to address these Unforeseen Circumstances. However, SDG&E requests assurances consistent with the federal No Surprises Regulation that USFWS will not:

- require the commitment of additional land, water, or financial compensation by SDG&E in response to Unforeseen Circumstances other than those agreed to elsewhere in the HCP Amendment; or
- impose additional restrictions on the use of land, water, or natural resources otherwise available for use by SDG&E under the original terms of the HCP Amendment to mitigate the effects of the Covered Activities or in response to Unforeseen Circumstances.

As described in the No Surprises Regulation, it is USFWS's responsibility to demonstrate the existence of Unforeseen Circumstances using the best scientific and commercial data available. The federal No Surprises Regulation does not limit USFWS or any federal, state, local, or tribal government agency or private entity from taking additional actions at its own expense to protect or conserve Covered Species. The federal No Surprises Regulation also does not prevent USFWS from asking SDG&E or its land managers to voluntarily undertake additional mitigation on behalf of the affected species.

7.1 Specific Changed Circumstances

The discussion in this subsection relates to the land manager's responsibility for Changed Circumstances on mitigation lands acquired as part of SDG&E implementation. The endowment for each mitigation site's management plan will include funds for remedial measures to address appropriate site-specific Changed Circumstances; no contingency funds will be included in the property analysis record (PAR) analysis for Unforeseen Circumstances. Within each specific Changed Circumstance, a trigger will be initiated when a range of conditions constitute a Changed Circumstance and the land manager can use adaptive management to address the specific Changed Circumstances that have occurred. For conditions below the lowest value, annual management actions are expected to be included in the management plan. To address conditions within the expected range, remedial measures will be implemented to address the Changed Circumstances. Conditions above the range are considered an Unforeseen Circumstance.

7.1.1 Fire

Repetitive Fire is defined as a fire that (1) occurs in the same location as a previous fire; (2) occurs between 3 to 10 years after the initial fire; (3) burns at least 50% of any future mitigation lands; and (4) is a single fire so intense or of such severity that it would be unlikely for the area to recover to the original vegetation community.

Risk Assessment

Because much of the area within the Plan Area where future mitigation sites would be established supports highly flammable scrub and grassland, risk of wildfire could be high. Based on the history of fire within the Plan Area, fire is likely to occur during the life of the HCP Amendment to warrant specific measures to address such a change in

circumstances, although it is expected that preventative measures, including fire suppression, will be effective at reducing the risk of fire.

Under certain circumstances, the occurrence of fire within potential mitigation sites may adversely affect Covered Species. Repetitive Fires create conditions for habitat type conversion from suitable Covered Species habitat to non-suitable or poor-quality habitat. The damage that a repetitive wildfire might cause to a mitigation site is difficult to predict because it depends on where the wildfire started, the wind direction and force, atmospheric conditions, and other temporal factors. The severity and temperature of the fire, as well as the habitat affected, would influence the extent of the damage and the appropriate response necessary to prevent habitat type conversion.

Existing management funds will be used to address management actions for fires up to 300 acres or for which management actions exhaust 4.5% of the contingency set aside for adaptive management, whichever is greater.²⁴ Changed Circumstances funding will be used to address site-specific management issues after a large fire. Unforeseen circumstances are fire-related events so catastrophic that they render the area unusable to the Covered Species without massive rehabilitation. In these instances, SDG&E will work with USFWS to determine how to best prioritize the use of the endowment and Changed Circumstance funding.

Preventative Measures

SDG&E will include site-specific fire prevention measures within any habitat management plans prepared for future mitigation lands. Measures should be tailored to the sites but may include fire breaks, identification of water resources, and nonnative species removal to reduce fuel.

Remedial Responses

Repetitive fires may or may not cause long-term adverse impacts on species; therefore, the need for any additional management will be considered in the context of general land management actions. SDG&E will ensure that the funds are included in any habitat management plans that are developed for a given mitigation site to respond to Repetitive Fire (see Section 5.5). Land manager responses could include, but are not limited to, monitoring of the mitigation site to determine whether a response is required; development of a strategy that would protect the site from further damage due to erosion such as replanting native species; installation of erosion control devices; and/or monitoring for restoration success, including controlling invasive weeds as identified in the management plan for the site.

²⁴ When SDG&E acquires property for mitigation under this Plan, among other things, a non-wasting endowment is developed for the management of the mitigation property in perpetuity. To ensure that the return on investment is sufficient to create a non-wasting endowment, SDG&E includes a 5% contingency for adaptive management of the mitigation property. Supporting templates for management plans and PAR analyses are not required but may be added in the future as part of administrative changes with USFWS.

7.1.2 Drought

For the purpose of defining Changed Circumstances, drought is defined as climatic drought when the mean annual rainfall is less than 50% of normal with a duration of no less than 3 years, as declared by the California State Department of Water Resources and/or the San Diego County Water Authority. Droughts of more than 10 consecutive years are considered Unforeseen Circumstances.

Risk Assessment

Drought is a cyclical weather phenomenon that is beyond human control. Drought is not uncommon in southern California, and it is a phenomenon to which local natural habitats and species have adapted over time. Drought occurs slowly over a multi-year period, differing from the catastrophic events of fire and flood, which occur rapidly and afford little time for preparing for disaster response. Drought conditions may adversely affect Covered Species habitat. The potential for drought to impact a mitigation site increases with the length of a drought. The land manager will respond to the management needs of the species and will use Changed Circumstances funding when necessary and approved by USFWS to help address drought conditions and enhance the species' habitat.

Preventative Measures

Preventative measures for climatic drought are beyond the scope of, and therefore are not included in, the HCP Amendment.

Remedial Responses

To the extent SDG&E or USFWS determines that a drought condition as defined by this section exists on a mitigation site, that party will notify the other parties. After notification is given, SDG&E will ensure that the funds are included in any habitat management plans developed by any perspective third-party land manager for a given mitigation site to respond to drought. Land manager responses could include, but are not limited to, monitoring of the mitigation site to determine whether a response is required, development of a strategy that supports the re-growth of habitat and or suppression of invasive plant species, and/or strategies to reduce potential for habitat type conversion as outlined in management plan.

7.1.3 Invasive Species

Invasive plant or animal species could occur or be introduced into the mitigation areas, (e.g., bullfrogs, versatile fairy shrimp, fishes, red-eared sliders, and noxious weeds) subsequently reducing or affecting the quality of the habitat for Covered Species. Invasive plant species spreading throughout the Plan Area within the permit term is a foreseeable event. Noxious weed infestations that are between 5% and 50% of a mitigation parcel are considered a Changed Circumstance. The intent of the actions that follow is to allow a land manager to utilize Changed Circumstances funding at the sign

of a serious invasive species problem. If an invasive species, despite a land manager complying with all applicable invasive species control requirements and using all feasible methods to control invasive species, spreads beyond a level that can effectively be controlled (i.e., greater than 50%), it would be considered an Unforeseen Circumstance beyond the scope of the HCP Amendment, and the land manager would not be required to implement remedial actions to address the event.

Risk Assessment

Although invasive, exotic, or pest species of plants may currently be present within a mitigation site, an unexpected and/or sudden increase in certain invasive species may create the potential for impacts to Covered Species, which could have a significant adverse effect on Covered Species within the mitigation site. Opportunities for increases in invasive species could occur as urban development expands in areas surrounding a mitigation site. In addition, the occurrence of a catastrophic event may precipitate sudden increases of invasive species.

Preventative Measures

Any management plan approved by USFWS used to establish a mitigation site will include measures to reduce the opportunity for invasion by exotic species.

Remedial Responses

Once invasion by exotic species has occurred, natural succession likely will not allow for the complete recovery of a Covered Species mitigation site to a pre-disturbance state. Active restoration may be required to control exotic species and/or reestablish native vegetation. SDG&E will ensure that the appropriate annual contingency funds are included as part of an endowment for any habitat management plans developed for a given mitigation site to respond to invasive species. Land manager responses could include, but are not limited to, monitoring of the mitigation site to determine whether a response is required, development of a strategy that supports the re-growth of habitat and or suppression of invasive species and/or strategies to reduce potential for invasion by exotic species and/or habitat type conversion as outlined in the management plan for the site.

7.1.4 Climate Change

Climate change refers to a change in global or regional climate patterns that may be due to natural processes and persistent anthropogenic changes in the composition of the atmosphere, which is largely attributed to the increased levels of greenhouse gas emissions, primarily carbon dioxide, as a result of human industrialization (IPCC 2018). Climate change also is predicted to include secondary global impacts such as sea level rise and changing weather patterns.

Scientific modeling predicts that continued greenhouse gas emissions at or above current rates would induce more extreme climate changes during the 21st century than

were observed during the 20th century. Human activities are estimated to have caused approximately 1.0 degrees Centigrade (°C) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018). According to the Indicators of Climate Change in California 2018 Report, potential impacts of climate change in California may include loss of snowpack (which serves as water storage), sea level rise, extreme heat events, more wildfires, and drought conditions (OEHHA 2018).

Current global and regional trends suggest that climate change is likely to affect the mitigation area lands. The Plan Area falls within the southwestern California ecoregion. As detailed in the 2018 San Diego County Ecosystems: The Ecological Impacts of Climate Change on a Biodiversity Hotspot, in the near term, ecosystems in the region will be most threatened by landscape changes, disturbances, and fragmentation due to development and fire. In the longer term, climate variability will compound those stressors with significantly warmer temperatures, more variable precipitation regimes resulting in occasional high intensity flooding and more frequent and prolonged droughts, and more destructive fires due to drought and increased ignitions/fuel availability (Climate Science Alliance 2018).

As such, a number of ecological responses to climate change could occur in the mitigation areas. For example, the general increase in mean annual temperatures could cause species range shifts and novel assemblages, such as narrowly endemic, gabbro-associated plants experiencing unsuitable temperatures where suitable soil conditions exist. The increase in frequency and severity of heat waves may lead to increased mortality and decreased reproductive success (e.g., potential for exceeding thresholds for some species like the California spotted owl (*Strix occidentalis occidentalis*) with known temperature thresholds. The increase in spring drying has the potential to affect biomass leading to decreased reproductive success for species that breed in aquatic systems (e.g., arroyo toad). The increase in precipitation variability may impact ephemeral and riparian environments causing less stabilizing vegetation and increased erosion. The increase in droughts may lead to potential structural shifts in ecosystems. Additionally, the increase in fire frequency may lead to higher type conversion to nonnative grasses, causing reduced habitat for shrubland species like the coastal California gnatcatcher. Climate warming superimposed upon the pronounced spatially varying temperature in the San Diego region will likely be associated with range shifts for many species resulting in novel community assemblages and biotic interactions (Climate Science Alliance 2018).

Risk Assessment

Overall, climate change can reasonably be expected to influence the ecological response of Covered Species over the permit term. The magnitude of these changes and the specific changes remain uncertain.

Preventative Measures

The effects of climate change are being addressed through the closely related preventative responses to Changed Circumstances of fire, drought, and invasive species.

Remedial Responses

The effects of climate change are being addressed through the closely related remedial responses to Changed Circumstances of fire, drought, and invasive species.

7.1.5 Diseases and Pathogens

Diseases and pathogens could occur in or be introduced into the mitigation areas, subsequently reducing or affecting the quality of the habitat for Covered Species. Management plans developed for mitigation lands will include measures to prevent such occurrences or introductions, although additional measures may be needed. New diseases and pathogens spreading throughout the Plan Area within the permit term is a foreseeable event.

At the first sign of a disease or pathogen (e.g., amphibian deaths, or dead and dying trees and shrubs), the land manager will seek to identify the disease or pathogen. Most infestations will be considered Changed Circumstances. However, if, despite a land manager complying with all applicable disease and pathogen control requirements and using all feasible methods to control a disease and pathogen, a disease or pathogen spreads beyond a level that can effectively be controlled (e.g., it cannot be controlled on a County-wide or region-wide basis), it would be considered an Unforeseen Circumstance beyond the scope of the Subarea Plan, and the land manager would not be required to implement remedial actions to address the event.

Risk Assessment

Although diseases or pathogens may currently be present within a mitigation site, an unexpected and/or sudden increase in certain diseases or pathogens may create the potential for impacts to Covered Species, which could have a significant adverse effect on Covered Species within the mitigation site. Opportunities for increases in diseases or pathogens could occur as urban development expands in areas surrounding a mitigation site. In addition, the occurrence of a catastrophic event, including Changed Circumstances, may precipitate sudden increases of diseases or pathogens.

Preventative Measures

Any management plan approved by USFWS used to establish a mitigation site will include measures to reduce the opportunity for invasion by diseases or pathogens.

Remedial Measures

SDG&E will ensure that the appropriate amount of annual contingency funds is included as part of an endowment for any habitat management plans developed for a given mitigation site to respond to diseases or pathogens. Land manager responses could include, but are not limited to, monitoring of the mitigation site to determine whether a response is required, development of a strategy that supports the eradication and/or suppression of the disease or pathogen, and/or development strategies to reduce potential for invasion by diseases or pathogens as outlined in the management plan for the site.

7.2 Other Considerations

7.2.1 The New Listing of Species and Designation of Critical Habitat Not Covered by the HCP Amendment

Over the course of HCP Amendment implementation, USFWS may list as threatened or endangered under the ESA species, or designate critical habitats, that are not covered under the HCP Amendment. If a non-Covered Species becomes listed or new critical habitat is designated, SDG&E will take the following measures:

- The potential impacts of Covered Activities on the newly Listed Species and designated critical habitat will be evaluated, including an assessment of the presence of suitable habitat in impact areas.
- SDG&E will develop measures to avoid take (or jeopardy if the species is a plant) of the newly Listed Species, and to avoid destruction or adverse modification of newly designated critical habitat, until the HCP Amendment is amended to cover the species or address critical habitat or SDG&E complies with the ESA via other means (i.e., individual Section 7 consultations, etc.).

Should a species not covered by the HCP Amendment be listed, proposed, or petitioned for listing, SDG&E may request that USFWS add the species to the Section 10(a)(1)(B) permit. In determining whether to seek incidental take coverage for the species, SDG&E will consider, among other things, whether the species is present in the Plan Area and if otherwise lawful activities could result in incidental take of the species. If incidental take coverage is desired, the HCP Amendment and take authorizations could be amended. Alternatively, SDG&E could apply for a new and separate permit. Procedures for amendments to the HCP Amendment are outlined in Section 6.5.

7.2.2 Regulatory Assurances

SDG&E has prepared the HCP Amendment anticipating a standard, consistent, and cost-effective way of complying with the federal ESA. The federal No Surprises Regulation was established by the Secretary of the Interior on March 25, 1998. It provides assurances to Section 10 permit holders that no additional money, commitments, or restrictions of land or water will be required should Unforeseen Circumstances requiring additional mitigation arise once the permit is in place. The No

Surprises Regulation states that if a Permittee is properly implementing an HCP Amendment that has been approved by USFWS, no additional commitment of resources, beyond that already specified in the plan, will be required. SDG&E requests regulatory assurances (No Surprises) for all Covered Species in the Plan. In accordance with No Surprises, SDG&E will be responsible for ensuring the implementation and funding of remedial measures in response to any Changed Circumstances as described in this section. SDG&E will not be obligated to address Unforeseen Circumstances but will work with USFWS to address them within the funding and other constraints of the HCP Amendment should they occur. SDG&E understands that No Surprises assurances are contingent on the proper implementation of the permits and HCP Amendment.

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Alternatives

8 Alternatives

Within its service area, the demands of customers for electric power and natural gas are met by SDG&E. As a public utility, SDG&E is required by Public Utilities Code Section 451 to provide these utility services in a safe and reliable manner. The CPUC has the authority under Public Utilities Code Sections 701, 761, and 762 to require public utilities to establish and maintain the Facilities and property rights necessary to provide safe and reliable service. In addition, SDG&E sets corporate goals in an effort to attain the highest quality and dependability of service at the lowest rates it can achieve.

These customer demands, legislative mandates, regulatory controls, and corporate goals require that SDG&E install new Facilities necessary to meet the growing demands of its customers, and that such new Facilities and all existing Facilities be adequately maintained and repaired to ensure safety and reliability. The HCP Amendment addresses such installation, operation, maintenance, and repair Covered Activities and their potential to impact Covered Species or their habitat.

Section 10(a)(2)(A)(iii) of the federal ESA and 50 C.F.R. 17.22(b)(1)(iii) and 17.32(b)(1)(iii) require that an HCP Amendment specify alternatives to the taking of species that the applicant considered and the reasons why such alternatives are not proposed to be utilized. The curtailment of any aspect of the Covered Activities would render SDG&E's public utility services, to a greater or lesser extent, inadequate to meet demand, inefficient, unsafe, and unreliable.

An alternative to the HCP Amendment would be to have no amendment to the 1995 Subregional Plan. The no HCP Amendment alternative would mean that the permanent impact cap would not increase by 400 acres and the 210-acre temporary impact cap and 210-acre Wildfire Fuels Management impact cap would not be created. Covered Activities described in the Subregional Plan, however, would remain subject to take prohibitions of the ESA. ITPs would be required for such Covered Activities on a project-by-project and species-by-species basis once the impact cap is reached (currently estimated in 2023), including for fire hardening and other wildfire mitigation work. The case-by-case process of permitting is cumbersome, time consuming, and unnecessarily resource intensive for SDG&E, USFWS, and stakeholders. It would delay critically needed O&M and development of new Facilities to maintain SDG&E Facilities to serve the public good. The HCP Amendment addresses such issues from an ecosystem or habitat basis, wherein such protections or conservation measures are affected, whether or not defined, as a functioning aspect or part of the protected and covered ecosystem or habitat. Because the HCP Amendment provides comprehensive multiple species and habitat conservation, and is not limited to Listed Species, it provides a net benefit to the environment in that it protects and conserves species in a manner that may prevent any future listing of such species. In addition, the HCP Amendment provides SDG&E with long-term predictability concerning the nature of its operations for which takings are

permitted, avoiding cumbersome procedures and potential Facility compromising delays.

SDG&E also considered an alternative that would retain all species covered in the original 1995 Subregional Plan and no additional species, regardless of whether these species were likely to be affected by Covered Activities or their status under law and leave protective protocols unchanged. Under this alternative, SDG&E would need to devote resources to cover species that were abundant and not in need of conservation, and that were unlikely to encounter yearly habitat disturbance that was dispersed, decentralized, difficult to monitor, and unlikely to result in take of species. In addition, SDG&E would not add any of the Species-Specific Protocols that are anticipated to provide additional robust conservation value to Covered Species. This alternative was considered but ultimately rejected because it did not provide any additional protections to listed and vulnerable species, it increased administrative burdens, and it diverted finite resources from species that would benefit from maintained or increased conservation efforts.

Funding

9 Funding

9.1 Cost to Implement the SDG&E HCP Amendment

The HCP Amendment will be funded through SDG&E's gas and electricity rates as authorized and regulated by the CPUC and FERC for the ongoing operation, maintenance, and construction of Facilities (see Section 9.2). The costs of implementing all aspects of the HCP Amendment, such as administrative costs for reporting and tracking to costs associated with the R/E Program, are typically included as a part of a capital or O&M project. All appropriate avoidance, minimization, or mitigation measures as prescribed in the HCP Amendment will be integrated within each project's design and budget.

SDG&E has provided the average annual costs for implementing the Subregional Plan in Sections 9.1.1 and 9.1.2 below. These averages were estimated based on 4 years of data (2016–2019). SDG&E has also spent \$7,858,237 on Mitigation Credit purchases associated with the Subregional Plan (1995 original purchase and Cielo B in 2015).

9.1.1 Administrative Costs

Administrative costs associated with implementing the HCP Amendment include, but are not limited to, staff review and support of projects covered by the HCP Amendment during the planning, design and construction phases, agency coordination, Annual Report preparation, and consultant support with implementing the Subregional Plan. Based on a review of labor cost data and cost for consultant support for the last 4 years (2016–2019), SDG&E estimates an average of \$313,234 is spent per year on administrative costs in support of the Subregional Plan.

9.1.2 HCP Amendment Implementation Costs

In addition to administrative costs, SDG&E also incurs costs to implement the HCP Amendment, which include, but are not limited to, costs for preparing PSRs, implementing avoidance and minimization measures (such as nesting bird surveys, biological monitoring, and training), and implementing the R/E Program. The annual costs for implementing the Subregional Plan vary each year based on multiple factors such as the volume of projects that are covered by the Subregional Plan, complexity of the projects, and current consulting fees and negotiated contract rates. Based on a review of 3.5 years of data (June 2016– December 2019), SDG&E estimates an average of \$1,130,884 is spent per year implementing the Subregional Plan. This estimate excludes projects that were separately analyzed pursuant to CEQA/NEPA. While projects that require additional CEQA/NEPA permitting may also utilize the HCP Amendment, these projects typically have increased cost associated with licensing/permitting, and environmental constraints including additional compensatory mitigation for various resource areas. SDG&E accounting practices cannot separate out the costs

for the additional CEQA/NEPA requirements from the HCP Amendment requirements; therefore, these projects could not be used in developing the estimated annual average of the HCP Amendment implementation.

9.1.3 Mitigation Costs

The HCP Amendment estimates approximately 400 acres of permanent impact, and 210 acres of Wildfire Fuels Management impact, over the remaining permit term. Mitigation requirements vary between habitat-based (Tables 5.3a and 5.3b) mitigation and species-specific (Table 5.4) mitigation. Estimated costs for habitat-based and species-specific mitigation is summarized in Table 9.1.

Table 9.1 SDG&E Estimated Mitigation Costs for Habitat-Based and Species-Specific Impacts (without inflation)

Resource ¹	Estimated Impact (Acres) ²	Habitat Preserved through Mitigation (Acres) ³	Cost/Acre (including endowment)	Projected Mitigation Cost (remaining permit term)
Pacific Pocket Mouse ⁴	1.5	In-Lieu Fee	In-Lieu Fee	\$592,950.00
Stephens' Kangaroo Rat ⁴	14.92	44.76	\$28,000.00	\$1,253,280.00
Chaparral Covered Species ⁵	148.85	297.7	\$20,000.00	\$5,954,000.00
Coastal Sage Scrub Covered Species ⁶	89.13	178.26	\$35,000.00	\$6,239,100.00
Desert Covered Species ⁷	7.55	15.1	\$30,000.00	\$453,000.00
Grassland Covered Species ⁸	88.49	176.98	\$50,000.00	\$8,849,000.00
Mountain Meadow Covered Species ⁹	0.11	0.22	\$65,000.00	\$14,300.00
Riparian and Wetland Covered Species ¹⁰	46.29	138.87	\$30,000.00	\$4,166,100.00
Salt Marsh Covered Species ¹¹	2.52	10.08	\$475,000.00	\$4,788,000.00
Vernal Pool Covered Species ¹²	0.64	1.92	\$350,000.00	\$672,000.00
Wildfire Fuels Management	210	210	\$20,000.00	\$4,200,000.00
			Total	\$37,181,730.00

¹ Golden eagle mitigation would be in the form of short-term or long-term retrofits per the ECP. No bald eagle mitigation is required per Section 5.5.5.

² Species estimates based on projected impacts in the Covered Species Analysis (Appendix A). Impacts adjusted so that permanent impacts total 400 acres for species impact and 210 acres for Wildfire Fuels Management. Although most impacts are anticipated to be unoccupied habitat or general habitat, estimate herein are based on species impacts provided Appendix A and do not assume any impacts to unoccupied habitat for a conservative estimate of projected costs.

³ Projected mitigation requirements are based on the mitigation ratios in Table 5.4 which are higher due to the requirements for occupied habitat. This provides for a conservative estimate of projected costs.

⁴ Pacific pocket mouse and Stephens' kangaroo rat separate out due to the specific funding required for each per Sections 5.5.2.1 and 5.5.6.

⁵ San Diego thorn-mint, Del Mar manzanita, Encinitas baccharis, Orcutt's spineflower, short-leaved dudleya, Dehesa beargrass, Hermes copper butterfly, and western spadefoot.

⁶ San Diego thorn-mint, thread-leaved brodiaea, Otay tarplant, hermes copper butterfly, western spadefoot, coastal cactus wren, and coastal California gnatcatcher

⁷ Peninsular bighorn sheep

⁸ Thread-leaved brodiaea, Otay tarplant, western spadefoot, tricolored blackbird, and burrowing owl.

⁹ Laguna Mountain skipper.

¹⁰ San Diego ambrosia, willowy monardella, arroyo toad, California red-legged frog, western spadefoot, southwestern pond turtle, western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo.

¹¹ Salt marsh bird's-beak, Belding's savannah sparrow, and light-footed Ridgway's rail.

¹² San Diego button-celery, spreading navarretia, California orcutt grass, San Diego mesa mint, Otay Mesa mint, San Diego fairy shrimp, Riverside fairy shrimp, and western spadefoot.

Projected mitigation acreage requirements were based on the estimated acres of impact identified in the Covered Species Analysis (Appendix A) and mitigation ratios identified in Tables 5.3a and 5.3b and Table 5.4. Species impact estimates in the Covered Species Analysis are based on Modeled Habitat and, therefore, species-specific mitigation acreage requirements are expected to be lower because only known or assumed occupied habitat will be mitigated as detailed in the Species-Specific Protocols in Section 5.1.13. For example, the Covered Species Analysis estimated approximately 53 acres of permanent impacts to Modeled Habitat for burrowing owl across the entire Plan Area. However, in-kind mitigation with occupied habitat or habitat that will benefit the species is only required for impacts to known or assumed occupied BUOW-Habitat (i.e., Tracked Habitat).

SDG&E collected and reviewed data from planners and Mitigation bankers to estimate cost per acre for mitigation land. Land acquisition and endowment cost will vary depending on the location and species impacted. More specialized habitat requirements, such as marsh and vernal pool, will cost more than general upland habitat. The numbers in Table 9.1 provide a reasonable estimate based on the estimated impact acres. To be conservative, the estimated costs were not reduced to account for Mitigation Credits/lands that SDG&E already owns. As discussed in Section 5.5, SDG&E has purchased 354 acres of Mitigation Credits of high-quality habitat that will be conserved in perpetuity. SDG&E estimated at the end of 2020 that approximately 100 acres of Mitigation Credit remained and would continue to be utilized to mitigate for impacts associated with Covered Activities.

SDG&E will ensure that during the remaining permit term of the incidental take authorizations, the available Mitigation Credits will be sufficient to satisfy at least 2 years of projected impacts and associated mitigation obligation. If the available Mitigation Credits would be reduced to below the estimated need, SDG&E would obtain additional credits in coordination with USFWS through either (1) land acquisition as detailed in Section 5.5.2, or (2) alternative means detailed in Section 5.5.3.

As discussed in Section 5.5.3, alternative mitigation strategies may be used in lieu of land acquisition. The cost to implement those alternative approaches is assumed to be around the same costs of land acquisitions. Table 9.2 provides an estimate of how mitigation expenditures will be allocated over the remaining permit term. Proportional expenditures are likely to change as the conservation needs of Covered Species in the HCP Amendment evolve through 2050.

9.2 Funding Sources

SDG&E has the financial capacity and commits to fully fund costs of the HCP Amendment implementation as outlined above through its gas and electricity rates. Collection of these rates is authorized and regulated by the CPUC and FERC for the ongoing operation, maintenance, and construction of Facilities. The regulation of rates is administered through a CPUC General Rate Case (GRC) proceeding that takes place every 3 to 4 years. The approval of the GRC sets the revenue requirement, allowed rate

of return, and capital budget that collectively work together in determining the rates to be collected by ratepayers in order to cover costs and generate a profit for shareholders. Having a set rate of return (7.55% return on assets) ensures that SDG&E is able to raise sufficient capital to make improvements to its infrastructure and provide reliable service to all customers.

Table 9.2 Estimated Mitigation Expenditure Allocation

Mitigation Approach	Percent of Total Estimated Mitigation	Estimated Amount (remaining permit term)
Land Acquisition	10%	\$3,718,173.00
Restoration/Enhancement in the Plan Area	15%	\$5,577,259.50
Conservation Organization Donation	2%	\$743,634.60
Alternative Mitigation Funds	50%	\$18,590,865.00
Recovery Plan Contribution	2%	\$743,634.60
Secure Conservation Easements on SDG&E Land	1%	\$371,817.30
Conservation/Mitigation Bank Purchases	20%	\$7,436,346.00
Total	100%	\$37,181,730.00

SDG&E meets its funding requirements through cash flows from operations, unrestricted cash and cash equivalents, and borrowings under credit facilities. We believe that these cash flow sources, combined with available funds, will be adequate to fund our current operations, including the ability to finance future capital expenditures, including expenditures related to the ongoing funding of the HCP Amendment.

9.3 Adequacy of Funding

Funding requirements must be guaranteed in order for the HCP Amendment to be implemented. Therefore, SDG&E must demonstrate financial assurance that will constitute such a guarantee. Financial assurance is evidenced by a long track record of stable operating revenues and profitable operations.

In 2019, SDG&E generated operating revenues of \$4,925 million and earnings of \$767 million. The financial solvency of SDG&E is further evidenced by a tangible net worth of \$5.9 billion as of December 31, 2019.

SDG&E is projecting to spend \$2 billion on capital expenditures in 2020 and expects to make capital expenditures of approximately \$8.9 billion through 2024.

SDG&E's operations have historically provided stable earnings and liquidity. Table 9.3 reflects net earnings and operating performance of SDG&E since 2010.

Table 9.3 SDG&E Net Earnings and Operating Performance (million dollars)

Year	Operating Revenues	Net Income	Capital Expenditures
2019	4,925	767	1,210
2018	4,568	669	1,831
2017	4,476	407	1,237
2016	4,253	570	978
2015	4,219	587	1,100
2014	4,329	507	1,133
2013	4,066	404	1,399
2012	3,694	484	1,522
2011	3,373	431	1,542
2010	3,049	369	1,555

SDG&E has maintained an investment grade credit rating for many years. The investment grade credit ratings enable access to the long-term debt markets and allow the Company to borrow at reasonable rates. While SDG&E does not anticipate needing to borrow from external sources to fund the HCP Amendment, it is nonetheless important to point out that our investment grade debt ratings provide a source to funding that would be adequate to implement the HCP Amendment for the duration of the remaining term. Below are the credit ratings as of December 31, 2019.

- Moody's Baa1 Positive
- S&P BBB+ Stable
- Fitch BBB+ Stable

SDG&E's operating performance in terms of strong and stable revenues and consistent profitability coupled with substantial tangible net worth and investment grade credit ratings provides adequate assurance that SDG&E has the financial capacity to fulfill the financial commitments with respect to the implementation of the HCP Amendment.

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Acknowledgments

10 Acknowledgments

The HCP Amendment was prepared over a 5-year period by SDG&E staff and consultants, USFWS and CDFW with support from several outside entities. Any omission of names is not intentional.²⁵

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²⁵ Back Cover Species Photos: Hermes Copper Butterfly by Jenna Hartsook; Arroyo Toad by Michael Anguiano; Peninsular bighorn sheep, Stephens' Kangaroo Rat, and Coast Horned Lizard by Andrew Fisher

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Covered Species Analysis for the HCP Amendment

APPENDIX A

**COVERED SPECIES ANALYSIS
FOR THE
SDG&E HABITAT CONSERVATION PLAN AMENDMENT**

FINAL

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August 2023

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ATTACHMENTS

- Attachment A. Anticipated Critical Habitat Impacts
- Attachment B. Anticipated Permanent Species Impacts Associated with O&M and New Construction
- Attachment C. Anticipated Temporary Species Impacts Associated with O&M and New Construction
- Attachment D. Anticipated Species Impacts Associated with Wildfire Fuels Management

ACRONYMS AND ABBREVIATIONS

Bird of Conservation Concern	BCC
Bureau of Land Management	BLM
California Department of Fish & Game	CDFG
California Department of Fish & Wildlife	CDFW
California Endangered Species Act	CESA
CalHerps	California Herps
California Natural Diversity Database	CNDDDB
California Native Plant Society	CNPS
California Rare Plant Rank	CRPR
Conservation Biology Institute	CBI
Endangered Species Act	ESA
Federal Register	FR
Habitat Conservation Plan	HCP
I-	Interstate
Jepson	Jepson eFlora Project
Low-Effect Habitat Conservation Plan	LEHCP
Management Unit	MU
Marine Corps Air Station	MCAS
Marine Corps Base Camp Pendleton	MCBCP
Master Occurrence Matrix	MOM
Multiple Habitat Conservation Program	MHCP
Multiple Species Conservation Program	MSCP
Multiple Species Habitat Conservation Plan	MSHCP
National Park Service	NPS
Natural Community Conservation Plan	NCCP
Operations and Maintenance	O&M
Pre-activity Survey Report	PSR
Probable Impact Zone	PIZ
Rights-of-Way	ROW
San Diego Association of Governments	SANDAG
San Diego County Water Authority	SDCWA
San Diego Gas & Electric Company	SDG&E
San Diego Management & Monitoring Program	SDMMP
San Diego Natural History Museum	SDNHM
State Route	SR
U.S. Department of Interior	USDOI
U.S. Fish & Wildlife Service	USFWS
U.S. Forest Service	USFS
U.S. Geological Survey	USGS
UCI	University of California, Irvine

1.0 INTRODUCTION

A comprehensive Covered Species analysis evaluating each of San Diego Gas & Electric Company's (SDG&E) Covered Species (species account) and the effects of Covered Activities on conservation and recovery is addressed in Sections 2 through 6. This section provides an overview of the content of each of the species accounts in Sections 2 through 6. Each species account addresses distribution, abundance, and trends; critical habitat; threats and limiting factors; and special considerations specific to each Covered Species (as applicable), such as Species-Specific Protocols intended to avoid and minimize potential impacts to these species. Each species account addresses species-specific concerns and Operational Protocols that can be implemented to avoid or minimize impacts as a result of Covered Activities. Each species account is organized using the format and content described in Sections 1.1 through 1.3 below.

1.1 COVERED SPECIES NAME AND CONSERVATION STATUS

Each species account identifies the focal Covered Species using both the common and scientific name of each as provided in the California Natural Diversity Database (CNDDB) (CDFW 2019a, 2019b). The listing status as outlined in Table 3.1 of the Habitat Conservation Plan Amendment (HCP Amendment) is provided for each species and includes designations by U.S. Fish & Wildlife Service (USFWS) and California Department of Fish & Wildlife (CDFW); the California Rare Plant Rank (CRPR) (formerly the California Native Plant Society List, which is specific to plant species only); Bureau of Land Management (BLM); and U.S. Forest Service (USFS), as well as those species that are SDG&E vernal pool species and narrow endemic plants (as defined in Sections 5.1.11 and 5.1.12 of the HCP Amendment). Any applicable policies relating to critical habitat or recovery plans specific to that species are referenced in the species account as well.

1.2 BACKGROUND

The background section of each species account includes biological information pertinent to conservation planning and management; distribution, abundance, and population trends; threats to the species and current factors contributing to limited abundance or population decline; and special considerations that may inform monitoring, management, and/or conservation decisions for the species. The following regional databases and sources were accessed to obtain information on Covered Species known to occur in the Plan Area:

- CNDDB
- USFWS regional databases
- San Diego Management and Monitoring Program (SDMMP)
- California Native Plant Society, Calflora, Consortium of California Herbaria, and Jepson Flora Project online database
- eBird and iNaturalist databases

- Existing Natural Community Conservation Plans (NCCPs) and Habitat Conservation Plans (HCPs) in the Plan Area
- Information available in published literature and reports

Critical habitat for 16 federally listed or candidate Covered Species occurs in the Plan Area (USFWS 2019a). Distribution, location, and acreage of the designated critical habitat along with the total approximate acreage located in the Plan Area are provided for each respective federally listed Covered Species in Sections 2 through 6. Attachment A provides a table summarizing the species with designated critical habitat in the Plan Area discussed in this Covered Species Analysis. Appendix C of the HCP Amendment provides a table summarizing designated critical habitat for peninsular bighorn sheep.

1.3 CONSERVATION ANALYSIS

The conservation analysis section of each species account provides an overview of the current conservation efforts for each species and quantifies Modeled Habitat and known species occurrences in the Plan Area and Probable Impact Zone (PIZ). Potential impacts, effects on population viability, and species recovery are discussed relative to the Modeled Habitat in the Plan Area as well as Species-Specific Protocols that will be implemented to avoid, minimize, and mitigate impacts resulting from Covered Activities.

1.3.1 Existing Regional Conservation Efforts

The majority of Covered Species in the HCP Amendment are covered and conserved by regional habitat conservation plans in San Diego County. Regional habitat conservation plans such as these are a key component of this Covered Species Analysis, as they provide for the long-term conservation of the Covered Species in the Plan Area. These efforts are significant because regional habitat conservation plans in the San Diego region are designed to provide an umbrella of protection for multiple species by conserving Covered Species habitat and linkages that allow connections between habitats. SDG&E's HCP Amendment is a significant part of the overall regional conservation planning strategy, which includes linkage corridors along mostly undeveloped utility Rights-of-Way (ROW) and large parcels of land that have been put into conservation. Public agencies, such as the City of San Diego, County of San Diego, and County of Orange, manage large swaths of land that have been conserved as a result of their development of NCCPs and HCPs. SDG&E is unique, as its operations span the jurisdictional boundaries of local public agencies, and Covered Activities primarily occur within narrow, linear ROW or easements that traverse open space and preserves managed by public agencies.

SDG&E's HCP Amendment takes into consideration the other regional NCCPs and HCPs and conservation lands in the Plan Area, including the San Diego Multiple Species Conservation Program (MSCP) Subregional Plan, the San Diego Multiple Habitat Conservation Program (MHCP) Subregional Plan, the Orange County Southern Subregion HCP, the San Diego County Water Authority (SDCWA) Subregional NCCP/HCP, and the City of San Diego Vernal Pool HCP. In addition, the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and the Stephens'

Kangaroo Rat HCP were taken into consideration for Covered Species determined to have suitable habitat within the portion of the Plan Area that coincides with the Moreno Compressor Station in western Riverside County, as described in Section 4.1.3.3 of the HCP Amendment. Therefore, conservation goals and targets specific to each plan are discussed.

Implementation of the HCP Amendment is expected to contribute to the regional conservation of Covered Species because it would not conflict with the goals and objectives of regional conservation efforts for these species. Other regional NCCPs and HCPs that overlap with the Plan Area conserve contiguous blocks of suitable habitat on which Covered Species have the potential to occur. Although Covered Activities do not fall within the regulatory authority of local governments, including other approved regional habitat conservation plans, this Covered Species analysis takes the conservation goals and targets of these other plans into consideration. Table 1-1 summarizes the goals of approved regional habitat conservation plans and illustrates how implementation of SDG&E's HCP Amendment is consistent with the goals of these regional habitat conservation plans. Implementation of SDG&E's Operational Protocols and Species-Specific Protocols for Covered Species included in Section 5.1 of the HCP Amendment are expected to avoid, minimize, and mitigate impacts to Covered Species individuals and habitat within these conserved areas and other areas with suitable habitat, thereby allowing Covered Species to continue to sustain populations in the Plan Area.

In addition, MSCP, MHCP, and Preserves data layers were used to quantify the acreages of Covered Species Modeled Habitat in the Plan Area that occur within Preserves and Proposed Preserves associated with regional conservation efforts. For purposes of this analysis, Preserves include areas identified as such in the San Diego Association of Governments' (SANDAG) Preserves layer for San Diego County and Preserves identified in the Orange County Southern Subregion HCP. Proposed Preserves include land that has been identified for conservation but is not yet conserved. This includes the City of San Diego Multi-Habitat Planning Area; the San Diego MHCP proposed hardline preserve; the County of San Diego MSCP Pre-Approved Mitigation Area and proposed hardline preserve; and the draft North County MSCP Pre-Approved Mitigation Area. Section 5.4 of the HCP Amendment fully describes Preserves and Proposed Preserves as well as Covered Activities that may occur within them.

In 2007, USFWS issued SDG&E a permit for the Low-Effect Habitat Conservation Plan for the issuance of an incidental take permit under Section 10(a)(1)(b) of the Endangered Species Act (ESA) for the Federally Endangered Quino Checkerspot Butterfly (Quino LEHCP) (SDG&E 2007). The purpose of the Quino LEHCP is to minimize and mitigate the effects of SDG&E's Covered Activities on the Quino checkerspot butterfly over the 50-year term of the USFWS permit. Because the Quino checkerspot butterfly is covered independently under the Quino LEHCP, it is not included as a Covered Species in the HCP Amendment.

Modeled Habitat in Preserves and Proposed Preserves was quantified for all Covered Species, including those not covered by other NCCPs and HCPs. Those species that may

not be covered by regional NCCPs and HCPs are afforded umbrella protection as a result of sharing similar habitat requirements with covered species in these regional habitat conservation plans.

1.3.2 Presence in Plan Area and PIZ

This section summarizes the distribution of Modeled Habitat in the various ecoregions with the highest Modeled Habitat acreages in the Plan Area and in the PIZ associated with existing infrastructure (Figure 1-1). This Modeled Habitat is used to estimate the habitat-based impact acreage expected for each species, using the calculation methodology and assumptions described in Section 4.1 of the HCP Amendment. This section also identifies Covered Species that have habitat in the Moreno Compressor Station portion of the Plan Area.

For each Covered Species, occurrence data from USFWS, CNDDDB, SDMMP Master Occurrence Matrix (MOM), SDMMP Rare Plant Point Polygon Data, and SDG&E Pre-activity Survey Report (PSR) databases were qualitatively analyzed to provide supplemental data regarding potential Covered Species presence within the Plan Area and PIZ. Review of data from these sources was restricted to database records within the last 30 years (i.e., 1990 through 2020). Data sources for the qualitative analysis process were queried as follows:

- SDMMP – Two data sets exist from the SDMMP that focus on data occurrences within Preserves. The MOM data includes both wildlife and rare plant data compiled for the SDMMP Management and Monitoring Strategic Plan. The rare plant monitoring data is being collected from 2014 through 2021 as part of the Management and Monitoring Strategic Plan monitoring objective for 30 rare plant species. SDMMP MOM rare plant data includes data duplicative with data being collected by the SDMMP rare plant monitoring program from 2014 through 2021. Therefore, MOM rare plant data after 2013 was removed from this analysis.
- CNDDDB – This data was restricted to data with a 1-mile radius accuracy or less. Extirpated or possibly extirpated CNDDDB locations were removed from the data set. Any remaining data overlapping between/within years or between databases was left as is for purposes of the data summary. Finally, any CNDDDB data within Preserves was removed since SDMMP data includes CNDDDB data on Preserves.
- USFWS – This data was restricted to data with a 1-kilometer radius (or approximately 0.6 mile) accuracy or less. Any remaining data overlapping between/within years or between databases was left as is for purposes of the data summary. Finally, any USFWS data within Preserves was removed because SDMMP data includes USFWS data on Preserves.

Table 1-1. Consistency with Other Regional Planning Efforts

Name of Planning Document	Overarching Biological Goals	Means of Support by SDG&E HCP Amendment
San Diego MSCP Subregional Plan	<ul style="list-style-type: none"> • Conserve both the diversity and function of this ecosystem through the preservation and adaptive management of large blocks of interconnected habitat and smaller areas that support rare vegetation communities. • Conserve specific species at levels that meet the Take authorization issuance standards of the federal and state Endangered Species Acts and the Natural Community Conservation Planning Act. • Maintain ecosystem functions and persistence of extant populations of covered species. 	<ul style="list-style-type: none"> • Implement Operational Protocols (as described in Section 5.1 of the HCP Amendment) to minimize impacts to habitat in the vicinity of Covered Activities. • Implement Vernal Pool and narrow endemic Protocols (see Sections 5.1.11 and 5.1.12) to avoid and minimize impacts to Covered Species, including: <ul style="list-style-type: none"> ○ Vernal Pool Protocols for avoidance, minimization, and mitigation strategies that can be used to minimize potential permanent and temporary impacts to vernal pools ○ narrow endemic plant Protocols to minimize Take to be limited to unavoidable impacts from repairs (including those required during or in response to emergencies) to existing Facilities
San Diego MHCP Subregional Plan	<ul style="list-style-type: none"> • Maintain the range of natural biological communities and species native to the region, and contribute to regional viability of endangered, threatened, and key sensitive species and their habitat, thereby preventing local extirpation or species extinction. 	<ul style="list-style-type: none"> • Implement Species-Specific Protocols as needed to avoid and minimize impacts to Covered Species (see Section 5.1.13). • Review certain SDG&E access roads that could potentially be re-aligned or removed entirely to improve local biological resources.
SDCWA Subregional NCCP/HCP	<ul style="list-style-type: none"> • Provide for habitat and species diversity through the identification and protection of preserve lands in and around SDCWA Facilities for the benefit of Covered Species. 	<ul style="list-style-type: none"> • Implement a habitat Restoration and Enhancement Program (as described in Section 5.2 of the HCP Amendment) to restore temporary impact areas within 5 years.
City of San Diego Vernal Pool HCP	<ul style="list-style-type: none"> • Contribute to the recovery and ensure continued persistence of the vernal pool species populations covered in the Vernal Pool HCP. 	<ul style="list-style-type: none"> • Provide adequate mitigation for unavoidable permanent impacts to Covered Species or their habitat as a result of Covered Activities through conveyance of land to third-party, approved conservation land managers or provide funding for programs/in lieu fees (refer to Section 5.5 of the HCP Amendment).
Orange County Southern Subregion HCP	<ul style="list-style-type: none"> • Promote biodiversity and provide for high likelihoods for persistence of target species in the subregion. • Provide for no net loss of habitat value from the present, taking into account management and enhancement. No net loss of habitat value means no net reduction in the ability of the subregion to maintain viable populations of target species over the long term. 	<ul style="list-style-type: none"> • Mitigate permanent impacts in Preserves or Proposed Preserves at a higher ratio than impacts outside of Preserves or Proposed Preserves.
Western Riverside County Multiple Species Habitat Conservation Plan	<ul style="list-style-type: none"> • Maintain biological and ecological diversity in a rapidly urbanizing region. 	
Stephens' Kangaroo Rat Habitat Conservation Plan	<ul style="list-style-type: none"> • Provide for the establishment, expansion, and ongoing management of permanent reserves in a manner that will ensure the continued existence of Stephens' kangaroo rat in the HCP area of western Riverside County while also providing opportunities to benefit other species of concern. 	

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- SDG&E PSR – This data was used as is and was not filtered because it is unique from the other data sets.

1.3.3 Potential Impacts, Effects on Population Viability and Species Recovery

Species specific Modeled Habitat and impact acreages in both the Plan Area and the PIZ are described in this section and also quantified in Attachment B, Attachment C, and Attachment D. Attachments B, C, and D provide a detailed breakdown of Modeled Habitat, anticipated impacts, including permanent, temporary, and impacts associated with Wildfire Fuels Management based on historical averages, a 15% “contingency” for potential unanticipated permanent and temporary impacts from Covered Activities, and estimated total impacts over the remaining duration of the permit term. The anticipated impacts to Modeled Habitat have been calculated to provide an approximation of the potential impacts to Modeled Habitat for each Covered Species.

For Covered Species in which a more in-depth qualitative analysis was performed (as described above in Section 1.3.2), potential impacts to known populations were further assessed based on their location to the PIZ and SDG&E Facilities, and potential Covered Activities in those areas. In addition, impacts are quantified for those species that have suitable habitat at the Moreno Compressor Station. Actual impacts to Covered Species habitat would be tracked on a project-by-project basis through the PSR process, as defined by the HCP Amendment.

This section also discusses the extent of the impacts relative to the overall habitat available, Operational Protocols, and conservation policies for each species. Conclusions are provided as to how the impacts may affect Covered Species population viability and species recovery.

1.3.4 Species-Specific Protocols

The final section of each species account references the implementation of Operational Protocols as outlined in Section 5.1 of the HCP Amendment. The species account also identifies certain Covered Species that may benefit from additional protections. The utilization of Species-Specific Protocols will be determined and recommended by a Biologist on a project-by-project basis and will depend on the type of Covered Activity to be performed, time of year, location, and other factors.

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2.0 COVERED PLANTS

Species accounts for the 16 Covered Species of plants are provided herein. Of the 16 Covered Species of plants, 11 are classified as narrow endemics and five are vernal pool species. A total of 16 species were qualitatively analyzed using known occurrence data because these species were identified as having more specialized or restrictive habitat requirements and/or highly limited populations with specific known localities in the Plan Area. Figure 2-1 displays known CNDDDB and USFWS database occurrences between 1990 and 2020 for Listed Species and Non-Listed Species. Federally listed plant species with designated critical habitat in the Plan Area are displayed in Figure 2-2. All figures are provided at the end of the section.

2.1 SAN DIEGO THORNMINT (*ACANTHOMINTHA ILICIFOLIA*)

Listing Status

- California Endangered Species Act (CESA): Endangered (1982)
- ESA: Threatened (63 Federal Register [FR] 54937) (1998)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic¹
- Critical Habitat: Designated (73 FR 50454-50496) (2008)
- Recovery Plan: None

2.1.1 Background

Distribution, Abundance, and Trends

San Diego thornmint is a relatively low-growing herbaceous annual that is confined generally to areas with heavy clay soils in western San Diego County and northwestern Baja California. Within the United States, this species has not been recorded outside of San Diego County and does not occur within the portion of the Plan Area that overlaps with Orange County. It grows in openings in sage scrub and chaparral habitat and on the edge of grassy areas. Occurrences and collection locations of San Diego thornmint are scattered in open space preserves and clay patches in the western foothills of San Diego County (CNPS 2020). Some of the known populations include Mission Trails Regional Park, McGinty Mountain, Alpine, in and around the Lower Otay Reservoir in Rancho Jamul, Chula Vista, Encinitas, Carlsbad, Vista, Olivenhain, San Vicente Valley, Rancho Bernardo, and in and around Lakeside (Calflora 2020).

Critical Habitat

Critical habitat was most recently revised by USFWS in September 2008 (73 FR 50454-50496). Approximately 671 acres of critical habitat is designated in San Diego County. All

¹ Currently, this species is also identified as a Vernal Pool Species, but as this species is not exclusively associated with vernal pools, SDG&E recommends this species be re-characterized as solely a narrow endemic.

671 acres of designated San Diego thornmint critical habitat is located within the Plan Area. Approximately 12 acres (or approximately 1.77%) is located within the undeveloped portion of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

The species is a clay soil habitat specialist in coastal and foothill regions and is therefore particularly vulnerable to habitat destruction from conversion of native habitat to urban development and competition from invasive species, including tocalote (*Centaurea melitensis*) and purple false brome (*Brachypodium distachyon*). Urbanization was the primary factor in the loss of 20 occurrences prior to 1998 (USFWS 2009a). Other cumulative threats include non-motorized and motorized recreation, trampling by horses and humans, fragmentation due to isolation of individual populations, illegal dumping, climate change, and possibly fire due to the potential to stimulate the spread of nonnative species.

Special Considerations

San Diego thornmint populations appear only on soils that contain a high concentration of clays. These soils may exist in large areas as part of the mesa or landscape slopes, or they may exist in patches of weathered clay in the midst of gabbro-derived soils with little vegetation cover. Managing small patches of habitat to prevent the spread of weeds remains a challenge when these areas are surrounded by invasive species.

The initial leaf growth is characteristic and easily identified, and the strong odor of this species is distinctive. It germinates with the fall and winter rainfall and then flowers in late April into early June, depending on the elevation. The initial leaves are dark green with creased veins and shaped like the silhouette of a pinecone. The inflorescences are contained within oval-shaped bracts with long spines. The stems, bract edges, and sometimes leaf edges may be reddish in color. Flowers are tube shaped with a flattened lower lip that is pink or lavender in color. The pollinating mechanism is not well known for this species. Support from native bees, flies, wasps, and beetles, in addition to nonnative honeybees, may be necessary to ensure that pollination can take place.

Within Preserves that coincide with the Plan Area, San Diego thornmint has been prioritized for management and is categorized a risk level of “SO,” which is a species at a high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure the persistence of the species (SDMMP and The Nature Conservancy 2017).

2.1.2 Conservation Analysis

Existing Regional Conservation Efforts

San Diego thornmint is covered by the following existing regional habitat conservation plans, which overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan

- SDCWA Subregional NCCP/HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 15,180 acres of Modeled Habitat occurs within Preserves and 2,538 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 40% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 558 occurrences of San Diego thornmint recorded in the SDMMP MOM and Rare Plant databases are located within Preserves.

Presence within Plan Area and PIZ

Based on the San Diego thornmint Modeled Habitat, there is approximately 43,598 acres present within the Plan Area and approximately 4,960 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreages of San Diego thornmint Modeled Habitat occur in the north coast, the northern valley, and central coast ecoregions. This species does not occur in Orange County.

Known San Diego thornmint occurrences within the Plan Area and PIZ are recorded within USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-1. Though numerous populations and occurrences seem present, most populations are small (less than approximately 50 individuals) to moderate (approximately 50 to 250 individuals) in size and generate low numbers during drier rainfall seasons. A good number of plants occur on McGinty Mountain though they exist in populations distributed along the ridge and slopes. Historically, one of the largest populations existed south of Slaughterhouse Canyon Road in Lakeside. The easternmost populations are located on the lower slopes of Potrero Peak and the lower slopes of Poser Mountain in the Cleveland National Forest.

Table 2-1. Historical San Diego Thornmint Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	1	1
CNDDDB	4	4	8
SDMMP MOM	20	322	342
SDMMP Rare Plant Points	7	168	175
SDMMP Rare Plant Polygons	4	67	71
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Occurrences are found in the Carlsbad area; Rancho Santa Fe area; Black Mountain Open Space Park; Los Peñasquitos Canyon Preserve; Sabre Springs Preserve; Sycamore Canyon Gooden Ranch Preserve (large population); Slaughterhouse Canyon (large population); Crestridge ecological preserve; South Crest; Sky Mesa Ranch west of Alpine; Wrights Field in Alpine; slopes southwest, west, and east of Viejas Mountain; southern slopes of Poser Mountain; McGinty Mountain along the ridge and western slopes; Dehesa Mountain; Hollenbeck Canyon Wildlife Area; Potrero Peak; Rancho

Jamul Ecological Preserve; Lower Otay Reservoir area; and several locations east of Bonita and in Chula Vista.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to San Diego thornmint Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 1.35 acres of permanent impacts (Attachment B);
- Approximately 0.79 acre of temporary impacts (or approximately 34,412 square feet) (Attachment C); and
- Approximately 0.71 acre of Wildfire Fuels Management impacts (or approximately 30,927 square feet) (Attachment D).

Direct impacts to San Diego thornmint include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of Operations and Maintenance (O&M) and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to San Diego thornmint Modeled Habitat within the Plan Area:

- Approximately 40.58 acres (or 0.09%) of permanent impacts (Attachment B);
- Approximately 23.66 acres (or 0.05%) of temporary impacts (Attachment C); and
- Approximately 21.40 acres (or 0.05%) Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately <0.01 acre (or approximately 436 square feet) of permanent impacts (Attachment A);
- Approximately <0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A); and
- Approximately <0.01 acre (or approximately 436 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 0.10 acre (or 0.01%) of permanent impacts (Attachment A);
- Approximately 0.06 acre (or 0.01%) of temporary impacts (Attachment A); and
- Approximately 0.05 acre (or 0.01%) of Wildfire Fuels Management impacts (Attachment A).

Populations at greatest risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. A major population is located within the PIZ east of Palomar Airport Road in the Carlton Oaks preserve and it is an open area that supports several populations. Similarly, the 4S Ranch population is within the PIZ as well as the Sabre Springs populations. The PIZ crossed over the Sycamore Canyon populations, which presents a potential impact. Similarly, the PIZ in Slaughterhouse Canyon passes into one of the largest populations in the region. In the southern part of the county, one population north of State Route (SR) 125 and south of Proctor Valley Road is at risk as it is within the PIZ.

A number of occurrences are spread throughout the urban canyons and fragments of habitat in the northern urbanized portion of San Diego County, including parts of eastern Carlsbad, San Marcos, and the unincorporated area. The populations in this region are somewhat insulated from Covered Activities as a result of the development. However, they are small populations that could be impacted by Covered Activities adjacent to existing Facilities. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence.

That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of San Diego thornmint to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment.

All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of San Diego thornmint habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along

linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any San Diego thornmint population in the Plan Area or rangewide, or impair the function of designated critical habitat to the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to San Diego thornmint and its habitat. In the event that unavoidable impacts to San Diego thornmint will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.2 SAN DIEGO AMBROSIA (*AMBROSIA PUMILA*)

Listing Status

- CESA: None
- ESA: Endangered (67 FR 44372-44382) (2002)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic²
- Critical Habitat: Designated (75 FR 74546-74604) (2010)
- Recovery Plan: None

2.2.1 Background

Distribution, Abundance, and Trends

San Diego ambrosia is an herbaceous perennial that is low growing and found on loamy and clay soils associated with terraces on river and stream edges as well as low valley bottoms. It is occasionally found on hillsides adjacent to the stream and valley edges. It grows in openings among shrubs, along the edges of grassy areas, and in open loamy soils. Occurrences and collections of San Diego ambrosia are scattered in open space preserves and clay patches in the western foothills of San Diego County. It has been found along the San Luis Rey River near Lake Hodges; in a number of locations around Santee, El Cajon, and Lakeside; near the Sweetwater River south of El Cajon; and near National City. It has also been found in western Riverside County and in scattered locations in northern and central Baja California. It has not been found in Orange County.

² Currently, this species is also identified as a Vernal Pool Species; however, as this species is not exclusively associated with vernal pools, SDG&E recommends this species be re-characterized as solely a narrow endemic.

Critical Habitat

Critical habitat was most recently revised by USFWS in November 2010 (75 FR 74546-74604). Approximately 783 acres of critical habitat have been designated in Riverside and San Diego Counties. Approximately 594 acres of designated San Diego ambrosia critical habitat is located within the Plan Area. There is approximately 69 acres (or approximately 8.8%) located within the undeveloped portions of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

The species is a clay and silty soil specialist and is therefore particularly vulnerable across its range to habitat destruction, fragmentation, and degradation of habitat primarily by construction and maintenance of highways, maintenance of utility easements, development of recreational Facilities, and residential and commercial development (USFWS 2010a). Regional development associated with urban growth was the primary factor in the loss of 25 occurrences prior to 2002 (USFWS 2010a). Other cumulative threats include competition from nonnative plants, mowing and discing, trampling by horses and humans, impacts from off-road vehicles, altered hydrology along waterways, fragmentation due to isolation of individual populations, and climate change. Nonnative plants that potentially impact its habitat include mustard (*Brassica* spp.), annual fescue (*Vulpia* spp.), crane's-bill (*Erodium* spp.), brome grass (*Bromus* spp.), and sweet fennel (*Foeniculum vulgare*). Vegetation management such as discing, grading, and plowing have negative effects; however, mowing has been shown effective in controlling nonnative plant populations in areas where San Diego ambrosia occurs, and, if done at appropriate times of the year, may be a valuable management tool.

Special Considerations

The occurrences and populations of San Diego ambrosia appear on soils that contain a high concentration of clays and silty soils near water courses and valley bottoms. Managing small patches of habitat to prevent the spread of weeds is a challenge when they may be surrounded by invasive species. The silver gray, finely divided fern-like leaves sprout from underground rhizomes following winter rains, and non-descript wind-pollinated flowers emerge from April through July. The plant is clonal and the rhizomes may extend over an area with connections between the aboveground rosettes of the plant. Populations and areas of the plant may change over time. The dynamics of disturbance such as fire and population expansion are not well known.

San Diego ambrosia has been prioritized for management and is categorized a risk level of "SO," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.2.2 Conservation Analysis

Existing Regional Conservation Efforts

San Diego ambrosia is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- SDCWA Subregional NCCP/HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 3,518 acres of Modeled Habitat occurs within Preserves and 893 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 46% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 159 occurrences of San Diego ambrosia recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the San Diego ambrosia Modeled Habitat, there is approximately 9,687 acres present within the Plan Area and approximately 677 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreages of San Diego ambrosia Modeled Habitat occur in the northern valley, the central valley, and the southern coast ecoregions. This species does not occur in Orange County.

Known San Diego ambrosia occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-2.

Table 2-2. Historical San Diego Ambrosia Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDB	8	4	12
SDMMP MOM	12	64	76
SDMMP Rare Plant Points	9	44	53
SDMMP Rare Plant Polygons	14	16	30
SDG&E	3	2	5

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

A moderate-sized population (approximately 50–250 individuals) exists west of Interstate (I)-15 and south of the San Luis Rey River mouth in the San Diego Habitat Conservancy Seacliff Preserve. A large population (greater than approximately 250 individuals) is located in the Westminster Preserve south of SR 76 and west of El Camino Real. Just south of that location, a moderate-sized population (approximately 50–250 individuals) is found in the Vista del Valley preserve. Moderate-sized occurrences (approximately

50–250 individuals) also exist in Jeffries Ranch on the east end of Jeffries Ranch Road in the city of Oceanside. Moderate populations exist north and south of Olive Hill Road. There are several small populations (less than approximately 50 individuals) along SR 76 near Calle de Vuelta in a ruderal field. A moderately large population (approximately 50–250 individuals) exists on the southwest quadrant of Via Rancho Parkway and I-15 on a slope below a row of houses and just west of the freeway. An occurrence also exists west of The Crosby at Rancho Santa Fe along the San Dieguito River. Two occurrences exist in Los Peñasquitos Canyon Preserve with the eastern one the result of transplantation. A cluster of well-established occurrences that are notable in size compared to other populations exists in Mission Trails Regional Park along the San Diego River. These may represent the largest populations in the region. Other small populations (approximately less than 50 individuals) exist eastward along Mission Gorge Road, west of Gillespie Field, and along Forester Creek in the El Cajon valley near the southern end of SR 67 and along East Main Street.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to San Diego ambrosia Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.18 acre of permanent impacts (or approximately 7,841 square feet) (Attachment B);
- Approximately 0.11 acre of temporary impacts (or approximately 4,792 square feet) (Attachment C); and
- Approximately 0.10 acre of Wildfire Fuels Management impacts (or approximately 4,356 square feet) (Attachment D).

Direct impacts to San Diego ambrosia include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to San Diego ambrosia Modeled Habitat within the Plan Area:

- Approximately 5.54 acres (or 0.06%) of permanent impacts (Attachment B);
- Approximately 3.23 acres (or 0.03%) of temporary impacts (Attachment C); and
- Approximately 2.92 acres (or 0.03%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.02 acre (or approximately 871 square feet) of permanent impacts (Attachment A);
- Approximately 0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A); and
- Approximately 0.01 acre (or approximately 436 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 0.56 acre (or 0.07%) of permanent impacts (Attachment A);
- Approximately 0.33 acre (or 0.04%) of temporary impacts (Attachment A); and
- Approximately 0.30 acre (or 0.04%) of Wildfire Fuels Management impacts (Attachment A).

Potential impacts for this species may result from it growing in locations that are isolated and disturbed. In most cases it could be avoided, but sometimes the locations where it grows may be the only alternative for work areas. A small occurrence on the southwest corner of the Vista del Valle Preserve within the PIZ would presumably be avoided. Several of the Jeffries Ranch populations are located within the PIZ and potentially at risk of impacts. Others appear located some distance away from the PIZ and not likely under potential for impacts. Several small occurrences have potential to be impacted to the east and south of SR 76. Populations north and south of Olive Hill Road and along Calle de Vuelta have potential for impacts because the PIZ passes through their locations. The occurrences along Via Rancho Parkway are also within the PIZ. The site west of The Crosby appears only slightly touched by the PIZ so that direct impacts would not be expected. Covered Activities within the PIZ may affect a number of the locations near the crossing of the Sweetwater River and SR 94. The occurrences in El Cajon are all located within heavily urbanized areas, some of which occur immediately adjacent to SDG&E Facilities; however, SDG&E may be able to avoid impacts at these locations by focusing work areas in adjacent developed areas. The final major location for this species that may be impacted is within the PIZ near the crossing of SR 94 and the Sweetwater River and lands to the east of that location.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of San Diego ambrosia to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps

will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of San Diego ambrosia habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any San Diego ambrosia population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to San Diego ambrosia and its habitat. In the event that unavoidable impacts to San Diego ambrosia will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.3 DEL MAR MANZANITA (ARCTOSTAPHYLOS GLANDULOSA SSP. CRASSIFOLIA)

Listing Status

- CESA: None
- ESA: Endangered (61 FR 52370-52384) (1996)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic³
- Critical Habitat: None
- Recovery Plan: None

2.3.1 Background

Distribution, Abundance, and Trends

Del Mar manzanita grows in southern maritime chaparral with sandstone soils and is generally located within 10 miles from the coast in San Diego County and Baja California,

³ Currently, this species is not identified as a narrow endemic; SDG&E recommends this species be re-characterized as a narrow endemic due to its highly restrictive habitat requirements, localized soil requirements, or other limiting ecological factors.

Mexico (with the exception of one location in the city of Poway over 12 miles from the coast and a location in Cerro Jesus Maria, in Mexico 17 miles from the coast). Occurrences exist in areas of open space in the city of Del Mar but also extending through Encinitas and into Carlsbad (Calflora 2020). In northwestern Baja California, it has been found as far south as near El Descanso, approximately 30 miles from the United States and Mexico border. Within San Diego County, good-sized populations occur in Torrey Pines State Reserve and the Torrey Pines Extension as well as Crest Canyon and other Preserve Areas (Calflora 2020). This species does not occur in Orange County.

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

As a coastal sandstone soil habitat specialist, Del Mar manzanita is particularly vulnerable to habitat loss and degradation. Cumulative threats to this species include urban development, agricultural expansion, edge effects, altered fire regimes, invasion of nonnative species, trampling, small population size, military operations, and climate change (CNPS 2020).

Special Considerations

Del Mar manzanita is a woody perennial shrub with rigid stems and a burl root structure. It has smooth red bark and thick, oval-shaped leaves that are dark gray-green. With the basal burl, it is able to resprout following fires. Clusters of small urn-shaped flowers that are white with pink tinges appear from December through February. The occurrences and populations of Del Mar manzanita appear closely tied to soils that are considered sandy. These soils may exist in large areas as part of the mesa or landscape slopes in coastal locations. The reproduction mechanism is not well known, and support for native bees, flies, wasps, and beetles, in addition to nonnative honeybees, may be necessary to ensure that pollination can take place. Genetic studies indicate a revision may be needed in the details of the taxonomic definition for this subspecies to make it more easily defined and identified (Burge et al. 2018). The studies suggest that more research be done to determine if the subspecies should be narrowly defined to the coastal zone or if it should be modified to include a larger proportion of the members of the species in this area.

Within Preserves that coincide with the Plan Area, Del Mar manzanita has not been prioritized for species specific management actions because this species is likely to persist with appropriate management of the vegetation community it inhabits (SDMMP and The Nature Conservancy 2017). It has been categorized as a “Category VF” species with limited distribution and/or having specific vegetation characteristics that need to be managed for persistence.

2.3.2 Conservation Analysis

Existing Regional Conservation Efforts

Del Mar manzanita is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 2,955 acres of Modeled Habitat occurs within Preserves and 313 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 74% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 33 occurrences of Del Mar manzanita recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the Del Mar manzanita Modeled Habitat, there is approximately 4,436 acres present within the Plan Area and approximately 859 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, only the central and north coast ecoregions include acreages of Del Mar manzanita Modeled Habitat. This species does not occur in Orange County.

Known Del Mar manzanita occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-3.

Table 2-3. Historical Del Mar Manzanita Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	3	3
CNDDB	3	7	10
SDMMP MOM	6	27	33
SDMMP Rare Plant Points	0	0	0
SDMMP Rare Plant Polygons	0	0	0
SDG&E	8	0	8

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Populations exist throughout the various canyons and conserved land in the Carlsbad area and vicinity. Approximately 10 or more occurrences exist around Olivenhain Road both to the north and south of that road and east and west of El Camino Real. A cluster of occurrences also occurs around the Encinitas Ranch Golf Course. Other clusters of occurrences exist around Oakcrest County Park, Manchester Mitigation Bank, and west of Lux Canyon in Encinitas. Smaller occurrences exist between I-5 and Bulrush Lane, southeast of San Elijo Lagoon, San Dieguito County Park, Rancho Santa Fe, Lusardi Creek, and west of The Crosby.

Approximately 10 or more occurrences (exist in what is described as the Hills of Del Mar between San Dieguito Valley and Carmel Valley. This includes the northern portion of the Torrey Pines State Reserve and Crest Canyon Reserve. A number of occurrences are

open areas on slopes between developments. Another cluster of approximately more than 10 occurrences is on the west end of Carmel Mountain and the Carmel Mountain Preserve. Other smaller occurrences exist on the northern edge of Los Peñasquitos Canyon Preserve and isolated locations to the northeast. Finally, groupings of occurrences exist in San Clemente Canyon east of Marine Corps Air Station Miramar (MCAS) and on MCAS itself, as well as a location in Mission Trails Regional Park.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Del Mar manzanita Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.23 acre (or approximately 10,019 square feet) of permanent impacts (Attachment B);
- Approximately 0.14 acre (or approximately 6,098 square feet) of temporary impacts (Attachment C); and
- Approximately 0.12 acre (or approximately 5,227 square feet) of Wildfire Fuels Management impacts.

Direct impacts to Del Mar manzanita include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Del Mar manzanita Modeled Habitat within the Plan Area:

- Approximately 7.02 acres (or 0.16%) of permanent impacts (Attachment B);
- Approximately 4.10 acres (or 0.09%) of temporary impacts (Attachment C); and
- Approximately 3.70 acres (or 0.08%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at greatest risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Several occurrences are present within the PIZ because many of them are pieces of habitat left from previous urban development. There are discrete clusters around Leucadia Boulevard near El Camino Real, south of Encinitas Boulevard, and north of San Elijo Lagoon. Large clusters within the PIZ exist east of Del Mar, around Carmel Mountain, and east of MCAS Miramar. The more open and isolated locations would less likely be impacted.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of Del Mar manzanita to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of coastal Del Mar manzanita habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Del Mar manzanita population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to Del Mar manzanita and its habitat. In the event that unavoidable impacts to Del Mar manzanita will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.4 ENCINITAS BACCHARIS (*BACCHARIS VANESSAE*)

Listing Status

- CESA: Endangered (1987)
- ESA: Threatened (61 FR 52370-52384) (1996)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic
- Critical Habitat: None
- Recovery Plan: None

2.4.1 Background

Distribution, Abundance, and Trends

Encinitas baccharis grows in a variety of locations and habitat in western San Diego County ranging from sandstone soils in coastal southern maritime chaparral, to openings in chaparral on hillsides and peak tops in the more interior portions of the county (CNPS 2020). Occurrences exist in small and larger areas of open space in the region of Del Mar and Encinitas and the area west of Del Dios, the top of Mount Woodson and Iron Mountain, the ridges in northern Marine Corps Base Camp Pendleton (MCBCP), the hills north of Harbison Canyon, and parts of Otay Mountain (Calflora 2020). This species has only been found in San Diego County and does not occur in Orange County.

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to Encinitas baccharis include habitat loss associated with land development activities, interruption to the natural fire cycle due to fire suppression activities, trampling, small population size, and competition from nonnative plants (USFWS 2011a). The majority of the range for Encinitas baccharis is located in the otherwise urbanized portion of San Diego County. The proximity of preserved populations to urban developed areas also raises the risk of invasive, nonnative plants affecting them. Populations of this species have been impacted since its listing; however, extensive conservation efforts have also been applied to the species to preserve a number of different habitat locations in addition to the identification of the species on sites that have already been preserved. The majority of extant occurrences (25 of 30 at the time of the 5-year review) are conserved or at least partially conserved, thereby reducing direct impacts from development.

Of additional concern for Encinitas baccharis is the low population numbers for the majority of its occurrences. As mentioned in the 5-year review (USFWS 2011a), Encinitas baccharis individuals have not been observed at over 50% of occurrences since they were first reported, and another 10% of occurrences now support only a single plant. The small size of many of these populations increases the probability that those populations will disappear or be otherwise compromised through random fluctuations in the environment (such as severe droughts or fires), failure to be cross-pollinated, or other random human-caused events. Furthermore, observations of seedlings have been limited. Climate change is a potential issue if the plants need a specific set of moisture conditions for reproduction, and the warmer and drier conditions associated with climate change do not meet those requirements.

Special Considerations

Encinitas baccharis is a woody perennial shrub with slender stems and narrow needle-like leaves that are bright green. It has a perennial root base and the ability to resprout following fires. Clusters of small flower heads that are white with no typical sunflower-type ray flowers appear generally from late summer to fall (between August and November). The feathery pappus plumes attached to the seeds allow them to disperse by wind in

October and November. The fact that *Encinitas baccharis* has a dioecious reproductive strategy, meaning the male and female flowers occur on separate plants, may raise other concerns for its future. There is a general tendency to infer that representations of male and female plants in a population of dioecious plants need to be equal in number; however, under natural conditions, it is possible for populations of dioecious plants to exist without an equal representation of male and female plants (Field et al. 2013), which may be the case for *Encinitas baccharis*. The low population numbers of the majority of the sites raises concern and may complicate conservation actions without more information about the reproductive mechanisms of the *Encinitas baccharis*. The habitat needs for the plant, and the longevity and ability to reproduce are not well known.

Within Preserves that coincide with the Plan Area, *Encinitas baccharis* has been prioritized for management and is categorized a risk level of “SO,” which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.4.2 Conservation Analysis

Existing Regional Conservation Efforts

Encinitas baccharis is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- SDCWA Subregional NCCP/HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 23,398 acres of Modeled Habitat occurs within Preserves and 6,725 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 64% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 88 occurrences of *Encinitas baccharis* recorded in the SDMMP MOM and Rare Plant databases are located within Preserves.

Presence within Plan Area and PIZ

Based on the *Encinitas baccharis* Modeled Habitat, there is approximately 46,670 acres present within the Plan Area and approximately 1,600 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of *Encinitas baccharis* Modeled Habitat are the central foothills, the central valley, and the central coast ecoregions. This species does not occur in Orange County.

Known *Encinitas baccharis* occurrences within the Plan Area and PIZ were collected from USFWS, CNDDb, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases.

These occurrences are detailed in Table 2-4. Within San Diego County, major populations occur in the coastal communities of Encinitas and Del Mar, several locations surrounding Lake Hodges, and Woodson Mountain. Smaller populations are located in the San Ysidro Mountains and immediately north of the community of Harbison Canyon.

Table 2-4. Historical Encinitas Baccharis Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDB	0	2	2
SDMMP MOM	3	33	36
SDMMP Rare Plant Points	4	27	31
SDMMP Rare Plant Polygons	5	16	21
SDG&E	0	1	1

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Encinitas baccharis Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.44 acre of permanent impacts (or approximately 19,166 square feet) (Attachment B);
- Approximately 0.25 acre of temporary impacts (or approximately 10,890 square feet) (Attachment C); and
- Approximately 0.23 acre of Wildfire Fuels Management impacts (or approximately 10,018 square feet) (Attachment D).

Direct impacts to Encinitas baccharis include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Encinitas baccharis Modeled Habitat within the Plan Area:

- Approximately 13.09 acres (or 0.03%) of permanent impacts (Attachment B);
- Approximately 7.63 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 6.90 acres (or 0.01%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. The majority of occurrences for this species occur outside the PIZ and are therefore not expected to be impacted by Covered Activities. However, some select occurrences do overlap with areas of the PIZ associated with both SDG&E gas and electric Facilities and include locations adjacent to Avenida Manantial Road east of Lake Hodges, an occurrence adjacent to Old Course Road in Black Mountain Ranch, and Oak Crest Park in Encinitas. Most of these populations are somewhat insulated from Covered Activities as a result of nearby residential areas and roads. When feasible, Covered Activities can be limited to adjacent developed roadways to the greatest extent possible in order to minimize impacts. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential to impact species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of coastal Encinitas baccharis habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Encinitas baccharis population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to Encinitas baccharis and its habitat. In the event that unavoidable impacts to Encinitas baccharis will occur, SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.5 THREAD-LEAVED BRODIAEA (*BRODIAEA FILIFOLIA*)

Listing Status

- CESA: Endangered (1982)
- ESA: Threatened (63 FR 54975-54994) (1998)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic⁴
- Critical Habitat: Designated (76 FR 6848-6925) (2011)
- Recovery Plan: None

2.5.1 Background

Distribution, Abundance, and Trends

Thread-leaved brodiaea is generally confined to areas with clay soils in western San Diego County and locations in southern Orange, western Riverside, southwestern San Bernardino, and southeastern Los Angeles Counties. It grows in grassy areas and open habitat in association with coastal sage scrub habitat (USFWS 2009b). Distribution of thread-leaved brodiaea is strongly influenced by soil type and associated with areas with little vegetative cover where the clay has provided for open herbaceous vegetation, such as the periphery of vernal pools. Occurrences and collections of thread-leaved brodiaea are scattered in open space preserves and clay patches in the northwestern coastal and foothill regions of San Diego County and southeastern Orange County. In Orange County, thread-leaved brodiaea is found mostly east of Dana Point and, with the exception of one location on Rancho Mission Viejo, south of San Juan Creek. In San Diego County, in addition to large populations on MCBCP, it is found near San Marcos, east of Oceanside and Carlsbad, east of Rancho Santa Fe, and north of Black Mountain. There are 51 occurrences (excluding those on MCBCP) within the Plan Area that have been recorded in the Calflora (2020) database.

Critical Habitat

USFWS most recently revised critical habitat for thread-leaved brodiaea in February 2011 (76 FR 6848-6925). Approximately 2,950 acres of critical habitat is designated in Los Angeles, Riverside, San Bernardino, Orange, and San Diego Counties. A total of 1,558 acres of designated thread-leaved brodiaea critical habitat is located within the Plan Area. There is approximately 125 acres (or approximately 4.2%) located within the undeveloped portions of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

The species is a clay soil habitat specialist and is therefore particularly vulnerable to habitat destruction from conversion of native habitat to urban development and competition from invasive species, including tocalote (*Centaurea melitensis*) and purple false brome (*Brachypodium distachyon*). Occurrences in San Diego County have been

⁴ Currently, this species is identified as a Vernal Pool Species but as this species is not exclusively associated with vernal pools; SDG&E recommends this species be re-characterized as a narrow endemic.

primarily impacted by development (USFWS 2009b). Other cumulative threats include fragmentation of habitat, alteration of hydrology, discing and mowing, off-highway vehicles, grazing, manure dumping, nonnative plants, vandalism, and climate change. Because thread-leaved brodiaea can regenerate aboveground growth from an unharmed corm buried in soil, the plant is somewhat resilient to light soil disturbance. Heavier soil disturbance, such as repeated off-highway vehicle use, has been identified as a threat to several occurrences (USFWS 2009b). Discing for fire suppression and agricultural practices have also been identified as threats (USFWS 1998a, p. 54983). Fire itself may not be a strong threat to this species because thread-leaved brodiaea generally grows in habitat that is grassy and can withstand burns, and the above ground part of the plant dies back during the summer. Moreover, the depth of the plants in the soil provides insulation from the heat of the fire.

Special Considerations

Thread-leaved brodiaea leaves are slender, linear, and usually of similar length. Leaves may be generated in late winter with flowers appearing from late April through early June. Depending on climatic conditions, plants may produce leaves and not flower each year. The flowers are blue-purple and somewhat star shaped with six lobes consisting of petals and sepals and with characteristic staminate flower parts that are used in its identification. The leaves are typically dried at the time of flowering. The occurrences and populations of thread-leaved brodiaea appear only on soils that contain high concentrations of clays, which may occur on the periphery of vernal pools. These soils may exist in large areas as part of the mesa or landscape slopes, or they may exist in patches of weathered clay. The pollinating mechanism is not well known and support for native bees, flies, wasps, and beetles, in addition to nonnative honeybees, may be necessary to ensure that pollination can take place. Finally, because plants may produce leaves but not flower each year, this species may be missed or populations underrepresented from surveys, dependent upon climatic conditions. Known reference populations should be evaluated to determine the appropriate time to survey, and to gauge whether flowering may be relatively low for the survey year.

Within Preserves that coincide with the Plan Area, thread-leaved brodiaea has been prioritized for management and is categorized a risk level of “SS,” which is a species at lower risk of loss compared to other species, but the species still requires species specific management actions in addition to vegetation management (SDMMP and The Nature Conservancy 2017).

2.5.2 Conservation Analysis

Existing Regional Conservation Efforts

Thread-leaved brodiaea is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- SDCWA Subregional HCP/NCCP

- Orange County Southern Subregion HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 944 acres of Modeled Habitat occurs within Preserves and 181 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 13% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 115 occurrences of thread-leaved brodiaea recorded in the SDMMP MOM and Rare Plant databases are located within Preserves.

Presence within Plan Area and PIZ

Based on the thread-leaved brodiaea Modeled Habitat, there is approximately 8,424 acres present within the Plan Area and approximately 1,090 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, acreages of thread-leaved brodiaea Modeled Habitat coincide with the northern valley and central valley. Within the Plan Area in Orange County, the highest acreage of thread-leaved brodiaea Modeled Habitat occurs in the foothill and valley ecoregion.

Known thread-leaved brodiaea occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-5. Populations in Orange County are primarily found within the foothill and valley ecoregion with population hotspots along Cristianitos Canyon. Large populations occur on MCBCP and the species is particularly abundant within Preserves in the Oceanside and Carlsbad area as well as east towards San Marcos.

Table 2-5. Historical Thread-Leaved Brodiaea Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	11	2	13
CNDDB	27	47	74
SDMMP MOM	11	62	73
SDMMP Rare Plant Points	11	16	27
SDMMP Rare Plant Points Polygons	8	7	15
SDG&E	5	-	5

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to thread-leaved brodiaea Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.3 acre (or approximately 19,166 square feet) of permanent impacts (Attachment B);
- Approximately 0.17 acre (or approximately 7,405 square feet) of temporary impacts (Attachment C); and

- Approximately 0.16 acre (or approximately 6,970 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to thread-leaved brodiaea include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to thread-leaved brodiaea Modeled Habitat within the Plan Area:

- Approximately 8.92 acres (or 0.03%) of permanent impacts (Attachment B);
- Approximately 5.20 acres (or 0.06%) of temporary impacts (Attachment C); and
- Approximately 4.71 acres (or 0.06%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.03 acre (or approximately 1,307 square feet) of permanent impacts (Attachment A);
- Approximately 0.02 acre (or approximately 871 square feet) of temporary impacts (Attachment A); and
- Approximately 0.02 acre (or approximately 871 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 1.02 acres (or 0.03%) of permanent impacts (Attachment A);
- Approximately 0.59 acre (or 0.02%) of temporary impacts (Attachment A); and
- Approximately 0.54 acre (or 0.02%) of Wildfire Fuels Management impacts (Attachment A).

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. A well-established population that is notable in size compared to other populations is located along Cristianitos Road along Cristianitos Creek in Orange County and continues south onto MCBCP along Cristianitos Road and Creek. On MCBCP, smaller populations occur along Basilone Road, near the terminus of Las Flores Creek, and near Whelan Lake. Only a fraction of the entire population within these areas is within the PIZ. Another well-established population that is notable in size compared to

other populations occurs in the Santa Margarita mountains and in Devil Canyon within the Cleveland National Forest with a portion occurring within the PIZ that is associated with an access road. Approximately three to four populations also occur in relatively large numbers in the vicinity of Black Mountain and Lusardi Creek Preserve. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area.

A number of occurrences are spread throughout the urban canyons and fragments of habitat in the Oceanside, Carlsbad, and San Marcos areas. The population in this region is somewhat insulated from Covered Activities as a result of the development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of thread-leaved brodiaea to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of thread-leaved brodiaea habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any thread-leaved brodiaea population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to thread-leaved brodiaea and its habitat. In the event that unavoidable impacts to thread-leaved brodiaea will occur due to repairs of existing Facilities (including those required during or in response to

emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.6 SALT MARSH BIRD’S-BEAK (*CHLOROPYRON MARITIMUM* SSP. *MARITIMUM*)

Listing Status

- CESA: Endangered (1979)
- ESA: Endangered (FR 43 (189): 44810-44812) (1978)
- Other: CRPR 1B.2
- SDG&E: HCP Amendment Covered, Narrow Endemic
- Critical Habitat: None
- Recovery Plan: Salt Marsh Bird’s-Beak Recovery Plan (USFWS 1985a)

2.6.1 Background

Distribution, Abundance, and Trends

Salt marsh bird’s-beak is generally confined to salt marsh habitat in coastal areas of southern California ranging from San Luis Obispo County to San Quintin in Baja California, only appearing in a limited number of high-quality salt marsh habitats with extensive areas. None of these habitats occur in the portion of the Plan Area that overlaps with Orange County. Occurrences and collections of salt marsh bird’s-beak are scattered in preserves and parks mostly in southern San Diego County (USFWS 2009c). This species has been found in the southern portion of San Diego Bay, the Tijuana River salt marsh, the mouth of the Sweetwater River, and the mouth of the San Diego River where it was used as a component of a revegetation plan (Calflora 2020).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to this species include vehicles, road construction, hydrological alterations, recreational activities, trampling, nonnative plants, and loss of salt marsh habitat due to urbanization (CNPS 2020; USFWS 2009c). Potentially rising sea levels as a result of climate change will threaten to eliminate populations that occur in salt marsh habitat, particularly where urban encroachment prevents movement upslope.

Special Considerations

Salt marsh bird’s-beak is an herbaceous annual plant that is relatively low growing. The leaves of salt marsh bird’s-beak are narrow and mostly alternate, with a red color hue on the leaves as well as stems. The somewhat pubescent plants germinate during the seasonal period when the water has lower salinity. The flowers are white and tinged with red and protrude from between brown-green bracts growing in the shape of a young bird’s beak. Flowering occurs over a long period of time from May through October (USFWS

1978). The salt marsh bird's-beak can photosynthesize but is a partial parasitic on other nearby plants (USFWS 1985a). It is an annual plant that requires some fresh water for germination.

Within Preserves that coincide with the Plan Area, salt marsh bird's-beak has been prioritized for management and is categorized a risk level of "SL," which is a species at high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.6.2 Conservation Analysis

Existing Regional Conservation Efforts

Salt marsh bird's-beak is covered by the following existing regional habitat conservation plan that overlaps the Plan Area:

- San Diego MSCP Subregional Plan

This existing regional habitat conservation plan forms a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 633 acres of Modeled Habitat (approximately 96% of all Modeled Habitat) occurs within Preserves associated with these regional conservation efforts within the Plan Area. No Modeled Habitat occurs within Proposed Preserves.

Presence within the Plan Area and PIZ

Based on the salt marsh bird's-beak Modeled Habitat, there is approximately 659 acres present within the Plan Area and approximately 29 acres within the PIZ associated with existing SDG&E Facilities. Modeled Habitat for salt marsh bird's-beak is located exclusively within the southern coast ecoregion within the Plan Area in San Diego County. The only historical CNDDB and USFWS occurrences within San Diego County have been recorded in the southern coast ecoregion. This species does not occur in the portion of the Plan Area that overlaps with Orange County.

Known salt marsh bird's-beak occurrences within the Plan Area and PIZ are recorded within CNDDB, SDMMP Rare Plant, and SDMMP MOM species databases. These occurrences are detailed in Table 2-6. Populations occur in tidal and dune areas, with concentrations at the mouth of the San Diego River and Sweetwater Marsh. Populations also occur near residential areas, boardwalks, roads and open spaces in coastal areas.

Additional occurrences are found in the San Diego River, San Diego Bay, north of Sweetwater River and Sweetwater Marsh, San Diego Bay National Wildlife Refuge, Tijuana River, Tijuana Estuary, and Border Field State Park.

Table 2-6. Historical Salt Marsh Bird's Beak within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDB	0	1	1
SDMMP MOM 2019	0	16	16
SDMMP Rare Plant Points	5	19	24
SDMMP Rare Plant Polygons	7	10	17
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to salt marsh bird's-beak Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.01 acre (or approximately 435 square feet) of permanent impacts (Attachment B); and
- Approximately <0.01 (or less than approximately 435 square feet) acre of temporary impacts (Attachment C).

Direct impacts to salt marsh bird's-beak include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of salt marsh bird's-beak Modeled Habitat; therefore, impacts resulting from Wildfire Fuels Management will not occur. Over 90% of the PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions. Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impact.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to salt marsh bird's-beak Modeled Habitat within the Plan Area:

- Approximately 0.24 acre (or 0.04%) of permanent impacts (Attachment B); and
- Approximately 0.14 acre (or 0.02%) of temporary impacts (Attachment C).

Most impacts to habitat are expected to be temporary as it is unlikely that new Facilities would be sited within the salt marsh bird's-beak habitat because the SDG&E Operational Protocols encourage avoidance of riparian and wetland habitat. In addition, impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at greatest risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. A population is located within the PIZ in the San Diego Bay National Wildlife Refuge and is potentially at risk of impacts.

Occurrences are spread throughout San Diego River, San Diego Bay, north of Sweetwater River and Sweetwater Marsh, San Diego Bay National Wildlife Refuge, Tijuana River, Tijuana Estuary, and Border Field State Park. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. However, there are small populations that could be impacted by Covered Activities adjacent to existing Facilities. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Salt marsh bird's-beak is identified in the HCP Amendment as a narrow endemic, which limits Take authorization to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies). Destruction of this plant due to new projects is not covered by the HCP Amendment. Impacts to salt marsh bird's-beak and its habitat will be avoided and minimized in accordance with the Operational Protocols and narrow endemic plant Protocols. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of salt marsh bird's-beak habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any salt marsh bird's-beak population in the Plan Area or rangewide, or impair the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to salt marsh bird's-beak and its habitat. In the event that unavoidable impacts to salt marsh bird's-beak will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.7 ORCUTT'S SPINEFLOWER (*CHORIZANTHE ORCUTTIANA*)

Listing Status

- CESA: Endangered
- ESA: Endangered
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic⁵
- Critical Habitat: None
- Recovery Plan: None

2.7.1 Background

Distribution, Abundance, and Trends

Orcutt's spineflower is a small (1–15 centimeters), annual plant species known only from San Diego County, California. It occurs on sandstone-derived soils on terraces, flats, and bluffs in southern maritime chaparral (SANDAG 2003). The range of Orcutt's spineflower is extremely limited and the only known extant populations occur at the following locations: Oak Crest Park in Encinitas, south of Fairbanks Country Club, Crest Canyon, the Torrey Pines State Reserve extension, and three sites within Naval Base Point Loma (USFWS 2007a).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to Orcutt's spineflower include urbanization, recreational activities, trampling, habitat fragmentation and edge effects, invasive exotic plants, and small population size (USFWS 2007a). Although three of the populations are located on park land, their conservation is still of concern due to recreational activities associated with park land and threats from invasive species and edge effects.

Special Considerations

Orcutt's spineflower is very difficult to detect during surveys and may experience yearly fluctuations in population size. It appears to germinate under a very specific set of environmental conditions, and is not believed present (i.e., above ground) in all years. Its response to fire is unknown. Plants are insect-pollinated, and seeds presumably are self-dispersed or dispersed by scattering caused by birds and small mammals. The clustered flowers are small, and each produces a single seed.

Within Preserves that coincide with the Plan Area, Orcutt's spineflower has been prioritized for management and is categorized a risk level of "SL," which is a species at

⁵ Currently, this species is not identified as a narrow endemic; SDG&E recommends this species be re-characterized as a narrow endemic due to its highly restrictive habitat requirements, localized soil requirements, or other limiting ecological factors.

high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.7.2 Conservation Analysis

Existing Regional Conservation Efforts

Orcutt's spineflower is covered by the following existing regional habitat conservation plan that overlaps the Plan Area:

- San Diego MHCP Subregional Plan

This existing regional habitat conservation plan forms a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 1,127 acres of Modeled Habitat occurs within Preserves and 94 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 66% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 34 occurrences of Orcutt's spineflower recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the Orcutt's spineflower Modeled Habitat, there is approximately 1,848 acres present within the Plan Area and approximately 321 acres within the PIZ associated with existing SDG&E Facilities. Modeled Habitat for Orcutt's spineflower is only located in the central coast ecoregion within the Plan Area in San Diego County. This species does not occur in Orange County.

Known Orcutt's spineflower occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-7.

Table 2-7. Historical Orcutt's Spineflower Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	5	3	8
CNDDDB	1	2	3
SDMMP MOM	0	11	11
SDMMP Rare Plant Points	0	14	14
SDMMP Rare Plant Polygons	0	9	9
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

A small population (approximately less than 50 individuals) is located at Oakcrest Park in Encinitas, south of Encinitas Boulevard. A well-established population that is notable in size compared to other populations is located in the Del Mar Heights area, north of Torrey Pines High School in the Carmel Valley Open Space. Another well-established population that is notable in size compared to other populations is located within Crest Canyon. Two

populations of moderate size exist in the northern portion of the Torrey Pines State Reserve. Another moderate occurrence exists on the west portion of Carmel Mountain. A small population (approximately less than 50 individuals) exists in the southern portion of the Torrey Pines State Reserve. Three occurrences exist on Navy Base Point Loma. One is west of Cabrillo Memorial Drive and north of Hardware Road, one is on the west of Cabrillo Memorial Drive and north of Woodward Road, and one is east of Cabrillo Memorial Drive and south of McClelland Road.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Orcutt's spineflower Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.09 acre (or approximately 3,920 square feet) of permanent impacts (Attachment B);
- Approximately 0.05 acre (or approximately 2,178 square feet) of temporary impacts (Attachment C); and
- Approximately 0.05 acre (or approximately 2,178 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to Orcutt's spineflower include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Orcutt's spineflower population Modeled Habitat within the Plan Area:

- Approximately 2.62 acres (or 0.14%) of permanent impacts (Attachment B);
- Approximately 1.53 acres (or 0.08%) of temporary impacts (Attachment C); and
- Approximately 1.38 acres (or 0.07%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Only the occurrences near Woodward Road and McClelland Road are within the PIZ due to proximity to an existing line near McClelland Road. The one near Woodward Road does not appear in direct line for any SDG&E Facilities. The remaining occurrences are unlikely to be impacted as they are outside the PIZ.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of Orcutt's spineflower to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of Orcutt's spineflower habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Orcutt's spineflower population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to Orcutt's spineflower and its habitat. In the event that unavoidable impacts to Orcutt's spineflower will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.8 OTAY TARPLANT (DEINANDRA CONJUGENS)

Listing Status

- CESA: Endangered (1979)
- ESA: Threatened (63 FR 54937) (1998)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic⁶

⁶ Currently, this species is not identified as a narrow endemic; SDG&E recommends this species be re-characterized as a narrow endemic due to its highly restrictive habitat requirements, localized soil requirements, or other limiting ecological factors.

- Critical Habitat: Designated (67 FR 76030-76053) (2002)
- Recovery Plan: Recovery Plan for Otay Tarplant (69 FR 77770-77771) (USFWS 2004a)

2.8.1 Background

Distribution, Abundance, and Trends

Otay tarplant is an annual herb and member of the sunflower family (*Asteraceae*) that is found only in portions of San Diego County, California, and southward to Ensenada, Baja California, Mexico, occurring in elevations of 25 to 300 meters (82 to 984 feet) (CNPS 2020). Otay tarplant does not occur in Orange County. The blooming period is spring (April) through early summer (May–June) (CNPS 2020). This plant is generally associated with clay soils, grassland, open coastal sage scrub, and maritime succulent scrub habitat (CDFW 2019a, 2019b; CNPS 2020; SDMMP 2019a; USFWS 2004a, 2004c). Much of the area with clay soils and subsoils within the historical range of Otay tarplant likely was once vegetated with native grassland, open coastal sage scrub, and maritime succulent scrub, which provided suitable habitat for Otay tarplant. Since listing, the known range for Otay tarplant in San Diego County has been extended from the Mexican border north to Spring Valley and Paradise Valley (Calflora 2020; CNPS 2020).

Critical Habitat

Critical habitat was designated (6,333 acres) in San Diego County on December 10, 2002 (67 FR 76030-76053). Approximately 6,333 acres of designated critical habitat for Otay tarplant occurs within the Plan Area. There is approximately 672 acres (or approximately 10.6%) located within the undeveloped portion of the PIZ and associated SDG&E Facilities.

Threats and Limiting Factors

Development, agriculture, invasion of nonnative species, and habitat fragmentation and degradation are cumulative threats that have resulted in the loss of suitable habitat causing a population decline across the Otay tarplant range. Additional cumulative threats to this species include encroaching (urban and agricultural) development and associated edge effects, fragmentation of existing populations, reduced populations of pollinators, and competition with exotic plant species. The effects of grazing and fire on this herb are not well understood although the former is a declining industry in the urbanizing San Diego County. Weed competition is an issue for the species with many known Otay tarplant locations having prominent levels of weeds, mostly *Brachypodium distachyon* (purple false brome) or *Centaurea melitensis* (tocalote). Ongoing studies in San Diego County are providing additional data with respect to conservation of this species (CBI 2018; City of San Diego 2015; Milano and Vandergast 2018; RECON 2012, 2014).

Special Considerations

Otay tarplant is an annual plant that may experience yearly fluctuations in population size, which makes censusing populations of this species difficult during years of below-average rainfall. Determining the actual size of an occupied site (area) or magnitude of a given Otay tarplant population is difficult due to the major fluctuations that have been

documented in extant populations. Conditions during some years are better for growth and reproduction of Otay tarplant in some populations (and even some portions of a population) than during other years. Because the number of standing plants in a given population can vary by orders of magnitude from one year to the next, the number of standing plants observed in a population in any single year does not necessarily indicate the potential magnitude of that population. The spatial distribution of a standing population of annual plants is generally the result of the spatial distribution of the micro-environmental conditions conducive to seed germination and growth of the plants.

Within Preserves that coincide with the Plan Area, Otay tarplant has been prioritized for management and is categorized a risk level of “SS,” which is a species at lower risk of loss compared to other species, but the species still requires species specific management actions in addition to vegetation management (SDMMP and The Nature Conservancy 2017).

2.8.2 Conservation Analysis

Existing Regional Conservation Efforts

Otay tarplant is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- SDCWA Subregional NCCP/HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 704 acres of Modeled Habitat occurs within Preserves and 105 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 39% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 217 occurrences of Otay tarplant recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the Otay tarplant Modeled Habitat, there is approximately 2,075 acres present within the Plan Area and approximately 370 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the only ecoregions with acreages of Otay tarplant Modeled Habitat are the southern valley and southern coast ecoregions. Otay tarplant does not occur in Orange County.

Known Otay tarplant occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-8.

Table 2-8. Historical Otay Tarplant Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	2	0	2
CNDDB	3	1	4
SDMMP MOM	16	76	92
SDMMP Rare Plant Points	15	60	75
SDMMP Rare Plant Polygons	25	25	50
SDG&E	12	2	14

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

The population of Otay tarplant in San Diego County is generally confined to the area around Otay Mountain and land to its west. Moderate-sized populations (approximately 50–250 individuals) exist on the San Diego National Wildlife Refuge near the crossing of SR 94 and the Sweetwater River as well as on the slopes of the ridge to the south and east of the river. Small populations (approximately less than 50 individuals) exist in Paradise Hills Park and Paradise Valley east of Bonita. Others extend along SR 54 west of SR 125. Larger populations exist mostly on the north side of Sweetwater Reservoir. However, very large population (greater than approximately 250 individuals) exists to the west of Mother Miguel Mountain along both sides of SR 125. Other occurrences with the potential for high numbers of plants exist in Rancho Del Rey from Rice Canyon to the area west of Bonita Canyon Road. Occurrences exist around the Salt Creek Golf Course as well as large areas north of Upper Otay Reservoir. Smaller populations (approximately less than 50 individuals) exist on the Rancho Jamul Ecological Preserve but also to the west in Otay Ranch through Poggi Canyon and Telegraph Canyon and the Otay River Valley and on western and northern Otay Mesa extending to I-805.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Otay tarplant resulting from Covered Activities is as follows:

- Approximately 0.10 acre (or approximately 4,356 square feet) of permanent impacts (Attachment B);
- Approximately 0.06 acre (or approximately 2,614 square feet) of temporary impacts (Attachment C); and
- Approximately 0.05 acre (or approximately 2,178 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to Otay tarplant include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Otoy tarplant Modeled Habitat within the Plan Area:

- Approximately 3.02 acres (or 0.15%) of permanent impacts (Attachment B);
- Approximately 1.76 acres (or 0.08%) of temporary impacts (Attachment C); and
- Approximately 1.60 acres (or 0.08%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.18 acre (or approximately 7,841 square feet) of permanent impacts (Attachment A);
- Approximately 0.11 acre (or approximately 4,792 square feet) of temporary impacts (Attachment A); and
- Approximately 0.10 acre (or approximately 4,356 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 5.49 acres (or 0.09%) of permanent impacts (Attachment A);
- Approximately 3.20 acres (or 0.05%) of temporary impacts (Attachment A); and
- Approximately 2.90 acres (or 0.05%) of Wildfire Fuels Management impacts (Attachment A).

Populations at greatest risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Large populations are the ones adjacent to SR 125 west of Mother Miguel Mountain where occurrences are located in the PIZ in the area between Telegraph Canyon and the Otoy River Valley. Only a fraction of the entire population within these areas is within the PIZ.

A major population is spread throughout the urban canyons and fragments of habitat in the Bonita, Chula Vista, and western Otoy Mesa areas. The population in this region is somewhat insulated from Covered Activities as a result of the development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is

further supported by the fact that the HCP Amendment limits Take authorization of Otay tarplant to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of Otay tarplant habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution any Otay tarplant population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to Otay tarplant and its habitat. In the event that unavoidable impacts to Otay tarplant will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.9 SHORT-LEAVED DUDLEYA (*DUDLEYA BREVIFOLIA*)

Listing Status

- CESA: Endangered
- ESA: None
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic
- Critical Habitat: None
- Recovery Plan: None

2.9.1 Background

Distribution, Abundance, and Trends

Short-leaved dudleya is endemic to San Diego County occurring only along the coast between Del Mar and La Jolla (Reiser 1994). The species is found in southern maritime

chaparral on sandstone bluffs with Carlsbad gravelly loams soils and small reddish ironstone concretions. It is often in areas with native annual forbs and, while not a wetland species, it occurs in areas where soils remain saturated for a relatively long period after rain (SDMMP and The Nature Conservancy 2017). Short-leaved dudleya does not occur in Orange County. Within San Diego County, there is one short-leaved dudleya occurrence with greater than 5,000 individuals at Carmel Mountain Preserve, and another occurrence (fewer than 500 individuals) at Skeleton Canyon (CDFW 2019c). A large (approximately greater than 250 individuals) and a small (approximately less than 50 individuals) occurrence exist at Torrey Pines State Reserve and there is a moderate-sized occurrence (approximately 50–250 individuals) at Crest Canyon. Historical occurrences were found at La Jolla Canyon; Mount Soledad; and on mesas near McGonigle Canyon, Del Mar, and La Jolla (Reiser 1994).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

Cumulative threats to short-leaved dudleya include trampling by hikers, bikers, dogs, and equestrians; illegal trails; invasive plants; and erosion (SDMMP and The Nature Conservancy 2017). The limited amount of suitable habitat, as well as the small number of occurrences in proximity, makes short-leaved dudleya susceptible to environmental stochasticity and catastrophic disturbance.

Special Considerations

As a tiny succulent, short-leaved dudleya can only be adequately censused during the spring following the “corm” sprouting of leaves, and during the short flowering period (Reiser 2001). It grows naturally in open, flat lands that are often mistaken for paths and walkways or in disturbed habitat.

Within Preserves that coincide with the Plan Area, short-leaved dudleya has been prioritized for management and is categorized a risk level of “SL,” which is a species at high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.9.2 Conservation Analysis

Existing Regional Conservation Efforts

Short-leaved dudleya is covered by the following existing regional habitat conservation plan that overlaps the Plan Area:

- San Diego MSCP Subregional Plan

This existing regional habitat conservation plan forms a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 1,272 acres of Modeled Habitat occurs within Preserves and 97 acres of Modeled Habitat

occurs within Proposed Preserves (collectively, 68% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. There are no occurrences of short-leaved dudleya recorded in the SD MMP MOM and Rare Plant databases for Preserves.

Presence within Plan Area and PIZ

Based on the short-leaved dudleya Modeled Habitat, there is approximately 2,008 acres present within the Plan Area and approximately 347 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the only ecoregion with short-leaved dudleya Modeled Habitat is the central coast ecoregion. The species does not occur in Orange County.

There are no known short-leaved dudleya occurrences within the Plan Area and PIZ from USFWS, CNDDDB, SD MMP MOM, and SDG&E species databases based on the query parameter methods for this analysis.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to short-leaved dudleya resulting from Covered Activities is as follows:

- Approximately 0.09 acre (or approximately 3,920 square feet) of permanent impacts (Attachment B);
- Approximately 0.06 acre (or approximately 2,614 square feet) of temporary impacts (Attachment C); and
- Approximately 0.05 acre (or approximately 2,178 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to short-leaved dudleya include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to short-leaved dudleya Modeled Habitat within the Plan Area:

- Approximately 2.84 acres (or 0.14%) of permanent impacts (Attachment B);
- Approximately 1.65 acres (or 0.08%) of temporary impacts (Attachment C); and
- Approximately 1.50 acres (or 0.07%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Mapped extents of each of three major populations at the aforementioned preserves slightly overlap with the PIZ. However, the majority of the mapped extents are outside the PIZ. Potential impacts are at greatest risk for those occurrences at the Carmel Mountain Preserve and Torrey Pines State Preserve because SDG&E Facilities traverse undeveloped habitat. Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of short-leaved dudleya to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of short-leaved dudleya habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any short-leaved dudleya population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to short-leaved dudleya and its habitat. In the event that unavoidable impacts to short-leaved dudleya will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.10 SAN DIEGO BUTTON-CELERY (*ERYNGIUM ARISTULATUM* VAR. *PARISHII*)

Listing Status

- CESA: Endangered (1979)
- ESA: Endangered (58 FR 41384-41392) (1993)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical Habitat: None

- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

2.10.1 Background

Distribution, Abundance, and Trends

San Diego button-celery is found in western Riverside County and San Diego County, and in Baja California, Mexico (Dudek & Associates 2003). The majority of the occupied range of the taxon in the United States occurs in San Diego County. In San Diego County, the species is found in these locations: MCBCP, Carlsbad, San Marcos, MCAS Miramar, Clairemont Mesa, and Otay Mesa (USFWS 1998b). This species occurs in clay soils in vernal pools or adjacent grasslands. Major populations of San Diego button-celery are found in Carlsbad (Poinsettia Lane) and San Marcos (SANDAG 2003). Both populations are considered critical locations (USFWS 1998b). This species does not occur in Orange County.

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

San Diego button-celery is threatened by the cumulative effects of habitat loss and degradation, urbanization and agricultural conversion, off-road vehicle use, livestock grazing, trampling/foot traffic, watershed alteration (drainage), and competition with nonnative species throughout much of its range. More than 90% of vernal pool habitat has been impacted in San Diego County alone. Habitat loss remains the primary threat.

San Diego button-celery is thought to be insect-pollinated, with potential pollinators including bee flies (Bombyliids) and solitary bees (Apoidea). This species relies completely on ephemerally wet conditions associated with seasonal wetlands (vernal pools, swales) to reproduce, which is entirely by seed (SANDAG 2003).

Extended drought and climate change are potentially rangewide cumulative threats to all vernal pool taxa. Prolonged drought periods may decrease the long-term viability of small to medium-sized vernal pools through loss of rainfall over several to many years (USFWS 2010b).

Special Considerations

San Diego button-celery is a gray-green perennial herb with a persistent tap root. It spreads to erect from 1 to 8 centimeters in length and 41 centimeters or more in height. San Diego button-celery blooms from April through June; the tiny white flowers vary in length from 1.5 to 2.5 millimeters, occur on short stalks with rigid spiny bracts, and are found in one to many flowered heads in cymes. Stems are gray-green with toothed leaves, giving it a prickly appearance (SANDAG 2003).

Although it can be common where found, it has a patchy distribution and is considered an obligate vernal pool species, making it more susceptible to local extinction. Conservation is dependent on maintaining hydrology and the surrounding watershed for

the occupied vernal pools, as well as protecting adjacent upland habitat for pollinators. Extant populations need to be managed to reduce stressors from onsite and adjacent activities. Regular monitoring is essential to gauging population trends and stressor effects. Currently, the level of synecological relationships between pollinators and *E. a. var. parishii* is unknown. If a close ecological relationship exists with *E. a. var. parishii* and its pollinators, conservation of the pollinators at all life stages in habitat proximal to the vernal pool may be needed to preserve the efficiency of the pollination service (SANDAG 2003).

Within Preserves that coincide with the Plan Area, San Diego button-celery has not been prioritized for species specific management actions.

2.10.2 Conservation Analysis

Existing Regional Conservation Efforts

San Diego button-celery is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- City of San Diego Vernal Pool HCP
- SDCWA Subregional NCCP/HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 987 acres of Modeled Habitat occurs within Preserves and 120 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 17% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 20 occurrences of San Diego button-celery recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the acreage of San Diego button celery Modeled Habitat, there is approximately 6,412 acres present within the Plan Area and approximately 604 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreages of San Diego button celery Modeled Habitat occur in the central coast, north coast, and southern coast ecoregions. This species does not occur in Orange County.

Known San Diego button celery occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-9. On MCBP, occurrences exist on the northern end of upper Stuart Mesa at the intersection of Williams Drive and Macs Road, west of Alderwood Street, and east of Wire Mountain Road, and an additional one on Wire Mountain itself near the head of Tuley Canyon. Known occurrences are found in

vernal pools within San Marcos, Carlsbad, Ranch Peñasquitos, Torrey Hills, Torrey Highlands Vernal Pool Open Space, and the Del Mar regions.

Table 2-9. Historical San Diego Button-celery Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	4	1	5
CNDDB	14	8	22
SDMMP MOM	0	0	0
SDMMP Rare Plant Points	0	12	12
SDMMP Rare Plant Polygons	0	8	8
SDG&E	2	0	2

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

In Mira Mesa, a number of mapped occurrences exist within vernal pools north of Flanders Drive, south of Calle Cristobal, and between Parkdale Avenue and Camino Santa Fe. Another cluster of occurrences exists on the southern edge of Mira Mesa, including the Mira Mesa vernal pool open space, north of Carroll Canyon and including an occurrence on the south side of Carroll Canyon along Arjons Drive. A series of occurrences exist on both sides of Miramar Road extending from the crossing of the Metrolink line to an area west of Eastgate Mall Road. These vernal pools are in a variety of conditions in gaps and spots where development has not occurred.

On MCAS Miramar, a series of well-established complexes of occurrences exist that are notable in size compared to other populations. One exists between the runways and San Clemente Canyon; another exists between the west end of the runways and Rose Canyon. Another with many occurrences exists mostly north of SR 52 and Kearny Villa Road and extending south with smaller numbers to Clairemont Mesa Boulevard. A final well-established cluster of occurrences is located around the intersection of SR 52 and SR 163. This species is also known to occur in the Otay Mesa area near Dennerly Canyon, Ocean View Hills Parkway, south of SR 905 near Wruck and Dillon Canyons, the vicinity of Brown Field, near the southeast corner of Otay Ranch, and by Lower Otay Lake.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to San Diego button-celery Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.16 acre (or approximately 6,970 square feet) of permanent impacts (Attachment B); and
- Approximately 0.10 acre (or approximately 4,356 square feet) of temporary impacts (Attachment C).

Direct impacts to San Diego button celery include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated

with individual plants is included in Section 4.2.2 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of San Diego button celery Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to San Diego button celery Modeled Habitat within the Plan Area:

- Approximately 4.94 acres (or 0.08%) of permanent impacts (Attachment B); and
- Approximately 2.88 acres (or 0.04%) of temporary impacts (Attachment C).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

A number of San Diego button-celery occurrences are within or adjacent to urban development; the occurrences are somewhat insulated from Covered Activities as a result of the development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population. Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area where there are no less impactful potential locations such as in roads and streets.

The occurrence on northern upper Stuart Mesa is crossed by the PIZ. The Wire Mountain cluster is also within the PIZ although SDG&E Facilities mostly exist in streets of the adjacent housing areas. The San Marcos occurrences are considered at risk due to proximity of the PIZ. The Poinsettia train station, Black Mountain mapped area, cluster of occurrences located along Carmel Mountain Road, Torrey Highlands Vernal Pool Open Space, Torrey Hills cluster of occurrences, and Del Mar Mesa occurrences are also located within the PIZ. Most of the SDG&E Facilities in these areas are within the existing roads, which may limit impacts.

The west Mira Mesa occurrences heavily overlap the PIZ and have the potential for vernal pool impacts unless future improvements are carefully located. The southern Mira Mesa occurrences near Carroll Canyon have a situation similar to the west Mira Mesa occurrences. The occurrences along Miramar Road and in and around MCAS Miramar are within the PIZ, but SDG&E Facilities in these areas are mostly in developed areas, which would limit impacts to these occurrences. There are vast patches of habitat that are untouched by the PIZ and unlikely to be impacted.

The occurrences near Dennery Canyon are in the PIZ; however, the SDG&E Facilities are generally in existing roads. The same is true for the majority of the occurrences on

Otay Mesa. However, the occurrences on the northeastern portion of Otay Mesa are in more undeveloped areas within the PIZ and could be subject to potential impacts.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence.

That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of San Diego button-celery to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of San Diego button-celery habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any San Diego button-celery population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to San Diego button celery occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

2.11 WILLOWY MONARDELLA (*MONARDELLA VIMINEA*)

Listing Status

- CESA: Endangered
- ESA: Endangered (77 FR 13394-13447) (2012)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Narrow Endemic
- Critical Habitat: Designated (77 FR 13394-13447) (2012)

- Recovery Plan: None

2.11.1 Background

Distribution, Abundance, and Trends

Willowy monardella is a perennial herb that is native to California, occurring only in San Diego County. The species occurs in seasonal alluvial washes consistent with chaparral, coastal scrub, riparian forest, and woodland communities (CNPS 2020). CDFW states that 28 historical and extant populations were once recorded on CNDDB; currently, only eight natural occurrences exist within the area south and west of Poway, the northern limits of the City of San Diego, and within MCAS Miramar. Range and population numbers have been in decline over the last several decades (CDFW 2013). The species does not occur in Orange County.

Critical Habitat

Critical habitat was most recently revised by USFWS in March 2012 (77 FR 13394-13447). Approximately 122 acres of critical habitat is designated within San Diego County in watersheds north of the Kearny Mesa community. A total of 122 acres of designated willowy monardella critical habitat is located within the Plan Area. There is approximately 0.03 acre (or approximately 0.02%) located within the undeveloped portion of the PIZ and existing SDG&E Facilities.

Threats and Limiting Factors

The species is immediately threatened by development activities, including modification of drainage channels and construction of urban and industrial developments. Also, while the plant is apparently able to recover readily from wildfire, cumulative threats include alteration of hydrology and fire regime causing loss of habitat and invasion of nonnative plants (USFWS 2012). Very little is known about the species' reproductive abilities; seedling establishment is difficult to detect and seldomly seen (SDMMP 2019b).

Special Considerations

Willowy monardella has an affinity to grow on gravelly washes with cobble and gently sloping benches (Jepson 2019). It flowers for a short period of time and, when dormant, the plant is very cryptic and difficult to identify.

Within Preserves that coincide with the Plan Area, willowy monardella has been prioritized for management and is categorized a risk level of "SL," which is a species at high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.11.2 Conservation Analysis

Existing Regional Conservation Efforts

Willowy monardella is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan

- SDCWA Subregional NCCP/HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 9,288 acres of Modeled Habitat occurs within Preserves and 1,949 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 75% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 111 occurrences of willowy monardella recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the willowy monardella Modeled Habitat, there is approximately 14,891 acres present within the Plan Area, and approximately 1,464 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreages of willowy monardella Modeled Habitat occur in the central valley, southern foothills, and central coast ecoregions. This species does not occur in Orange County.

Known willowy monardella occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-10. This species does not occur in Orange County; therefore, no occurrences are present in the portion of the Plan Area that overlaps with Orange County. Within San Diego County, major populations are located in MCAS Miramar and surrounding communities including Mira Mesa, and throughout the slopes of Sycamore Canyon and Goodan Ranch Sycamore Canyon Preserve immediately west of SR 67. Populations in and around Sycamore Canyon and in Mira Mesa lie within Preserves.

Table 2-10. Historical Willowy Monardella Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDB	2	5	7
SDMMP MOM	7	46	53
SDMMP Rare Plant Points	5	30	35
SDMMP Rare Plant Points Polygons	10	23	23
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to willowy monardella Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.40 acre (or approximately 17,424 square feet) of permanent impacts (Attachment B);

- Approximately 0.23 acre (or approximately 10,019 square feet) of temporary impacts (Attachment C); and
- Approximately 0.21 acre (or approximately 9,148 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to willowy monardella include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to willowy monardella Modeled Habitat within the Plan Area:

- Approximately 11.98 acres (or 0.08%) of permanent impacts (Attachment B);
- Approximately 6.99 acres (or 0.05%) of temporary impacts (Attachment C); and
- Approximately 6.32 acres (or 0.04%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately <0.01 acre (or approximately 436 square feet) of permanent impacts (Attachment A);
- Approximately <0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A); and
- Approximately <0.01 acre (or approximately 436 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately <0.01 acre (or <0.01%) of permanent impacts (Attachment A);
- Approximately <0.01 acre (or <0.01%) of temporary impacts (Attachment A); and
- Approximately <0.01 acre (or <0.01%) of Wildfire Fuels Management impacts (Attachment A).

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Many of the occurrences for this species occur outside the PIZ and are not expected to be impacted by Covered Activities. However, select occurrences throughout all of the major populations in Mira Mesa, MCAS Miramar, and Sycamore Canyon overlap with areas of the PIZ. On MCAS Miramar, impacts primarily may occur

to populations that overlap with the PIZ that traverses the property between I-805 and I-15. Covered Activities within the more urban areas near Mira Mesa and Carroll Canyon have more options to avoid impacts by limiting work areas to within developed areas. Although SDG&E Facilities span undeveloped habitat in areas such as Sycamore Canyon and have potential to impact these particular populations, it is expected impacts would be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of willowy monardella to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of willowy monardella habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any willowy monardella population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to willowy monardella and its habitat. In the event that unavoidable impacts to willowy monardella will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.12 SPREADING NAVARRETIA (*NAVARRETIA FOSSALIS*)

Listing Status

- CESA: None
- ESA: Threatened (63 FR 54975-54994) (1998)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical Habitat: Designated (75 FR 62192-62255) (2010)
- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

2.12.1 Background

Distribution, Abundance, and Trends

Spreading navarretia is an annual herb that is native to California and extends into Baja California, Mexico. The species occurs in vernal pool and alkali playa habitat ranging from northern Los Angeles County, western Riverside County, and coastal San Diego, and into San Quintin in Baja California, Mexico (CNPS 2020). The species does not occur in Orange County. Nearly 60% of populations in the 1998 listing and in the Recovery Plan (USFWS 1998b) were concentrated at three locations: Otay Mesa in southern San Diego County, alongside the San Jacinto River in western Riverside County, and near Hemet in western Riverside County (Bauder 1986; Bramlet 1993). It is estimated that up to 97% of vernal pool habitat has been lost; furthermore, the presence within the lost habitat is unknown for spreading navarretia (Oberbauer and Vanderwier 1991).

Critical Habitat

Critical habitat was most recently revised by USFWS in October 2010 (75 FR 62192-62255). Approximately 6,725 acres of critical habitat is designated across Los Angeles, Riverside, and San Diego Counties. A total of 1,068 acres of designated spreading navarretia critical habitat is located within the Plan Area. There is approximately 47 acres (or approximately 0.7%) located within the undeveloped portion of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

The species is primarily threatened by loss and/or degradation of habitat due to cumulative threats from development, agriculture, grazing, foot traffic, and off-highway vehicles (CNPS 2020). In addition, as spreading navarretia is limited to vernal pool habitat, additional cumulative threats to the species include changes in hydrology, compaction, and erosion (USFWS 1998b).

Special Considerations

Spreading navarretia depends on the particular hydrologic cycle of inundation and drying unique to vernal pool and alkali playa habitat (USFWS 1998b) and is considered an obligate vernal pool species. Generally, both vernal pools and alkali playas inundate during the winter season and dry up as the rainy season ends. Additionally, suitable vernal pool habitat for the species can include pools created by road-ruts (SDCWA 2010).

Within Preserves that coincide with the Plan Area, spreading navarretia has not been prioritized for species specific management actions.

2.12.2 Conservation Analysis

Existing Regional Conservation Efforts

Spreading navarretia is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- City of San Diego Vernal Pool HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 987 acres of Modeled Habitat occurs within Preserves and 120 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 17% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 30 occurrences of spreading navarretia recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the spreading navarretia Modeled Habitat, there is approximately 6,412 acres present within the Plan Area and approximately 604 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreages of spreading navarretia Modeled Habitat occur in the north, central, and southern coast ecoregions. The species does not occur in Orange County.

Known spreading navarretia occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-11. This species does not occur in Orange County; therefore, no occurrences are present within the portion of the Plan Area that overlaps with Orange County. Within San Diego County, populations are associated with vernal pools on MCAS Miramar and in surrounding communities, Otay Mesa, the city of Ramona, and the southern portion of MCBCP. Many populations (approximately more than half) are found in the Otay Mesa region and are located on Preserves.

Table 2-11. Historical Spreading Navarretia Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	2	2
CNDDB	3	11	14
SDMMP MOM	0	0	0
SDMMP Rare Plant Points	4	17	21
SDMMP Rare Plant Points Polygons	1	8	9
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to spreading navarretia habitat resulting Covered Activities is as follows:

- Approximately 0.16 acre (or approximately 6,970 square feet) of permanent impacts (Attachment B); and
- Approximately 0.10 acre (or approximately 4,356 square feet) of temporary impacts (Attachment C).

Direct impacts to spreading navarretia include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of spreading navarretia Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to spreading navarretia Modeled Habitat within the Plan Area:

- Approximately 4.94 acres (or 0.08%) of permanent impacts (Attachment B); and
- Approximately 2.88 acres (or 0.04%) of temporary impacts (Attachment C).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.01 acre (or approximately 436 square feet) of permanent impacts (Attachment A); and
- Approximately 0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 0.38 acre (or 0.01%) of permanent impacts (Attachment A); and
- Approximately 0.22 acre (or <0.01%) of temporary impacts (Attachment A).

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Many of the populations in San Diego County are located outside the PIZ and are not expected to be impacted by Covered Activities; however, select populations in Otay Mesa adjacent to Vista Santo Domingo Road, north of San Marcos Boulevard in the city of San Marcos, north of Voorhes Lane in the city of Ramona, and on MCBCP east of Wire Mountain Road lie within undeveloped portions of the PIZ. With the exception of populations on MCAS Miramar, these populations occur within proximity to residential and developed areas. The populations adjacent to or near residential areas are somewhat insulated from Covered Activities as a result of the adjacent development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility and can largely limit work areas to within developed areas. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on repair and maintenance of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of spreading navarretia to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of spreading navarretia habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any spreading navarretia population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to spreading navarretia occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in

Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

2.13 DEHESA BEARGRASS (*NOLINA INTERRATA*)

Listing Status

- CESA: Endangered (1979)
- ESA: None
- Other: CRPR 1B.1, BLM Sensitive
- SDG&E: HCP Amendment Covered, Narrow Endemic⁷
- Critical Habitat: None
- Recovery Plan: None

2.13.1 Background

Distribution, Abundance, and Trends

Dehesa beargrass is a perennial herb that is native to California, occurring only in San Diego County and extending into Baja California, Mexico. In Baja California, it is known from a limited area north of Ensenada. Seven populations are known to occur in San Diego County (CBI 2015). The species occurs among chaparral foothills between 600 and 700 meters (1,967 and 2,297 feet) in elevation within the southern foothills ecoregion of San Diego County, including McGinty Mountain, Dehesa Valley, and a few locations to the east (Calflora 2020). Dehesa beargrass does not occur within Orange County (Jepson 2019).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

The species is primarily threatened by loss and/or degradation of habitat due to development, altered fire regimes, poaching, and off-highway vehicles (CNPS 2020). In addition, Dehesa beargrass is a slow-growing species sensitive to fluctuations in climate, limiting survivorship both in the wild and in a nursery setting (CBI 2016).

Special Considerations

Dehesa beargrass is limited to foothills with gabbro soils and flowers infrequently during the summer months, June through July (Jepson 2019). Although the species is mostly

⁷ Currently, this species is not identified as a narrow endemic; SDG&E recommends this species be re-characterized as a narrow endemic due to its highly restrictive habitat requirements, localized soil requirements, or other limiting ecological factors.

likely to flower after a fire, Dehesa beargrass has been known to bloom without fire. In either case, blooms experience high rates of herbivory (CBI 2016).

Within Preserves that coincide with the Plan Area, Dehesa beargrass has been prioritized for management and is categorized a risk level of “SO,” which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.13.2 Conservation Analysis

Existing Regional Conservation Efforts

Dehesa beargrass is covered by the following existing regional habitat conservation plan that overlaps the Plan Area:

- San Diego MSCP Subregional Plan

This existing regional habitat conservation plan forms a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 1,267 acres of Modeled Habitat occurs within Preserves and 29 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 56% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 54 occurrences of Dehesa beargrass recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the Dehesa beargrass Modeled Habitat, there is approximately 2,296 acres present within the Plan Area and approximately 124 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, only the southern foothills ecoregion has Dehesa beargrass Modeled Habitat. This species does not occur in Orange County.

Known Dehesa beargrass occurrences within the Plan Area and PIZ were collected from USFWS, CNDDb, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-12. This species does not occur in Orange County; therefore, there are no occurrences within the portion of the Plan Area that overlaps with Orange County. Within San Diego County, most populations are located in the east region of the county and are concentrated in Dehesa (north of Dehesa Road); on the western side of McGinty Mountain; and throughout the slopes of Sycuan Peak, north of Skyline Truck Trail. Almost all populations occur within Preserves throughout these various regions.

Table 2-12. Historical Dehesa Beargrass Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	NA	NA	NA
CNDDB	0	0	0
SDMMP MOM	0	25	25
SDMMP Rare Plant Points	0	22	22
SDMMP Rare Plant Points Polygons	1	6	7
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Dehesa beargrass Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.03 acre (or approximately 1,307 square feet) of permanent impacts (Attachment B);
- Approximately 0.02 acre (or approximately 871 square feet) of temporary impacts (Attachment C); and
- Approximately 0.02 acre (or approximately 871 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to Dehesa beargrass include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual plants is included in Section 4.4.3.2 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Dehesa beargrass Modeled Habitat within the Plan Area:

- Approximately 1.01 acres (or 0.04%) of permanent impacts (Attachment B);
- Approximately 0.59 acre (or 0.03%) of temporary impacts (Attachment C); and
- Approximately 0.53 acre (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Almost all occurrences for this species occur outside the PIZ and are not expected to be impacted by Covered Activities. The only populations that fall

within undeveloped areas of the PIZ associated with SDG&E Facilities occur immediately north of Dehesa Road. Although SDG&E Facilities span undeveloped habitat in this area and have potential to impact these particular populations, it is expected impacts would be minimal relative to the overall species population in this region. When developed roads are in proximity to Facilities as is the case in this area, Covered Activities can be limited to the adjacent developed roadway to the greatest extent possible to minimize impacts.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment limits Take authorization of Dehesa beargrass to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Destruction of this plant due to new projects is only covered through a Minor Amendment to the HCP Amendment.

All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and narrow endemic plant Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and narrow endemic plant Protocols further reduces potential impacts to this species.

Due to the limited acreage of Dehesa beargrass habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Dehesa beargrass population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the HCP Amendment Operational Protocols (as described in Section 5.1 of the HCP Amendment) during implementation of Covered Activities in order to continue to avoid and minimize impacts to Dehesa beargrass and its habitat. In the event that unavoidable impacts to Dehesa beargrass will occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E has developed additional narrow endemic plant Protocols (as described in Section 5.1.12 of the HCP Amendment) that could be used in coordination with USFWS to further reduce impacts and mitigate to the maximum extent practicable.

2.14 CALIFORNIA ORCUTT GRASS (*ORCUTTIA CALIFORNICA*)

Listing Status

- CESA: Endangered (1979)
- ESA: Endangered (58 FR 41384-41392) (1993)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical Habitat: None
- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

2.14.1 Background

Distribution, Abundance, and Trends

California Orcutt grass is an annual grass that is native to California and extends into Baja California, Mexico. The species occurs in vernal pool habitat ranging from Ventura County and into Baja California. In San Diego County, it occurs on western Otay Mesa, while in Orange County, California Orcutt grass only occurs in Fairview Park in Costa Mesa, which lies outside the Plan Area (Calflora 2020). In Baja California, a major population of this species occurs near Colonet and San Quintin. A smaller Baja California population is found an estimated 250 miles southwest of the major population previously mentioned. It is estimated that up to 97% of vernal pool habitat has been lost; furthermore, the presence within the lost habitat is unknown for California Orcutt grass (Oberbauer and Vanderwier 1991).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to this species include loss and degradation of habitat due to development, agriculture, grazing, nonnative plants, and off-highway vehicles (CNPS 2020). In addition, as California Orcutt grass is limited to a specific form of vernal pool habitat, changes in hydrology, compaction, and erosion are additional cumulative threats to this species (USFWS 1998b).

Special Considerations

California Orcutt grass is considered a vernal pool obligate, germinating in the deepest portions of pools (USFWS 1998b), which is a limited subset of typical vernal pool habitat. Vernal pools are generally inundated during the winter season and dry up as the rainy season ends. Like many vernal pool species, California Orcutt grass blooms during the drier months of the year between April and August (Jepson 2019). Additionally, suitable vernal pool habitat for the species can include pools created by road-ruts (SDCWA 2010).

Within Preserves that coincide with the Plan Area, California Orcutt grass has been prioritized for management and is categorized a risk level of “SL,” which is a species at

high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.14.2 Conservation Analysis

Existing Regional Conservation Efforts

California Orcutt grass is covered by following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- City of San Diego Vernal Pool HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 1,297 acres of Modeled Habitat occurs within Preserves and 217 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 33% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. There are no occurrences of California Orcutt grass recorded in the SDMMP MOM and Rare Plant databases for Preserves.

Presence within Plan Area and PIZ

Based on the California Orcutt grass Modeled Habitat, there is approximately 4,560 acres present within the Plan Area and approximately 832 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreage of California Orcutt grass Modeled Habitat occurs in the central coast, southern coast, and central valley ecoregions.

Known California Orcutt grass occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-13. No populations occur within the portion of Orange County that overlaps with the Plan Area. Within San Diego County, populations occur in the vernal pool restoration area associated with SDG&E's Peñasquitos Substation, and associated with vernal pools in MCAS Miramar and in the Otay Mesa region near the United States and Mexico border. Several populations (approximately three to five) in the Otay Mesa region overlap with Preserves.

Table 2-13. Historical California Orcutt Grass Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	1	1	2
CNDDDB	1	5	6
SDMMP MOM	0	0	0
SDMMP Rare Plant Points	0	0	0
SDMMP Rare Plant Points Polygons	0	0	0
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to California Orcutt grass Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.23 acre (or approximately 10,019 square feet) of permanent impacts (Attachment B); and
- Approximately 0.13 acre (or approximately 5,663 square feet) of temporary impacts (Attachment C).

Direct impacts to California Orcutt grass include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of California Orcutt grass Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to California Orcutt grass Modeled Habitat within the Plan Area:

- Approximately 6.81 acres (or 0.15%) of permanent impacts (Attachment B); and
- Approximately 3.97 acres (or 0.09%) of temporary impacts (Attachment C).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. All of the populations located on MCAS Miramar are located outside the PIZ and are not expected to be impacted by Covered Activities; however, the population associated with the Peñasquitos Substation vernal pool restoration area and several populations in Otay Mesa are within the PIZ. With the exception of populations on MCAS Miramar, many populations occur within proximity to residential and developed areas. The populations adjacent to or near residential areas are somewhat insulated from Covered Activities as a result of the adjacent development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility and can largely limit work areas to within developed areas. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on repair and maintenance of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that

Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of California Orcutt grass to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols to be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of California Orcutt grass habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any California Orcutt grass population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to California Orcutt grass occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

2.15 SAN DIEGO MESA MINT (*POGOGYNE ABRAMSII*)

Listing Status

- CESA: Endangered (1979)
- ESA: Endangered (43 FR 44810-44811) (1998)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical habitat: None
- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

2.15.1 Background

Distribution, Abundance, and Trends

San Diego mesa mint is an annual herb endemic to San Diego County that is restricted to vernal pool basins of mesa lands. Populations exist in Mira Mesa, Clairemont, La Mesa, and Del Mar Mesa (Calflora 2020). San Diego mesa mint populations have been in decline since their listing in 1978 (CDFW 2019b). This species does not occur in Orange County.

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to San Diego mesa mint include development, off-highway vehicles, hydrologic alterations, compaction, dumping of trash and earthen fill, and erosion (CNPS 2020; USFWS 2010c). An estimated 97% of potential habitat for San Diego mesa mint has been lost to development (Oberbauer and Vanderwier 1991). Land that has been protected for the species is on MCAS Miramar or on small City of San Diego Open Space locations that may be subject to other cumulative threats including invasive weeds, trampling, and other disturbances.

Special Considerations

The species is restricted to vernal pool habitat and is considered an obligate vernal pool species. It relies on periods of inundation to germinate followed by a dry period for flowering, and typically from May through July following adequate rain events in the winter (CNPS 2020). Additionally, suitable vernal pool habitat for the species can include pools created by road-ruts (SDCWA 2010).

Within Preserves that coincide with the Plan Area, San Diego mesa mint has not been prioritized for species specific management actions.

2.15.2 Conservation Analysis

Existing Regional Conservation Efforts

San Diego mesa mint is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- SDCWA Subregional NCCP/HCP
- City of San Diego Vernal Pool HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 524 acres of Modeled Habitat occurs within Preserves and 46 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 22% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In

addition, 16 occurrences of San Diego mesa mint recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the San Diego mesa mint Modeled Habitat, there is approximately 2,536 acres present within the Plan Area and approximately 341 acres within the PIZ associated with existing infrastructure. Within the Plan Area in San Diego County, the only ecoregion with San Diego mesa mint Modeled Habitat is the central coast ecoregion. The species does not occur in Orange County.

Known San Diego mesa mint occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-14. This species does not occur in Orange County; therefore, no occurrences are present within the portion of the Plan Area that overlaps with Orange County. Within San Diego County, most of the well-established populations are found in association with vernal pools located in Mira Mesa, Carroll Canyon, Kearny Mesa, and MCAS Miramar. Populations (with fewer numbers) are located in undeveloped habitat adjacent to residential areas near Tierrasanta Park. In addition, some populations to the north occur within Preserves in the Mira Mesa region.

Table 2-14. Historical San Diego Mesa Mint Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDB	2	1	3
SDMMP MOM	0	0	0
SDMMP Rare Plant Points	0	8	8
SDMMP Rare Plant Points Polygons	0	8	8
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to San Diego mesa mint Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.09 acre (approximately 3,920 square feet) of permanent impacts (Attachment B); and
- Approximately 0.05 acre (approximately 2,178 square feet) of temporary impacts (Attachment C).

Direct impacts to San Diego mesa mint include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. Wildfire Fuels

Management is not expected to occur in areas of San Diego mesa mint Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to San Diego mesa mint Modeled Habitat within the Plan Area:

- Approximately 2.79 acres (or 0.11%) of permanent impacts (Attachment B); and
- Approximately 1.63 acres (or 0.06%) of temporary impacts (Attachment C).

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Many of the populations in San Diego County are located outside the PIZ and are not expected to be impacted by Covered Activities; however, populations in Mira Mesa and Kearny Mesa, and to a lesser extent, select populations on MCAS Miramar and near Tierrasanta Park lie within the PIZ. With the exception of populations on MCAS Miramar, many populations occur within proximity to residential and developed areas. On MCAS Miramar, impacts primarily may occur to occupied pools that overlap with the PIZ that traverses the property between I-805 and I-15. The populations adjacent to or near residential areas are somewhat insulated from Covered Activities as a result of the adjacent development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility and can largely limit work areas to within developed areas. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on repair and maintenance of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of San Diego mesa mint to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of San Diego mesa mint habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any San Diego mesa mint population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to San Diego mesa mint occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

2.16 OTAY MESA MINT (POGOGYNE NUDIUSCULA)

Listing Status

- CESA: Endangered (1979)
- ESA: Endangered (58 FR 41384-41392) (1993)
- Other: CRPR 1B.1
- SDG&E: HCP Amendment Covered, Vernal Pool Species⁸
- Critical Habitat: None
- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

2.16.1 Background

Distribution, Abundance, and Trends

Otay mesa mint is an annual herb that occurs from San Diego County adjacent Baja California, Mexico. Within San Diego County, this species is only present in vernal pools on Otay Mesa (Calflora 2020; CNPS 2020; SDNHM 2020). This species does not occur in Orange County. Otay mesa mint populations have been in decline since their listing in 1993.

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to Otay mesa mint include development, off-highway vehicles, agricultural conversion, grazing, hydrologic alterations, compaction, erosion, and trash dumping (CNPS 2020; USFWS 2010d). Of the potential habitat for Otay mesa mint, 97% has been lost to development in the past (Oberbauer and Vanderwier 1991). Land on

⁸ This Covered Species was previously identified by SDG&E as both a narrow endemic species and a vernal pool species. Because obligate vernal species are covered under the vernal pool policy, including them as a narrow endemic does not afford them any additional protection; therefore, SDG&E recommends this species be re-characterized as a vernal pool species only.

eastern Otay Mesa set aside for the protection of Otay mesa mint has had impacts from excessive water flows and invasive weeds.

Special Considerations

The species is restricted to vernal pool habitat and is considered an obligate vernal pool species. It relies on periods of inundation to germinate followed by a dry period for flowering, and typically blooms from May through July following adequate rain events in the winter (CNPS 2020). Additionally, suitable vernal pool habitat for the species can include pools created by road-ruts (SDCWA 2010).

Within Preserves that coincide with the Plan Area, Otay mesa mint has been prioritized for management and is categorized a risk level of “SL,” which is a species at high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

2.16.2 Conservation Analysis

Existing Regional Conservation Efforts

Otay mesa mint is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- SDCWA Subregional NCCP/HCP
- City of San Diego Vernal Pool HCP

Together, these existing regional habitat conservation plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 217 acres of Modeled Habitat occurs within Preserves and 77 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 43% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area.

Presence within Plan Area and PIZ

Based on the Otay mesa mint Modeled Habitat, there is approximately 691 acres present within the Plan Area and approximately 116 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the only ecoregion with Otay mesa mint Modeled Habitat is the southern coast ecoregion. The species does not occur in Orange County. In addition, four occurrences of Otay Mesa mint recorded in the SDMMP MOM and Rare Plant databases are located within San Diego County Preserves in the Plan Area

Known Otay mesa mint occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, SDMMP Rare Plant, and SDG&E species databases. These occurrences are detailed in Table 2-15. This species does not occur in Orange County; therefore, no occurrences are present within the portion of the Plan Area that overlaps with Orange County. Within San Diego County, all populations occur within

vernal pools in Otay Mesa near the United States and Mexico border, some of which overlap with Preserves in the region.

Table 2-15. Historical Otay Mesa Mint Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	2	2
CNDDB	1	2	3
SDMMP MOM	0	0	0
SDMMP Rare Plant Points	0	0	0
SDMMP Rare Plant Points Polygons	4	0	4
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Otay Mesa Mint Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.03 acre (or approximately 1,307 square feet) of permanent impacts (Attachment B); and
- Approximately 0.02 acre (or approximately 871 square feet) of temporary impacts (Attachment C).

Direct impacts to Otay mesa mint include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species; dust cover; and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual plants is included in Section 4.2.2 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of Otay mesa mint Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Otay Mesa mint Modeled Habitat within the Plan Area:

- Approximately 0.95 acre (or 0.14%) of permanent impacts (Attachment B); and
- Approximately 0.55 acre (or 0.08%) of temporary impacts (Attachment C).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. All major populations in San Diego County are located in various areas throughout Otay Mesa, including Ocean View Hills Open Space, undeveloped habitat adjacent to San Ysidro High School and adjacent to SR 905, and Otay Valley Regional Park; all occur within proximity to residential and developed areas.

Roughly half of the entire population within these areas is within the PIZ associated with nearby SDG&E Facilities. The population in this region is somewhat insulated from Covered Activities as a result of the adjacent development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility and can largely limit work areas to within developed areas. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on repair and maintenance of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of Otay mesa mint to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment.

Due to the limited acreage of Otay Mesa mint habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Otay Mesa mint population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to Otay mesa mint occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

Figure 2-1
Covered Species of Plants
August 2023

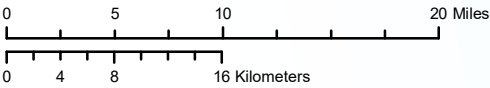
SDG&E Service Area

Plant Species

- | | |
|-------------------------|-------------------------|
| California Orcutt grass | San Diego mesa mint |
| Dehesa beargrass | San Diego ambrosia |
| Del Mar manzanita | San Diego button-celery |
| Encinitas baccharis | San Diego thorn-mint |
| Orcutt's spineflower | Short-leaved dudleya |
| Otay Mesa mint | Spreading navarretia |
| Otay tarplant | Thread-leaved brodiaea |
| Salt marsh bird's-beak | Willow monardella |

Ecoregion

- | |
|---|
| 1: San Diego County North Coast |
| 2: San Diego County Central Coast |
| 3: San Diego County Southern Coast |
| 4: San Diego County Northern Valley |
| 5: San Diego County Central Valley |
| 6: San Diego County Southern Valley |
| 7: San Diego County Santa Margarita |
| 8: San Diego County Oakgrove-San Jacinto Foothill |
| 9: San Diego County Northern Foothills |
| 10: San Diego County Central Foothills |
| 11: San Diego County Southern Foothills |
| 12: San Diego County Northern Mountains |
| 13: San Diego County Central Mountains |
| 14: San Diego County Southern Mountains |
| 15: San Diego County Northern Desert Slopes |
| 16: San Diego County Southern Desert Slopes |
| 17: San Diego County Borrego Valley |
| 18: San Diego County Southern Desert Lowlands |
| 19: Orange County Coastal |
| 20: Orange County Foothill and Valley |
| 21: Orange County Santa Ana Mountains |



Source: ESRI, SanGIS, 2019; USFWS 2021; CDFW 2021

Data Date: 05/18/2021

Version Date: 8/1/2023

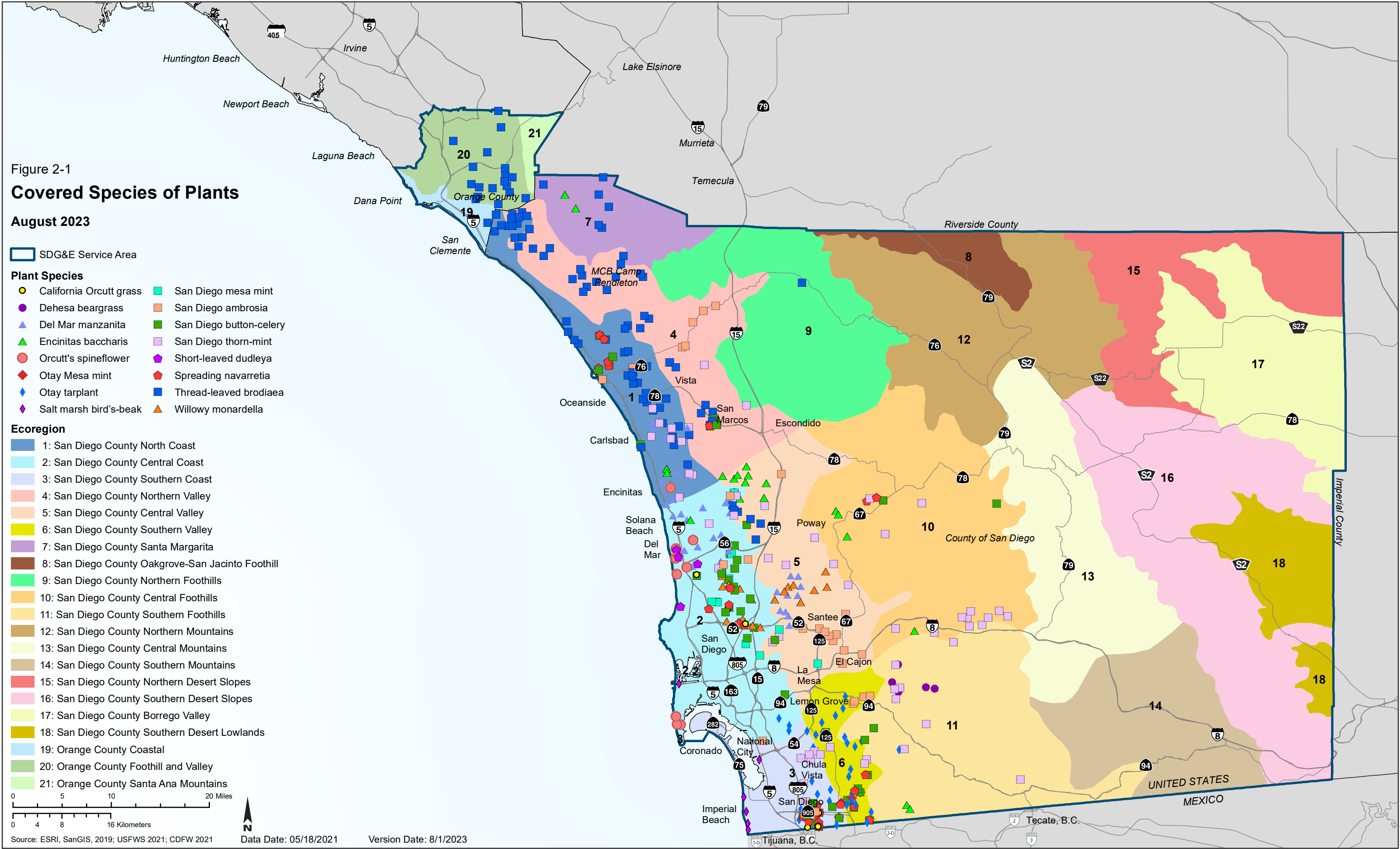


Figure 2-2
Critical Habitat - Plants

August 2023

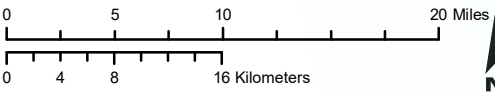
SDG&E Service Area

USFWS Critical Habitat

- Otay tarplant
- San Diego ambrosia
- San Diego thorn-mint
- Spreading navarretia
- Thread-leaved brodiaea
- Willow monardella

Ecoregion

- 1: San Diego County North Coast
- 2: San Diego County Central Coast
- 3: San Diego County Southern Coast
- 4: San Diego County Northern Valley
- 5: San Diego County Central Valley
- 6: San Diego County Southern Valley
- 7: San Diego County Santa Margarita
- 8: San Diego County Oakgrove-San Jacinto Foothill
- 9: San Diego County Northern Foothills
- 10: San Diego County Central Foothills
- 11: San Diego County Southern Foothills
- 12: San Diego County Northern Mountains
- 13: San Diego County Central Mountains
- 14: San Diego County Southern Mountains
- 15: San Diego County Northern Desert Slopes
- 16: San Diego County Southern Desert Slopes
- 17: San Diego County Borrego Valley
- 18: San Diego County Southern Desert Lowlands
- 19: Orange County Coastal
- 20: Orange County Foothill and Valley
- 21: Orange County Santa Ana Mountains



Source: ESRI, SanGIS, 2019; USFWS 2020

Data Date: 05/18/2021

Version Date: 8/1/2023

Path: \\na.aecomnet.com\lfs\AMER\SanDiego-USSDG1\DCS\Projects\6060\60602872_NCCP_Permit\900-CAD-GIS\920 GIS\map_docs\mxd\NCCP\Amendment\11x17\SDGE_Template\Final_HCP\ServiceArea_2-2_Critical Habitat Plants_11x17.mxd 8/1/2023 2:53:59 PM

3.0 COVERED INVERTEBRATES

Species accounts for the four Covered Species of invertebrates are provided herein. Of the four Covered Species of invertebrates, two are a vernal pool species. All four species were qualitatively analyzed using known occurrence data because these species were identified as having more specialized or restrictive habitat requirements and/or highly limited populations with specific known localities in the Plan Area. Figure 3-1 displays known CNDDDB and USFWS database occurrences between 1990 and 2020 for Listed Species and Non-Listed Species. Federal listed invertebrate species with designated critical habitat in the Plan Area are displayed in Figure 3-2. All figures are provided at the end of the section.

Because the Quino checkerspot butterfly is covered independently under the Quino LEHCP (SDG&E 2007), it is not included as a Covered Species in the HCP Amendment.

3.1 SAN DIEGO FAIRY SHRIMP (*BRANCHINECTA SANDIEGONENSIS*)

Listing Status

- CESA: None
- ESA: Endangered (62 FR 4925-4939) (1997)
- Other: None
- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical Habitat: Designated (72 FR 70648-70714) (2007)
- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

3.1.1 Background

Distribution, Abundance, and Trends

The San Diego fairy shrimp is a small aquatic crustacean that occurs in seasonally ponded waters (including vernal pools and road-ruts) in San Diego, Orange, and Santa Barbara Counties of coastal southern California, as well as in portions of northwestern Baja California, Mexico (USFWS 2008a). Common soil characteristics that support habitat for the San Diego fairy shrimp include a clay layer that temporarily holds water during winter and spring rain events. Habitat where vernal pools are likely found include grasslands, agricultural areas, coastal sage scrub, and chaparral communities that contain tectonic swales or earth slump basins. A previous population evaluation for the San Diego fairy shrimp across the entirety of its range has indicated approximately 137 extant and occupied complexes (i.e., a series of vernal pool groups that are hydrologically connected with similar species compositions) in the United States (USFWS 2008a). The majority of these complexes occur in San Diego County, most of which overlap with the Plan Area and include populations such as those on MCBP and MCAS Miramar, and in areas including Kearny Mesa, Del Mar Mesa, Lopez Ridge, Mira Mesa, Proctor Valley, and Otay Mesa among others (USFWS 2008a). The species is also present within the

portion of the Plan Area that overlaps with Orange County; however, the number of complexes is much fewer.

Critical Habitat

Critical habitat for San Diego fairy shrimp was most recently revised by USFWS in December 2007 (72 FR 70648-70714). Approximately 2,933 acres of critical habitat is designated across both San Diego and Orange Counties. A total of 2,918 acres of designated critical habitat for San Diego fairy shrimp is located within the Plan Area. There is approximately 139 acres located within the undeveloped portion of the PIZ (approximately 4.7%) associated with existing infrastructure.

Threats and Limiting Factors

Cumulative threats to this species include urbanization and agriculture expansion, road construction, landfill expansion, invasive plants, off-road vehicles, trampling, and illegal dumping (SANDAG 2003; SDCWA 2010; SDMMP and the Nature Conservancy 2017). This species is considered a breeding habitat specialist; therefore, degradation and loss of habitat from urban development in San Diego and Orange Counties have drastically reduced the population. Any disruptions to the soil and hydrology of vernal pool complexes, and the watersheds in which this species is dependent, are considered limiting factors. Fragmentation of vernal pool complexes resulting from changes in drainage patterns and the introduction of nonnative plants can result in gene flow restriction between pools and may eventually affect the genetic diversity of specific populations.

Special Considerations

San Diego fairy shrimp is considered an obligate vernal pool species. Larvae hatch from cysts in the soil when seasonally ponded waters are filled during winter and spring rainfall events. The species is generally observed between mid-December and early May, depending upon the timing of rainfall (Eriksen and Belk 1999). Development from larvae to adults can take between 10 and 20 days depending upon the water temperature. The species prefers pools with water temperatures that range from approximately 50 to 80 degrees Fahrenheit and are typically found in small, shallow pools (USFWS 1998b). Successful reproduction results in cysts either dropped to the pool bottom or that remain in the female's brood sac until death. During each seasonal inundation cycle, only a portion of the cysts in the soil will hatch (USFWS 2008a).

Within Preserves that coincide with the Plan Area, San Diego fairy shrimp has been prioritized for management and is categorized a risk level of "SL," which is a species at high risk of loss because management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

3.1.2 Conservation Analysis

Existing Regional Conservation Efforts

The San Diego fairy shrimp is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP
- City of San Diego Vernal Pool HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 987 acres of Modeled Habitat occurs within Preserves and 120 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 15% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 298 occurrences of San Diego fairy shrimp recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence within the Plan Area and PIZ

Based on the San Diego fairy shrimp Modeled Habitat, there is 7,153 acres present within the Plan Area, and approximately 785 acres located within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of San Diego fairy shrimp habitat are the central coast, southern coast, and central valley ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the only San Diego fairy shrimp Modeled Habitat is in the Orange County foothill and valley ecoregion.

Known San Diego fairy shrimp occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 3-1. Populations in Orange County are located in the vernal pool complexes on the Chiquita Ridge site and southeast of Avenida La Pata and Ortega Highway in San Juan Capistrano. Large populations occur on MCBCP within vernal pools near San Onofre Beach, east and west of I-5 near Las Flores Creek, both sides of Macs Road just north of the Santa Margarita River, south of the Santa Margarita River near Wire Mountain, and in east MCBCP near Roblar Creek and De Luz Road. A large number of occurrences are located within the vernal pool complexes spread throughout MCAS Miramar with the most occurrences west of I-15.

Table 3-1. Historical San Diego Fairy Shrimp Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	343	329	672
CNDDDB	42	23	65
SDMMP MOM	43	255	298
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

In the City of San Diego, the species is present throughout vernal pool complexes in Del Mar Mesa, Carmel Mountain, Mira Mesa, Nobel Drive, Kearny Mesa, Murphy Canyon, Montgomery Field, Mission Trails Regional Park, and Otay Mesa. Other vernal pool

complexes with large occurrences of San Diego fairy shrimp located in San Diego County are found within Carlsbad, San Marcos, Rancho Santa Fe, Ramona (within the city, near airport and along Santa Maria Creek), Santee (Sycamore Canyon northeast of Santee Lakes), Otay Lakes, Imperial Beach, East Otay Mesa, Marron Valley, and Proctor Valley.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to San Diego fairy shrimp Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.21 acre (or approximately 9,148 square feet) of permanent impacts (Attachment B); and
- Approximately 0.12 acre (or approximately 5,227 square feet) of temporary impacts (Attachment C).

Direct impacts to San Diego fairy shrimp include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species and the habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of San Diego fairy shrimp Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to San Diego fairy shrimp Modeled Habitat within the Plan Area:

- Approximately 6.43 acres (or 0.09%) of permanent impacts (Attachment B); and
- Approximately 3.75 acres (or 0.05%) of temporary impacts (Attachment C).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.04 acre (or approximately 1,742 square feet) of permanent impacts (Attachment A); and
- Approximately 0.02 acre (or approximately 871 square feet) of temporary impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 1.13 acres (or 0.04%) of permanent impacts (Attachment A); and
- Approximately 0.66 acre (or 0.02%) of temporary impacts (Attachment A).

Populations with potential to be impacted occur near most of the major populations as many vernal pools can be found not only in large undeveloped areas, but also within disturbed environments such as along access roads. In Orange County, the Chiquita Ridge vernal pools overlap with the PIZ. On MCBCP, the many vernal pool complexes along the coast and Macs Road just north of the Santa Margarita River are within the PIZ. Many of these are large complexes in which a portion of or a subset of the pools is within the PIZ.

Areas that have potential to be impacted include occupied fairy shrimp pools in the complexes along the Coastal Rail Trail in Carlsbad, northeast of William Bradley Park in San Marcos, and those in Rancho Santa Fe are located within the PIZ. In Ramona, complexes within the city and those within the Ramona grasslands as well as near the airport are in the PIZ. On MCAS Miramar, impacts primarily may occur to occupied pools that overlap with the PIZ that traverses the property between I-805 and I-15. Within the City of San Diego, there is the potential for impacts to occupied pools in the PIZ on Del Mar Mesa, Los Peñasquitos Canyon Preserve and vicinity, Kearny Mesa, and the Murphy Canyon area. The PIZ also overlaps with portions of the pool complexes within the Otay Mesa and East Otay Mesa region. Covered Activities within the more urban areas have more options to avoid impacts by limiting work areas to within developed areas.

Covered Activities are largely focused on repair and maintenance of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence.

That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of San Diego fairy shrimp to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species.

Due to the limited acreage of San Diego fairy shrimp habitat impacted in comparison to the available habitat in the HCP Amendment, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any San Diego fairy shrimp population in the Plan Area or rangewide, or the species' survival or recovery. Additionally, San Diego fairy shrimp is identified in the HCP Amendment as a vernal pool species, which limits Take authorization to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies). Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment. Impacts to San Diego fairy shrimp and its habitat will be avoided and minimized in accordance with the Operational Protocols. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols further reduces potential impacts to this species.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to San Diego fairy shrimp occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

3.2 RIVERSIDE FAIRY SHRIMP (*STREPTOCEPHALUS WOOTTONI*)

Listing Status

- CESA: None
- ESA: Endangered (58 FR 41384-41392) (1993)
- Other: None
- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical Habitat: Designated (77 FR 72069 72140) (2012)
- Recovery Plan: Vernal Pools of Southern California Recovery Plan (USFWS 1998b)

3.2.1 Background

Distribution, Abundance, and Trends

The Riverside fairy shrimp is a small aquatic crustacean that occurs in deep, cool water pools (including deeper vernal pools and artificial basins). The species has a range from Skunk Hollow and the Santa Rosa Plateau in Riverside County, to coastal sites in both San Diego and Orange Counties, as well as north of Ensenada in Baja California, Mexico (USFWS 1998b). General soil characteristics that provide suitable habitat for the Riverside fairy shrimp include soils with a clay layer that temporarily hold water during winter and spring rain events. Habitat where vernal pools are found include grasslands, agricultural areas, coastal sage scrub, and chaparral communities that contain tectonic swales or earth slump basins. A previous population evaluation for the Riverside fairy shrimp across the entirety of its range has indicated that there are approximately 45 extant and occupied complexes (i.e., a series of vernal pool groups that are hydrologically connected with similar species compositions) in the United States (USFWS 2008b). Relative to the Plan Area, more than half of all extant complexes occur in San Diego County and have been documented on MCAS Miramar, MCBCP, and in Otay Mesa (USFWS 2008b). The species is also present within the portion of the Plan Area that overlaps with foothills of Orange County; however, the number of complexes is much fewer.

Critical Habitat

Critical habitat for Riverside fairy shrimp was most recently revised by USFWS in December 2012 (77 FR 72069-72140). Approximately 1,670 acres of critical habitat is designated across San Diego, Orange, and Ventura Counties. A total of 914 acres of designated Riverside fairy shrimp critical habitat is located within the Plan Area. There is approximately 18 acres (or approximately 1%) located within the undeveloped portion of the PIZ associated with existing infrastructure.

Threats and Limiting Factors

Cumulative threats to this species include urbanization and agriculture expansion, road construction, landfill expansion, invasive plants, off-road vehicles, and trampling; illegal dumping also affects the species (SANDAG 2003; SDCWA 2010; SDMMMP and the Nature Conservancy 2017). This species is considered a breeding habitat specialist; therefore, degradation and loss of habitat from urbanization in San Diego and Orange Counties have drastically reduced the population. Any disruptions to the soil and hydrology of vernal pool complexes on which this species is dependent are considered limiting factors. Additional surface disturbance can be caused by off-road vehicles, livestock grazing, and mountain biking. Fragmentation of vernal pool complexes resulting from changes in drainage patterns and the introduction of nonnative plants can result in gene flow restriction between pools and may eventually affect the genetic diversity of specific populations.

Special Considerations

Riverside fairy shrimp is considered an obligate vernal pool species. Larvae hatch from cysts in the soil when seasonally ponded waters are filled during winter and spring rainfall events. The species is generally observed between mid-December and early May, depending upon the timing of rainfall (Eriksen and Belk 1999). Development from larvae to adults is relatively slow and individuals can reproduce within 7 to 8 weeks of hatching depending upon the water temperature (USFWS 2008b). The species prefers deep, cold water pools greater than 12 inches in depth (USFWS 2008b) and has been historically detected in artificial basins such as stock ponds, road-ruts, and backhoe trenches. Successful reproduction results in cysts either dropped to the pool bottom, or they remain in the female's brood sac until death. During each seasonal inundation cycle, only a portion of the cysts in the soil will hatch (USFWS 2008b).

Within Preserves that coincide with the Plan Area, Riverside fairy shrimp has been prioritized for management and is categorized a risk level of "SL," which is a species threatened by invasive plants and with very limited distribution. Management of the general vegetation community alone will not ensure persistence of the species (SDMMMP and The Nature Conservancy 2017).

3.2.2 Conservation Analysis

Existing Regional Conservation Efforts

The Riverside fairy shrimp is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP
- City of San Diego Vernal Pool HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 731 acres of Modeled Habitat occurs within Preserves and 91 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 10% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 41 occurrences of Riverside fairy shrimp recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence within the Plan Area and PIZ

Based on the Riverside fairy shrimp Modeled Habitat, there is 8,075 acres present within the Plan Area and approximately 1,153 acres located within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of Riverside fairy shrimp habitat are the north coast, central coast, and foothill and valley ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of Riverside fairy shrimp Modeled Habitat can be found in the foothill and valley ecoregion.

Known Riverside fairy shrimp occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 3-2. Populations in Orange County are located in the vernal pool complexes on Chiquita Ridge site, Saddleback Meadows, Tijeras Creek, adjacent to O'Neill Regional Park, and southeast of Avenida La Pata and Ortega Highway in San Juan Capistrano. Large populations occur on MCBCP within vernal pools near San Onofre Beach, east and west of I-5 near Las Flores Creek, both sides of Macs Road just north of the Santa Margarita River, south of the Santa Margarita River near Wire Mountain, and in east MCBCP near Roblar Creek and De Luz Road. A large number of occurrences are located within the vernal pool complexes spread throughout MCAS Miramar with the most occurrences west of I-15.

Table 3-2. Historical Riverside Fairy Shrimp Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	34	43	77
CNDDDB	11	22	33
SDMMP MOM	8	33	41
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

In the City of San Diego, the species is present throughout vernal pool complexes in Del Mar Mesa, Carmel Mountain, Mira Mesa, Nobel Drive, Kearny Mesa, Murphy Canyon, Montgomery Field, Mission Trails Regional Park, and Otay Mesa. Other vernal pool complexes with large occurrences of Riverside fairy shrimp located in San Diego County are found within Carlsbad, San Marcos, Rancho Santa Fe, Ramona (within the city, near Ramona Airport, and along Santa Maria Creek), Santee (Sycamore Canyon northeast of Santee Lakes), Otay Lakes, Imperial Beach, East Otay Mesa, and Proctor Valley.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Riverside fairy shrimp Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.31 acre (or approximately 13,504 square feet) of permanent impacts (Attachment B); and
- Approximately 0.18 acre (or approximately 7,841 square feet) of temporary impacts (Attachment C).

Direct impacts to Riverside fairy shrimp include habitat loss and mortality or crushing of individuals, and indirect impacts may include the introduction of exotic species, and habitat degradation associated with runoff, sedimentation, and erosion. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of Riverside fairy shrimp Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Riverside fairy shrimp Modeled Habitat within the Plan Area:

- Approximately 9.44 acres (or 0.12%) of permanent impacts (Attachment B); and
- Approximately 5.50 acres (or 0.07%) of temporary impacts (Attachment C).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately <0.01 acre (or approximately 436 square feet) of permanent impacts (Attachment A); and
- Approximately <0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 0.15 acre (or 0.01%) of permanent impacts (Attachment A); and

- Approximately 0.09 acre (or 0.01%) of temporary impacts (Attachment A).

Populations with potential to be impacted occur near most of the major populations as many vernal pools can be found not only in large undeveloped areas, but also within disturbed environments such as along and within access roads. In Orange County, the Chiquita Ridge vernal pools overlap with the PIZ. On MCBCP, the many vernal pool complexes along the coast and Macs Road just north of the Santa Margarita River are within the PIZ. Many of these are large complexes in which a portion of or a subset of the pools are within the PIZ.

Areas north of the City of San Diego located within the PIZ that have potential to be impacted include occupied fairy shrimp pools in the complexes along the Coastal Rail Trail in Carlsbad, northeast of William Bradley Park in San Marcos, and those in Rancho Santa Fe. In Ramona, complexes within the city and those within the Ramona grasslands as well as near the airport are in the PIZ. On MCAS Miramar, impacts primarily may occur to occupied pools that overlap with the PIZ that traverses the property between I-805 and I-15. Within the City of San Diego, there is the potential for impacts to occupied pools in the PIZ on Del Mar Mesa, Los Peñasquitos Canyon Preserve and vicinity, Kearny Mesa, and the Murphy Canyon area. The PIZ also overlaps with portions of the pool complexes within the Otay Mesa and East Otay Mesa region. Covered Activities within the more urban areas have more options to avoid impacts by limiting work areas to within developed areas.

Covered Activities are largely focused on repair and maintenance of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of Riverside fairy shrimp to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species.

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts. Due to the limited acreage of Riverside fairy shrimp habitat impacted in comparison to the available habitat in the HCP Amendment and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Riverside fairy shrimp population in the Plan Area or rangewide, or the species' survival or recovery. Additionally, Riverside fairy shrimp is identified in the HCP Amendment as a vernal pool species, which limits Take authorization to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies). Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment. Impacts to Riverside fairy shrimp and

its habitat will be avoided and minimized in accordance with the Operational Protocols. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols further reduces potential impacts to this species.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to Riverside fairy shrimp occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species; therefore, no additional Species-Specific Protocols are necessary.

3.3 LAGUNA MOUNTAINS SKIPPER (*PYRGUS RURALIS LAGUNAE*)

Listing Status

- CESA: None
- ESA: Endangered (62 FR 2313) (1997)
- Other: None
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (71 FR 74592-74615) (2006)
- Recovery Plan: Recovery Plan for Laguna Mountains Skipper (81 FR 4333-4334) (USFWS 2019b)

3.3.1 Background

Distribution, Abundance, and Trends

The Laguna Mountains skipper is a butterfly species that occurs in San Diego County in association with its larval host plant, Cleveland's horkelia (*Horkelia clevelandii*). Within San Diego County, the Laguna Mountains skipper primarily occupies mountain meadows and forest openings that support Cleveland's horkelia and other nectar sources for adult skippers in elevations greater than 3,900 feet (USFWS 2019b). Relative to the Plan Area in San Diego County, extant populations are known to occur on Palomar Mountain within Upper Doane Valley, Lower Doane Valley, Upper French Valley, Mendenhall Valley, and upstream of Fry Creek (USFWS 2019b). Historically, the Laguna Mountains skipper also occupied Mount Laguna throughout suitable habitat within 1 mile of Laguna Meadow, including Laguna Meadow, El Prado Meadow, Horse Heaven Group Campground, Boiling Spring Ravine, and along Sunrise Highway (USFWS 2019b). Previously, the species was last seen in the Laguna Mountains in 1999 and was considered extirpated from that area (USFWS 2019b). However, the species was reintroduced to the Laguna Mountains in 2021. This species does not occur in Orange County.

Critical Habitat

USFWS most recently designated critical habitat for the Laguna Mountains skipper in December 2006 (71 FR 74592-74615). Approximately 6,259 acres of critical habitat is designated across San Diego County. A total of 6,259 acres of designated Laguna Mountains skipper critical habitat is located within the Plan Area. There is approximately 59 acres (or approximately 0.9%) located within the undeveloped portions of the PIZ associated with existing SDG&E infrastructure. No critical habitat is designated within the portion of the Plan Area that overlaps with Orange County.

Threats and Limiting Factors

Major cumulative threats to Laguna Mountains skipper include direct mortality and habitat loss, degradation, and fragmentation caused by wildfire events, urban development, grazing, and fire management practices (USFWS 1997a). Because this species exclusively feeds on a specific host plant, Cleveland's horkelia, cattle grazing within meadows has led to direct mortality and habitat loss by ingestion of host plants and larval stage populations (USFWS 2019b). Other cumulative threats to this species include climate change and drought (USFWS 2019b).

Special Considerations

The Laguna Mountains skipper's life cycle is considered partially bivoltine, resulting in two overlapping generations; individuals of this species undergo diapause in the pupal stage, typically from fall through winter, hatching in the early spring through summer (USFWS 2004b, 2019b). Many Laguna Mountains skipper larvae will undergo diapause through the summer, fall, and winter, joining the spring brood for the first flight (USFWS 2019b). During their adult stage, females lay eggs exclusively on or near Cleveland's horkelia, which is often associated with meadows and forest openings (Calflora 2020, USFWS 2019b). A secondary host plant, sticky cinquefoil (*Drymocallis glandulosa*), is suspected but has not been confirmed; if sticky cinquefoil is used by the Laguna Mountains skipper, potential habitat for the species may include habitat currently considered unsuitable for Cleveland's horkelia, such as shaded pine understories (USFWS 2004b). Adults feed on diverse sources of nectar during the spring but become limited in nectar sources during the summer, relying heavily on summer blooming perennials and annuals, including their host plant, Cleveland's horkelia.

Within Preserves that coincide with the Plan Area, Laguna Mountains skipper has not been prioritized for species specific management actions.

3.3.2 Conservation Analysis

Existing Regional Conservation Efforts

The Laguna Mountains skipper is not currently covered by any existing regional habitat conservation plans. However, many populations of Laguna Mountains skipper are found in public lands managed by USFS and California State Parks, which limit urban development. Although this species is not covered by existing regional habitat conservation plans, other San Diego County regional conservation efforts for other species, which have similar requirements, provide umbrella protection for this species to help protect it from urban development and fragmentation. Currently, approximately 882

acres of Modeled Habitat occurs within Preserves and no Modeled Habitat occurs within Proposed Preserves (collectively, 75% of all Modeled Habitat) associated with these regional conservation efforts.

Presence within Plan Area and PIZ

Based on the Laguna Mountains skipper Modeled Habitat, there is 1,172 acres of species habitat present within the Plan Area, and approximately 14 acres located within the PIZ associated with existing SDG&E Facilities. Modeled Habitat for the Laguna Mountains skipper is located exclusively in the central foothills ecoregion within the Plan Area in San Diego County. This species does not occur in Orange County.

Known Laguna Mountains skipper occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 3-3. Within San Diego County, the only known populations of this species are concentrated on Palomar Mountain and Laguna Mountain. The majority of occurrences in these areas are also located in Preserves. There are no occurrences in Orange County.

Table 3-3. Historical Laguna Mountains Skipper Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	17	117	134
CNDDDB	2	4	6
SDMMP MOM	0	0	0
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Laguna Mountains skipper resulting from Covered Activities is as follows:

- Approximately <0.01 acre of permanent impacts (Attachment B);
- Approximately <0.01 acre of temporary impacts (Attachment C); and
- Approximately <0.01 acre of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to Laguna Mountains skipper include habitat loss and mortality or crushing of individuals, and indirect impacts may include habitat loss and death, harm, or harassment to individuals as well as displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Laguna Mountains skipper Modeled Habitat within the Plan Area:

- Approximately 0.11 acre (or 0.01%) of permanent impacts (Attachment B);
- Approximately 0.06 acre (or 0.01%) of temporary impacts (Attachment C); and
- Approximately 0.06 acre (or <0.01%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.02 acre (or approximately 871 square feet) of permanent impacts (Attachment A);
- Approximately 0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A); and
- Approximately 0.01 acre (or approximately 436 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 0.48 acre (or 0.01%) of permanent impacts (Attachment A);
- Approximately 0.28 acre (or <0.01%) of temporary impacts (Attachment A); and
- Approximately 0.26 acre (or <0.01%) of Wildfire Fuels Management impacts (Attachment A).

The large majority of Laguna Mountains skipper occurrences are located in the more rural regions of San Diego County where SDG&E Facilities are less prevalent and are therefore outside the PIZ. The PIZ does overlap with some of the known occurrences at the Palomar Mountain population, including known occurrences along Doane Creek, Fry Creek, and Iron Spring Creek. The species was reintroduced to the Laguna Mountains in 2021 and the PIZ does overlap with locations of historical records within the Laguna Mountains.

Future Covered Activities will be largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and the following Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species.

Due to the limited acreage of Laguna Mountains skipper habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily

along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Laguna Mountains skipper population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

3.4 HERMES COPPER BUTTERFLY (*LYCAENA HERMES*)

Listing Status

- CESA: None
- ESA: Threatened (86 FR 72394) (2021)
- Other: USFS Sensitive
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (86 FR 72394) (2021)
- Recovery Plan: None

3.4.1 Background

Distribution, Abundance, and Trends

The Hermes copper butterfly occurs throughout San Diego County and northwestern Baja California, Mexico, in association with its larval host plant, spiny redberry (*Rhamnus crocea*). This species has not been confirmed present in Orange County. Within San Diego County, the Hermes copper butterfly primarily occupies coastal sage scrub and chaparral habitats that support spiny redberry and other nectar sources for adult butterflies, such as California buckwheat (*Eriogonum fasciculatum*) (SDCWA 2010). Relative to the Plan Area in San Diego County, extant populations are known to occur in Roberts Ranch and Bell Bluff, and Potrero (USFWS 2018, 2020). While Hermes copper butterflies have not recently been observed at Lopez Canyon, Mission Trails, Admiral Baker, Crestridge, South Guatay Mountain, Descanso, Japatul, Alpine, Loveland Reservoir, Hidden Glen, McGinty Mountain, Rancho San Diego, Sycuan Peak, Gaskill Peak, Lawson Valley and Hartley Peak, these locations may still be occupied.

Critical Habitat

USFWS recently designated critical habitat for the Hermes copper butterfly in December 2021 (86 FR 72394). Approximately 35,052 acres of critical habitat is designated across San Diego County. There is no critical habitat proposed within the portion of the Plan Area that overlaps with Orange County. A total of 35,052 acres of proposed Hermes copper butterfly critical habitat is located within the Plan Area. There is approximately 1,833 acres

(or approximately 5.2%) located within the undeveloped portion of the PIZ associated with existing SDG&E infrastructure.

Threats and Limiting Factors

Major cumulative threats to Hermes copper butterfly include direct mortality and habitat loss and fragmentation caused by wildfire events and urban development (SDCWA 2010; USFWS 2018, 2020). While this species' preferred coastal sage scrub and chaparral habitats are naturally adapted to fire, increasing intensity of fire regimes in southern California over recent decades has led to direct mortality and extirpation of Hermes copper butterfly populations throughout San Diego County (USFWS 2018, 2020). Wildfire is expected to have caused or contributed to the extirpation of 31 Hermes copper butterfly occurrences in San Diego County and three occurrences in Mexico (USFWS 2018, 2020). Meanwhile, habitat loss, fragmentation, or isolation as a result of urban development is expected to have caused or contributed to the extirpation of 23 occurrences in San Diego County (USFWS 2018, 2020). Other cumulative threats to this species include climate change and drought (USFWS 2018, 2020).

Special Considerations

Hermes copper butterfly individuals undergo diapause as eggs from late summer through winter, hatch in the spring, and spend their peak active period as adults from May through July (Deutschman et al. 2010 as cited in USFWS 2020; USFWS 2018). During this active period, females lay eggs exclusively on spiny redberry shrubs, which are often associated with chaparral and coastal sage scrub habitats (USFWS 2018, 2020). The Hermes copper butterfly is rarely found more than 50 to 100 yards from its larval host plant in a single season (Rahn et al. 2008 as cited in SDCWA 2010). Adults primarily nectar on California buckwheat shrubs, though they are also known to feed from golden yarrow (*Eriophyllum confertiflorum*), chamise (*Adenostoma fasciculatum*), slender sunflower (*Helianthus gracilentus*), poison oak (*Toxicodendron diversilobum*), and nonnative shortpod mustard (*Hirschfeldia incana*) (SDMMP and The Nature Conservancy 2017; USFWS 2018, 2020).

Within Preserves that coincide with the Plan Area, Hermes copper butterfly has been prioritized for management and is categorized a risk level of "SL," which is a species at high risk of loss because management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

3.4.2 Conservation Analysis

Existing Regional Conservation Efforts

The Hermes copper butterfly is covered by the following existing regional habitat conservation plan that overlaps with the Plan Area:

- SDCWA Subregional NCCP/HCP

This regional habitat conservation plan contributes to the network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow created by other regional conservation efforts in San Diego County. Currently, approximately 301,356 acres of Modeled Habitat occurs within Preserves and 43,963 acres of Modeled

Habitat occurs within Proposed Preserves (collectively, 68% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 5,552 occurrences of Hermes copper butterfly recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the Hermes copper butterfly Modeled Habitat, there is 503,765 acres present within the Plan Area, and approximately 18,195 acres located within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreage of Hermes copper butterfly Modeled Habitat include the northern foothills, central foothills, and central mountains. There is no Modeled Habitat for this species in the portion of the Plan Area that overlaps with Orange County.

Known Hermes copper butterfly occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 3-4. This species does not occur in Orange County; therefore, no occurrences are present within the portion of the Plan Area that overlaps with Orange County. Within San Diego County, large populations occur throughout the southern region of the county with the most concentrated occurrences located north of McGinty Mountain, on the slopes of Sycuan Peak, in areas surrounding Barrett Lake, and adjacent to Olivenhain Dam and Reservoir. The majority of occurrences in these areas are also located in Preserves.

Table 3-4. Historical Hermes Copper Butterfly Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDDB	0	0	0
SDMMP MOM	369	3451	3820
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Hermes copper butterfly resulting from Covered Activities is as follows:

- Approximately 4.91 acres of permanent impacts (Attachment B);
- Approximately 2.89 acres of permanent impacts (Attachment C); and
- Approximately 2.61 acres of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to Hermes copper butterfly include habitat loss and mortality or crushing of individuals, and indirect impacts may include habitat loss and death, harm, or harassment to individuals as well as displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect

impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Hermes copper butterfly Modeled Habitat within the Plan Area:

- Approximately 148.85 acres (or 0.03%) of permanent impacts (Attachment B);
- Approximately 86.81 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 78.52 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.5 acre (or approximately 21,780 square feet) of permanent impacts (Attachment A);
- Approximately 0.29 acre (or approximately 12,632 square feet) of temporary impacts (Attachment A); and
- Approximately 0.26 acre (or approximately 11,326 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 15 acres (or 0.04%) of permanent impacts (Attachment A);
- Approximately 8.75 acres (or 0.02%) of temporary impacts (Attachment A); and
- Approximately 7.91 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment A).

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. The large majority of Hermes copper butterfly occurrences are located in the more rural regions of San Diego County where SDG&E Facilities are less prevalent and are therefore outside the PIZ. These populations are not expected to be impacted by Covered Activities; however, within some of the population hotspots there are select occurrences that overlap with areas of the PIZ associated with SDG&E access roads and electrical Facilities. These areas include Mother Miguel Mountain south of Sweetwater Reservoir, areas immediately surrounding Olivenhain Dam and Reservoir, and in the Cleveland National Forest near Glen Lonely. Select occurrences in more urban areas, including the city of Poway near Meadowbrook Lane, Los Peñasquitos Canyon Openspace, and Sycamore Canyon Goodan Ranch, also overlap with the PIZ. Within many of these areas, SDG&E can avoid or minimize impacts by limiting Covered Activities to work areas within nearby access roads or developed areas in the more urban environments. There are circumstances where Facilities may cross undeveloped habitat

or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species.

Due to the limited acreage of Hermes copper butterfly habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Hermes copper butterfly population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

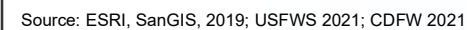
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August 2023

Invertebrate Species


- Ecoregion

-



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Critical Habitat - Invertebrates

 SDG&E Service Area

- Laguna Mountains skipper
- Riverside fairy shrimp
- San Diego fairy shrimp
- Hermes copper butterfly

1: San Diego County North Coast
2: San Diego County Central Coast
3: San Diego County Southern Coast
4: San Diego County Northern Valley
5: San Diego County Central Valley
6: San Diego County Southern Valley
7: San Diego County Santa Margarita
8: San Diego County Oakgrove-San Jacinto Foothill
9: San Diego County Northern Foothills
10: San Diego County Central Foothills
11: San Diego County Southern Foothills
12: San Diego County Northern Mountains
13: San Diego County Central Mountains
14: San Diego County Southern Mountains
15: San Diego County Northern Desert Slopes
16: San Diego County Southern Desert Slopes
17: San Diego County Borrego Valley
18: San Diego County Southern Desert Lowlands
19: Orange County Coastal
20: Orange County Foothill and Valley
21: Orange County Santa Ana Mountains



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4.0 COVERED AMPHIBIANS AND REPTILES

Species accounts for the five Covered Species of amphibian and reptiles are provided herein. Of the five Covered Species of amphibian and reptiles, one is a vernal pool species. Two species were qualitatively analyzed using known occurrence data because these species were identified as having more specialized or restrictive habitat requirements and/or highly limited populations with specific known localities in the Plan Area. Figure 4-1 displays known CNDDDB and USFWS database occurrences between 1990 and 2020 for Listed Species and Non-Listed Species. Federal listed amphibian and reptile species with designated critical habitat in the Plan Area are displayed in Figure 4-2. All figures are provided at the end of the section.

4.1 ARROYO TOAD (*ANAXYRUS CALIFORNICUS*)

Listing Status

- CESA: None
- ESA: Endangered (59 FR 64859-64867) (1994)
- Other: CDFW Species of Special Concern
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (76 FR 7245-7467) (2011)
- Recovery Plan: Arroyo Southwestern Toad Recovery Plan (USFWS 1999)

4.1.1 Background

Distribution, Abundance, and Trends

The arroyo toad ranges along the coast of California from northern San Luis Obispo County south to Baja California (Simon 2005). In San Diego and Orange Counties, the arroyo toad primarily occupies rivers and streams with shallow, gravelly pools adjacent to sandy terraces. Relative to the Plan Area, extant populations are known to occur in the following river basins of San Diego and Orange Counties: San Juan Creek, San Mateo Creek, San Onofre Creek, Santa Margarita River, San Luis Rey River, Santa Ysabel Creek, San Diego River, Sweetwater River, and Cottonwood Creek (USFWS 2014a). Arroyo toad densities can range from fewer than 25 to over 200 adults over different stretches of the same stream; however, because habitat conditions are variable across space and time, it is difficult to estimate distributions in a drainage system at any point in time (USFWS 2014a). Researchers have estimated that the species has been eliminated from 65–76% of their historical range (Jennings and Hayes 1994; Lannoo 2005).

Critical Habitat

USFWS most recently revised critical habitat in February 2011 (76 FR 7245-7467). Approximately 98,428 acres of critical habitat is designated across Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. A total of 64,133 acres of designated arroyo toad critical habitat is located within the Plan

Area. There is approximately 2,244 acres (or approximately 2.3%) located within the undeveloped portion of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

The species is considered a breeding habitat specialist (i.e., requiring specific environmental conditions suitable for breeding) and is therefore particularly vulnerable to habitat destruction and hydrology alteration, both of which have drastically reduced the population. Other cumulative threats include introduced nonnative predators such as bullfrogs and predatory fish, drought, periodic fires, unseasonal water releases from dams, and light and noise pollution from adjacent developments and campgrounds (USFWS 2014a).

Special Considerations

Breeding occurs in large streams with consistent water sources from late March until mid-June, and eggs are deposited in protected areas with shallow, calm pools (USFWS 2009d). Following metamorphosis, juveniles will remain on the bordering gravel bars to feed until the adjacent pools have dried up. When foraging, both juveniles and adults seek out sandy terraces almost completely devoid of grass and herbaceous cover at ground level, with a nearly complete canopy cover of cottonwoods (*Populus* spp.), oaks (*Quercus* spp.), or willows (*Salix* spp.). Adults will excavate shallow burrows on the sandy terraces to seek shelter during the day and later emerge during the early evening hours. To prevent dehydration during longer intervals in the dry season, arroyo toads will go into estivation, during which they enter a state of dormancy somewhat similar to hibernation. Arroyo toads will temporarily emerge to forage or hydrate but generally stay within burrows from late summer (mid-August) into January (59 FR 64859-64867). Arroyo toads are generally known to forage and burrow in areas with friable soils up to 82 feet in elevation above the stream channel and within 4,921 feet of the stream channel (USFWS 2011b).

Within Preserves that coincide with the Plan Area, arroyo toad has been prioritized for management and is categorized a risk level of “SO,” which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

4.1.2 Conservation Analysis

Existing Regional Conservation Efforts

The arroyo toad is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 11,247 acres of breeding and

nonbreeding riparian Modeled Habitat occur within Preserves and 2,302 acres of Modeled Habitat occur within Proposed Preserves (collectively, 50% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. Approximately 705,403 acres of nonbreeding upland habitat occurs within Preserves and 116,025 acres of nonbreeding upland habitat occurs within Proposed Preserves (collectively, 62% of all nonbreeding upland habitat) associated with these regional conservation efforts within the Plan Area. In addition, 704 occurrences of arroyo toad recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the arroyo toad Modeled Habitat, there is approximately 26,702 acres of breeding and nonbreeding riparian habitat present within the Plan Area and approximately 1,176 acres within the PIZ associated with existing SDG&E Facilities. There is approximately 1,183,766 acres of nonbreeding upland habitat present within the Plan Area and approximately 37,081 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of arroyo toad habitat are the northern valley, north coast, and central foothills ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of arroyo toad Modeled Habitat can be found in the Orange County foothill and valley ecoregion.

Known arroyo toad occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 4-1. In Orange County, large populations of arroyo toad occur along San Juan Creek, Cristianitos Creek, and Gabino Creek. In San Diego County, large populations occur on MCBCP within Cristianitos Creek, San Mateo Creek, and Talega Creek in the San Mateo Watershed and in the Santa Margarita River from just west of Fallbrook to just north of Wire Mountain. The species also historically has occurred in large numbers along the San Luis Rey River near Rincon Reservation and from Pala Reservation to Bonsall. It also occurs in the upper reaches of the San Luis Rey River near Warner Springs.

Table 4-1. Historical Arroyo Toad Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area¹
USFWS	240	524	764
CNDDB	9	9	18
SDMMP MOM	9	695	704
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Another major population occurs within the Temescal Creek in Pamo Valley and continues down to where the creek joins Santa Ysabel Creek as well as down to the confluence of Santa Maria Creek. Other large populations occur upstream of these areas in the Ramona grasslands and in Santa Ysabel Creek upstream of Lake Sutherland. Other population hotspots include San Vicente Creek, San Diego River upstream of

El Capitan Reservoir, Sweetwater River through Cuyamaca State Park into Descanso, Pine Valley Creek west of Pine Valley, Cottonwood Creek and Kitchen Creek upstream of Lake Morena, Potrero Creek, lower Cottonwood Creek in Marron Valley, and along the upper reaches of Agua Caliente Creek.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to arroyo toad breeding and nonbreeding riparian Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.32 acre (or approximately 13,939 square feet) of permanent impacts (Attachment B);
- Approximately 0.19 acre (or approximately 8,276 square feet) of temporary impacts (Attachment C); and
- Approximately 0.17 acre (or approximately 7,405 square feet) of Wildfire Fuels Management impacts (Attachment D).

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to arroyo toad nonbreeding upland habitat resulting from Covered Activities is as follows:

- Approximately 13 acres of permanent impacts (Attachment B);
- Approximately 7.58 acres of temporary impacts (Attachment C); and
- Approximately 6.86 acres of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to arroyo toad include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to arroyo toad breeding and nonbreeding riparian Modeled Habitat within the Plan Area:

- Approximately 9.62 acres (or 0.04%) of permanent impacts (Attachment B);
- Approximately 5.61 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 5.08 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to arroyo toad nonbreeding upland habitat within the Plan Area:

- Approximately 390.03 acres (or 0.03%) of permanent impacts (Attachment B);
- Approximately 227.46 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 205.73 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.61 acre (or approximately 26,571 square feet) of permanent impacts (Attachment A);
- Approximately 0.36 acre (or approximately 15,681 square feet) of temporary impacts (Attachment A); and
- Approximately 0.32 acre (or approximately 13,939 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 18.36 acres (or 0.02%) of permanent impacts (Attachment A);
- Approximately 10.7 acres (or 0.01%) of temporary impacts (Attachment A); and
- Approximately 9.68 acres (or 0.01%) of Wildfire Fuels Management impacts (Attachment A).

Major populations located within the PIZ and consequently at most risk for impacts are discussed herein. This includes the populations in Orange County that occur along San Juan Creek, Cristianitos Creek, and Gabino Creek. The population within Cristianitos Creek in Orange County is contiguous with populations on MCBP within Cristianitos Creek, San Mateo Creek, and Talega Creek, all of which are within the PIZ. The majority of the population within San Mateo Creek that is upstream of Cristianitos Creek is outside the PIZ. The population within San Luis Rey River from Bonsall upstream to Pala Reservation as well as near Rincon Reservation is within the PIZ that traverses the river in various locations of this segment. Other major populations that are within the PIZ to a minor extent include the Santa Ysabel Creek at the confluence with Santa Maria Creek, Ramona grasslands, San Vicente Creek, spot locations along the Sweetwater River, Pine Valley Creek west of Pine Valley, and Cottonwood Creek upstream of Lake Morena. The majority of the occurrences within these riparian areas are outside the PIZ. SDG&E Facilities frequently traverse riparian areas in a perpendicular orientation or span over these riparian areas, which makes impacts to a large stream segment unlikely.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. Steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species.

As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of arroyo toad habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any arroyo toad population in the Plan Area or rangewide, or impair the function of designated critical habitat, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

4.2 CALIFORNIA RED-LEGGED FROG (*RANA DRAYTONII*)

Listing Status

- CESA: None
- ESA: Threatened (61 FR 25813-25833) (1996)
- Other: CDFW Species of Special Concern
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (75 FR 12816-12959) (2010)
- Recovery Plan: Recovery Plan for the California Red-legged Frog (USFWS 2002a)

4.2.1 Background

Distribution, Abundance, and Trends

The California red-legged frog ranges along the coast of California from Mendocino County south to Baja California, Mexico, as well as within portions of Sierra Nevada and Cascade ranges below 1,200 meters (3,936 feet) in elevation (Morey 2008). Habitat for the California red-legged frog consists of dense, shrubby, emergent riparian vegetation closely associated with deep, still, or slow-moving water. While total adult population size is unknown, it is likely over 10,000 individuals, due to the presence of large populations in portions of the San Francisco Bay area and along the central coast (NatureServe 2019b). Researchers have estimated that the species has been eliminated from 70% of their historical range statewide (USFWS 2011c). In southern California, it is expected that California red-legged frogs have been extirpated from approximately 99% of their historical range (Jennings and Hayes 1994). This species was previously extirpated from the Plan Area as the nearest remaining population was extirpated from the Santa Rosa Plateau in the 2000s (Backlin et al. 2017; USFWS 2002a). However, the USFWS

Recovery Plan for this species (USFWS 2002a) has designated the core units in the Santa Rosa Plateau (partially overlaps the Plan Area), San Luis Rey River, Sweetwater River, and Laguna Mountain watershed as a core area in the Southern Transverse and Peninsular Range recovery unit. One component of implementation of the recovery plan includes reintroduction of the red-legged frog into these core areas of its historical range. Initial reintroduction of the species occurred in March of 2020 and included the translocation of 1,000 California red-legged frog eggs from Baja California, Mexico, to a pond in the Santa Rosa Plateau Ecological Preserve in the Santa Ana Mountains and in a small lake on a privately owned ranch in northern San Diego County. Therefore, the potential exists for this species to expand within in the Plan Area in the future.

Critical Habitat

Critical habitat was most recently revised by USFWS in March 2010 (75 FR 12816-12959). Approximately 1,636,609 acres of critical habitat is designated across 27 California counties. No designated California red-legged frog critical habitat is located within the Plan Area or PIZ.

Threats and Limiting Factors

California red-legged frogs require aquatic habitat such as streams, marshes, and ponds for survival; therefore, this species is particularly vulnerable to habitat loss and hydrology alteration, both of which have drastically reduced the population. Habitat loss and degradation due to urban development, agricultural practices, timber harvesting, mining, livestock grazing, off-road vehicle recreation, and water management practices are the cumulative threats to California red-legged frog populations across the state (USFWS 2002a). Other cumulative threats include overexploitation, disease, predation by nonnative species, drought, and pesticide contamination (USFWS 2002a).

Special Considerations

Breeding occurs in permanent pools from January through July, with females laying 750 to 4,000 eggs in clusters attached to aquatic vegetation 2 to 6 inches (7 to 15 centimeters) beneath the surface (Morey 2008). Tadpoles generally metamorphose after 11 to 20 weeks (Morey 2008). Adult California red-legged frogs require permanent or semi-permanent water sources for survival, though they are known to disperse into terrestrial habitat during rain events (Morey 2008). Aquatic larvae are herbivorous, while adults often prey on aquatic and terrestrial insects, worms, snails, fish, tadpoles, small frogs, and small mammals (Morey 2008).

Within Preserves that coincide with the Plan Area, California red-legged frog has not been prioritized for species specific management actions.

4.2.2 Conservation Analysis

Existing Regional Conservation Efforts

The California red-legged frog is covered by the following existing regional habitat conservation plan that overlaps the Plan Area:

- San Diego MSCP Subregional Plan

This plan forms a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 32,894 acres of Modeled Habitat occurs within Preserves and 4,025 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 58% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area.

Presence within Plan Area and PIZ

Based on the California red-legged frog Modeled Habitat, there is approximately 61,071 acres present within the Plan Area and approximately 2,620 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of California red-legged frog habitat are the northern mountain, central foothills, and northern valley ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of California red-legged frog Modeled Habitat can be found in the Orange County foothill and valley ecoregion.

There are no known California red-legged frog occurrences within the Plan Area and PIZ from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases based on the query parameter methods for this analysis. However, reintroduction of the species occurred in March of 2020 to a pond in the Santa Rosa Plateau Ecological Preserve in the Santa Ana Mountains and in a small lake on a privately owned ranch in northern San Diego County therefore, the species has potential to occur within the PIZ.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to California red-legged frog Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.71 acre (or approximately 30,928 square feet) of permanent impacts (Attachment B);
- Approximately 0.42 acre (or approximately 18,295 square feet) of temporary impacts (Attachment C); and
- Approximately 0.38 acre (or approximately 16,553 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to California red-legged frog include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment. More than 90% of the PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions.

Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impact.

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to California red-legged frog Modeled Habitat within the Plan Area:

- Approximately 21.44 acres (or 0.04%) of permanent (Attachment B);
- Approximately 12.50 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 11.31 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

California red-legged frog is identified in the HCP Amendment as a narrow endemic species, which limits Take authorization to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies). Destruction of occupied habitat due to new projects is not covered by the HCP Amendment. Impacts to California red-legged frog and its habitat will be avoided and minimized in accordance with the Operational Protocols. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols further reduces potential impacts to this species.

Due to the limited acreage of California red-legged frog habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any California red-legged frog population in the Plan Area or rangewide.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

4.3 WESTERN SPADEFOOT (SPEA HAMMONDII OR SCAPHIOPUS HAMMONDII)

Listing Status

- CESA: None
- ESA: None
- Other: BLM Sensitive, CDFW Species of Special Concern

- SDG&E: HCP Amendment Covered, Vernal Pool Species
- Critical Habitat: None
- Recovery Plan: None

4.3.1 Background

Distribution, Abundance, and Trends

The western spadefoot ranges along the coast of California from Point Conception in Santa Barbara County south to Baja California, Mexico, as well as throughout the Central Valley and adjacent foothills (CalHerps 2020). This species occurs from sea level to 1,363 meters (4,460 feet) in elevation (Morey 2000b). In San Diego and Orange Counties, the western spadefoot primarily inhabits grasslands, though it is occasionally found in valley-foothill hardwood woodlands, and orchard or vineyard habitat (Morey 2000b). In San Diego County, western spadefoot distribution may parallel the distribution of vernal pool habitat along the coast and foothills, including areas on Otay Mesa, Kearny Mesa, and Del Mar Mesa; around Otay Lake; and near the Ramona Airport. In Orange County, populations of western spadefoot are known from Crystal Cove State Park and the Laguna Coast Wilderness Park (Baumberger et al. 2019). The western spadefoot has experienced severe declines over the past few decades, especially throughout the Central Valley and southern California (Jennings and Hayes 1994). Researchers have estimated that the species has been eliminated from 80% of its range in southern California and 30% of its range in northern and central California (USFWS 2005).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

The species is considered a breeding habitat specialist and is therefore particularly vulnerable to habitat loss and degradation, both of which have drastically reduced the population. Specifically, urban and agricultural development have contributed to the destruction of natural habitat throughout the Central Valley and southern California (Jennings and Hayes 1994; USFWS 2005). While livestock grazing may support breeding habitat, such as vernal pools, by decreasing the amount of vegetation and therefore reducing evapotranspiration from vernal pools during the spring, it may also pose a threat to western spadefoot, as livestock are known to trample individuals and occasionally consume egg clusters while utilizing pools (USFWS 2005). Other cumulative threats to western spadefoot include introduced nonnative predators such as bullfrogs and predatory fish, vehicle collisions, habitat fragmentation caused by roads, pesticide contamination, and low frequency noise and vibrations.

Special Considerations

Breeding occurs from January through May in temporary pools and drainages that form after heavy winter rains (Morey 2000b; USFWS 2005). Water temperatures in these breeding sites must be between 48 degrees Fahrenheit and 86 degrees Fahrenheit for successful reproduction to occur (USFWS 2005). Females deposit clusters of 10 to 42

eggs on floating vegetation or pieces of detritus in temporary pools and drainages; females may lay over 500 eggs total in one breeding season (Stebbins 1951; USFWS 2005). Eggs tend to hatch within 2 weeks of deposition (Morey 2000b). Western spadefoot also require upland habitat adjacent to vernal pools to forage and aestivate during dry periods. A telemetry study on 15 individuals found the mean distance western spadefoot moved from breeding pools was 30 meters (98 feet) with a maximum distance of 262 meters (860 feet) (Baumberger et al. 2019). Western spadefoot spend most of the year underground in burrows up to 36 inches (0.9 meter) deep and may either construct burrows themselves or use small mammal burrows (Morey 2000b). Juveniles often seek cover in drying mud cracks or under surface objects in the immediate vicinity of breeding ponds for up to several days after metamorphosing (Morey 2000b; Weintraub 1980).

Within Preserves that coincide with the Plan Area, the western spadefoot has not been prioritized for species specific management actions.

4.3.2 Conservation Analysis

Existing Regional Conservation Efforts

The western spadefoot is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 17,593 acres of breeding Modeled Habitat occurs within Preserves and 3,521 acres of breeding Modeled Habitat occurs within Proposed Preserves (collectively, 54% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. Approximately 697,620 acres of upland habitat occurs within Preserves and 85,592 acres of upland habitat occurs within Proposed Preserves (collectively, 66% of all upland habitat) associated with these regional conservation efforts within the Plan Area.

Presence within Plan Area and PIZ

Based on the western spadefoot breeding Modeled Habitat, there is approximately 39,348 acres present within the Plan Area and approximately 2,159 acres within the PIZ associated with existing SDG&E Facilities. There is approximately 1,183,766 acres of upland habitat present within the Plan Area and approximately 37,081 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of western spadefoot habitat are the central foothills, northern mountain, and southern foothills ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of western spadefoot Modeled Habitat is in the Orange County foothill and valley ecoregion. The three ecoregions within San Diego County that have the highest number of historical

CNDDDB occurrences are the southern foothills, central foothills, and central valley. In Orange County, the ecoregion with the highest number of CNDDDB occurrences is the foothill and valley ecoregion.

Known western spadefoot occurrences within the Plan Area and PIZ were collected from CNDDDB, SDMMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 4-2. Population hotspots within the Plan Area in San Diego County are scattered throughout the county including in Carmel Mountain Preserve, El Dorado Hills Preserve, Hollenbeck Canyon Wildlife Area, Rancho Jamul Ecological Reserve, Cleveland National Forest, and Vista Irrigation District. The species is generally associated with grassland habitat and vernal pool distribution along the coast and foothills.

Table 4-2. Historical Western Spadefoot Toad Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDDB	62	54	116
SDMMMP MOM	18	225	243
SDG&E	2	0	2

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to western spadefoot breeding Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.59 acre (or approximately 25,700 square feet) of permanent impacts (Attachment B); and
- Approximately 0.34 acre (or approximately 14,810 square feet) of temporary impacts (Attachment C).

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to western spadefoot upland habitat resulting from Covered Activities is as follows:

- Approximately 10.11 acres of permanent impacts (Attachment B);
- Approximately 5.90 acres of temporary impacts (Attachment C); and
- Approximately 5.33 acres of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to western spadefoot include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of western spadefoot breeding Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur within breeding habitat. More than 90% of the

PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions. Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impact.

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to western spadefoot breeding habitat within the Plan Area:

- Approximately 17.67 acres (or 0.04%) of permanent impacts (Attachment B); and
- Approximately 10.30 acres (or 0.03%) of temporary impacts (Attachment C).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to western spadefoot upland non-breeding habitat within the Plan Area:

- Approximately 303.36 acres (or 0.03%) of permanent impacts (Attachment B);
- Approximately 176.92 acres (or 0.01%) of temporary impacts (Attachment C); and
- Approximately 160.01 acres (or 0.01%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts. Populations of western spadefoot are found in undeveloped habitat associated with vernal pools and also within disturbed environments. Populations with potential to be impacted occur along the Santa Margarita River, Proctor Valley, Jamul Mountains, Honey Spring Road, and Spring Canyon within the PIZ. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area. Circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Due to the limited acreage of western spadefoot habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any western spadefoot population in the Plan Area or rangewide or the species' survival or recovery.

Additionally, western spadefoot is identified in the HCP Amendment as a vernal pool species, which limits Take authorization to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires that additional Vernal Pool Protocols be implemented for Covered Activities occurring adjacent to vernal pools. Impacts to this species due to new projects are not covered by the HCP Amendment except through a Minor Amendment. Impacts to western spadefoot and its habitat will be avoided and minimized in accordance with the Operational

Protocols. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols further reduces potential impacts to this species.

Species-Specific Protocols

SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment. In the event that unavoidable impacts to western spadefoot occur due to repairs of existing Facilities (including those required during or in response to emergencies), SDG&E will implement the additional Vernal Pool Protocols outlined in Sections 5.1.11.1 and 5.1.11.2 of the HCP Amendment to further reduce impacts to the maximum extent practicable. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) and the additional Vernal Pool Protocols (see Section 5.1.11 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this obligate vernal pool species. SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

4.4 SOUTHWESTERN POND TURTLE (*ACTINEMYS PALLIDA*)

Listing Status

- CESA: None
- ESA: None
- Other: CDFW Species of Special Concern, USFS Sensitive BLM Sensitive
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: None

4.4.1 Background

Distribution, Abundance, and Trends

The southwestern pond turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Elevation range extends from near sea level to 1,430 meters (4,690 feet) (Jennings and Hayes 1994). The species is associated with permanent or nearly permanent water in a wide variety of habitat types (Zeiner et al. 1990). Extant populations are known to occur in the following areas of San Diego and Orange Counties: Lake Henshaw, Scholder Creek, Lake Wohlford, San Luis Rey River near Rincon Springs, Escondido Creek near the SDCWA aqueduct crossing, Santa Margarita near Fallbrook, Lyons Valley, and Holy Jim Canyon in the Cleveland National Forest (CDFW 2019c). This species was previously abundant, but declines have occurred throughout southern California on account of habitat loss (Thomson et al. 2016).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

The primary cause for decline in this species is the loss and alteration of aquatic habitat, loss of upland nesting habitat, degradation of habitat due to nonnative species, predation on young by introduced aquatic species (e.g., bullfrogs, crayfish, bass, and catfish), collection for pets, predation (e.g., dogs, raccoons, and skunks), and competition with introduced exotic turtle species. Other cumulative threats include fragmentation of suitable breeding sites and introduced diseases from released pet turtles. Nests are often susceptible to predators and trampling by cattle or people.

Special Considerations

Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks. Turtles slip from basking sites to underwater retreats at the approach of humans or potential predators. Hibernation in colder areas is passed underwater in bottom mud. This species is considered omnivorous. Aquatic plant material, including pond lilies; beetles; and a variety of aquatic invertebrates as well as fishes, frogs, and even carrion have been reported among their food sources (Nussbaum et al. 1983; Stebbins 1972). This species also requires upland habitat that is suitable for nesting and overwintering (Thomson et al. 2016). The home range is normally quite restricted (Bury 1970, 1972). During the spring or early summer, females move overland for up to 100 meters (325 feet) to find suitable sites for egg-laying. Other long distance movements may be in response to drying of local bodies of water or other factors.

Within Preserves that coincide with the Plan Area, southwestern pond turtle has been prioritized for management and is categorized a risk level of “SL,” which is a species at high risk of loss from Preserves in the Plan area due to having small numbers of existing occurrences, small occurrence sizes, and low rates of recruitment (SDMMP and The Nature Conservancy 2017).

4.4.2 Conservation Analysis**Existing Regional Conservation Efforts**

The southwestern pond turtle is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP

Together, these plans conserve breeding habitat as well as upland habitat and facilitate connectivity, breeding, foraging, and sheltering of the species. These plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity,

dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 23,598 acres of Modeled Habitat occurs within Preserves and 3,985 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 56% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 1,350 occurrences of southwestern pond turtle recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the southwestern pond turtle Modeled Habitat, there is approximately 48,246 acres present within the Plan Area and approximately 2,366 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of southwestern pond turtle habitat are generally associated with wetland areas scattered throughout the north coast, northern valley, and central coast ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of southwestern pond turtle Modeled Habitat can be found associated with wetland areas in the foothill and valley ecoregion.

Known southwestern pond turtle occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 4-3. In Orange County, the species has known occurrences in Oso Creek and artificial ponds in Cristianitos Canyon. In San Diego County, the largest populations based on known occurrences are located within Pine Valley Creek south of I-8 and the upper San Diego River and Cedar Creek in the Cleveland National Forest. Other areas with a number of occurrences are located within Long Canyon in Bonita; in Santa Ysabel Creek in Black Canyon and downstream southwest of Pamo Valley, Guejito Creek, Los Peñasquitos Canyon, a pond in upper Lusardi Creek, Boulder Oaks Preserve, and Sycuan Peak Ecological Reserve; and along Jamul Creek on Rancho Jamul Ecological Reserve.

Table 4-3. Historical Southwestern Pond Turtle Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	NA	NA	NA
CNDDDB	4	2	6
SDMMP MOM	12	1,322	1,334
SDG&E	1	0	1

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to southwestern pond turtle Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.65 acre (or approximately 28,314 square feet) of permanent impacts (Attachment B);

- Approximately 0.38 acre (or approximately 16,553 square feet) of temporary impacts (Attachment C); and
- Approximately 0.34 acre (or approximately 14,810 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to southwestern pond turtle include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to southwestern pond turtle Modeled Habitat within the Plan Area:

- Approximately 19.36 acres (or 0.04%) of permanent impacts (Attachment B);
- Approximately 11.29 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 10.21 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

However, SDG&E's historical data demonstrates that less than 1% of impacts occur within riparian and wetland habitat (Table 4.1 of the HCP Amendment) associated with Covered Activities over 23 years of operations. The implementation of SDG&E Operational Protocols has been effective in encouraging avoidance and minimization to riparian and wetland areas. In addition, impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Very few of the known southwestern pond turtle occurrences are located within the PIZ. The occurrences in Oso Creek and in Cristianitos Canyon overlap with the PIZ. In San Diego County, occurrences in Cedar Creek, Boulder Creek, and Jamul Creek, and at the confluence of Lawson Creek and Sweetwater River are within the PIZ. SDG&E Facilities frequently traverse riparian areas in a perpendicular orientation or span over these riparian areas, which makes impacts to a large stream segment unlikely.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. Steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols further reduces potential impacts to this species.

Due to the limited acreage of southwestern pond turtle habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any southwestern pond turtle population in the Plan Area or rangewide or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

4.5 COAST HORNED LIZARD (*PHRYNOSOMA BLAINVILLII*)

Listing Status

- CESA: None
- ESA: None
- Other: CDFW Species of Special Concern, BLM Sensitive
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: None

4.5.1 Background

Distribution, Abundance, and Trends

The coast horned lizard ranges along the central coast of California south to Baja California, as well as in the central valley and Sierra Nevada foothills (CalHerps 2020). This species can be found below 1,200 meters (4,000 feet) in the Sierra Nevada foothills and below 1,800 meters (6,000 feet) in the mountains of southern California (Morey 2000a). In San Diego and Orange Counties, the coast horned lizard occupies a variety of habitat, including annual grassland, coastal sage scrub, chaparral, and woodland. The San Diego Management & Monitoring Program has documented the species within each of its Management Units (MUs), with the exception of MU2 (urbanized central San Diego) (SDMMP and The Nature Conservancy 2017). Coast horned lizard is known from Laguna Beach (Nix Nature Center, Laguna Coast Wilderness Trail, and Santiago Truck Trail) in Orange County (UCI 2020). Within these vegetative communities, coast horned lizards prefer open country, especially washes, floodplains, and other sandy areas (Morey 2000a). Though little population trend data is available for this species, it is thought to be declining or extirpated throughout much of its range (NatureServe 2019a; NPS 2015).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

The primary threat to coast horned lizard populations is habitat loss due to urban and agricultural development (NatureServe 2019a; NPS 2015). Other cumulative threats include the spread of nonnative ant species, including Argentine ants (*Linepithema humile*), which has led to declines in native ant populations and subsequently coast horned lizard populations, due to native ants being the primary food source for coast horned lizards (Daugherty 2014; NPS 2015). Historically, coast horned lizards were collected for the pet trade; however, this threat has decreased since the banning of commercial collection in 1981.

Special Considerations

As mentioned above, coast horned lizards are heavily reliant on native ant populations, due to native ants being their primary food source. Consequently, coast horned lizards often disappear from areas where native ants have been competitively excluded by nonnative Argentine ants. Argentine ants are known to invade native habitat from urban edges or areas with irrigated landscaping; however, they only tend to penetrate up to 650 feet into native habitat. Therefore, coast horned lizards require larger habitat fragments containing core area refugia that are not invaded by Argentine ants and, thus, support native ant populations. Coast horned lizards are known to burrow into loose soil during periods of inactivity or when avoiding predators or extreme heat. In addition, coast horned lizard nests are expected to be constructed in loose soil. Therefore, coast horned lizard distribution is often dependent on presence of loose or sandy soils (Morey 2000a).

Within Preserves that coincide with the Plan Area, coast horned lizard has not been prioritized for species specific management actions.

4.5.2 Conservation Analysis**Existing Regional Conservation Efforts**

The coast horned lizard is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 551,104 acres of Modeled Habitat occurs within Preserves and 69,496 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 62% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area.

Presence within Plan Area and PIZ

Based on the coast horned lizard Modeled Habitat, there is approximately 933,391 acres present within the Plan Area and approximately 26,019 acres within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the three ecoregions with the highest acreages of coast horned lizard habitat are the central foothills, southern foothills, and northern mountains ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of coast horned lizard Modeled Habitat is the Orange County Santa Ana Mountains ecoregion.

The three ecoregions within San Diego County that have the highest number of historical CNDDDB occurrences are the southern mountains, southern foothills, and south desert slopes ecoregions. In Orange County, the only ecoregion with historical CNDDDB occurrences is the foothill and valley ecoregion.

Known coast horned lizard occurrences within the Plan Area and PIZ were collected from CNDDDB, SNMMP MOM and SDG&E species databases. These occurrences are detailed in Table 4-4. Population hotspots within the Plan Area are in Orange County along Cristianitos Canyon, Tijeras Canyon, Trabuco Canyon, and near O'Neill Park; and in San Diego County at the Santa Margarita Ecological Reserve, along the Santa Margarita River, along the coast of La Jolla ranging south towards Point Loma, in the foothills and mountains of the Laguna Mountains, within Los Coyotes Indian Reservation, and along Boden Canyon. Populations range from as far north as Oceanside to as far south as Campo with grounds tending to be concentrated more inland.

Table 4-4. Historical Coast Horned Lizard Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDDB	34	23	57
SDMMP MOM	72	691	763
SDG&E	28	0	28

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to coast horned lizard Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 7.10 acres of permanent impacts (Attachment B);
- Approximately 4.14 acres of temporary impacts (Attachment C); and
- Approximately 3.74 acres of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to coast horned lizard include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and

indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment. More than 90% of the PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions. Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impact.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to coast horned lizard Modeled Habitat within the Plan Area:

- Approximately 212.86 acres (or 0.03%) of permanent impacts (Attachment B);
- Approximately 124.14 acres (or 0.01%) of temporary impacts (Attachment C); and
- Approximately 112.28 acres (or 0.01%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Coast horned lizard populations range along the central coast, in the central valley and Sierra Nevada foothills ecoregions and occupy a variety of undeveloped habitat, including annual grassland, coastal sage scrub, chaparral, and woodland. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region. The portion of the PIZ that crosses undeveloped habitat adjacent to highways and roads has potential to impact occurrences such as along SR 78, I-8 and SR 94.

Due to the limited acreage of coast horned lizard habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any coast horned lizard population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

The existing regional habitat conservation plans in the Plan Area provide for long-term conservation of a large portion of the current coast horned lizard range. SDG&E's continued implementation of the original Operational Protocols (see Section 5.1 of the HCP Amendment) will ensure minimization and mitigation of impacts to the maximum extent practicable to this species; therefore, no additional Species-Specific Protocols are necessary.





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Figure 4-1
**Covered Species of
Reptiles and Amphibians**






















August 2023

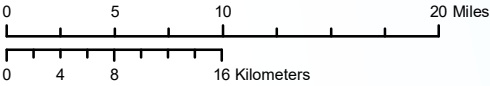
 SDG&E Service Area

Reptile and Amphibian Species

-  Arroyo toad
-  Coast horned lizard
-  Southwestern pond turtle
-  Western spadefoot

Ecoregion

-  1: San Diego County North Coast
-  2: San Diego County Central Coast
-  3: San Diego County Southern Coast
-  4: San Diego County Northern Valley
-  5: San Diego County Central Valley
-  6: San Diego County Southern Valley
-  7: San Diego County Santa Margarita
-  8: San Diego County Oakgrove-San Jacinto Foothill
-  9: San Diego County Northern Foothills
-  10: San Diego County Central Foothills
-  11: San Diego County Southern Foothills
-  12: San Diego County Northern Mountains
-  13: San Diego County Central Mountains
-  14: San Diego County Southern Mountains
-  15: San Diego County Northern Desert Slopes
-  16: San Diego County Southern Desert Slopes
-  17: San Diego County Borrego Valley
-  18: San Diego County Southern Desert Lowlands
-  19: Orange County Coastal
-  20: Orange County Foothill and Valley
-  21: Orange County Santa Ana Mountains



Source: ESRI, SanGIS, 2019; USFWS 2021; CDFW 2021 Data Date: 05/18/2021 Version Date: 8/1/2023

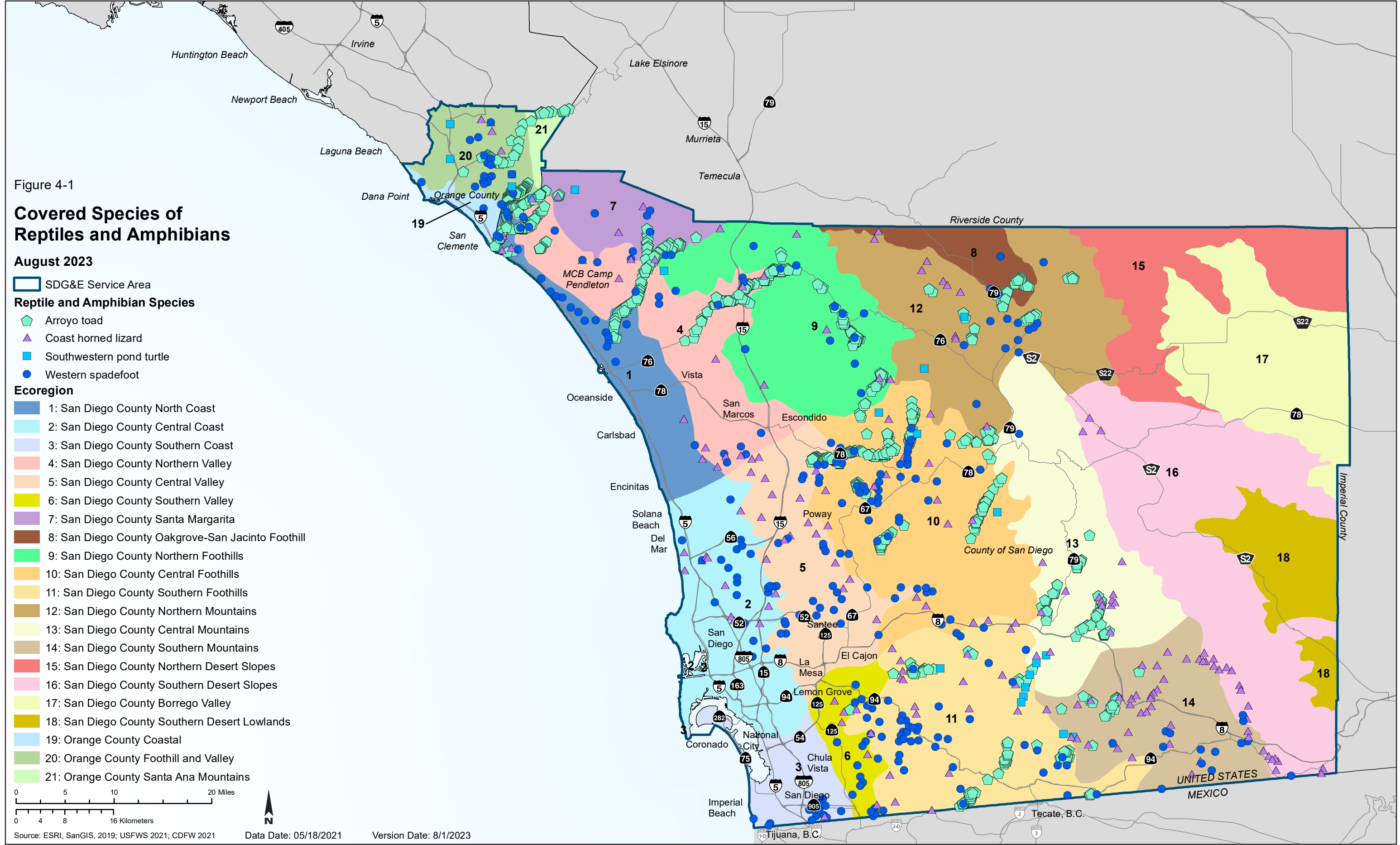


Figure 4-2
**Critical Habitat -
Reptiles and Amphibians**
August 2023

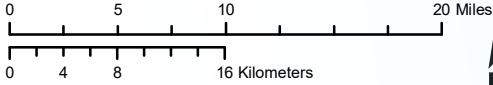
SDG&E Service Area

USFWS Critical Habitat

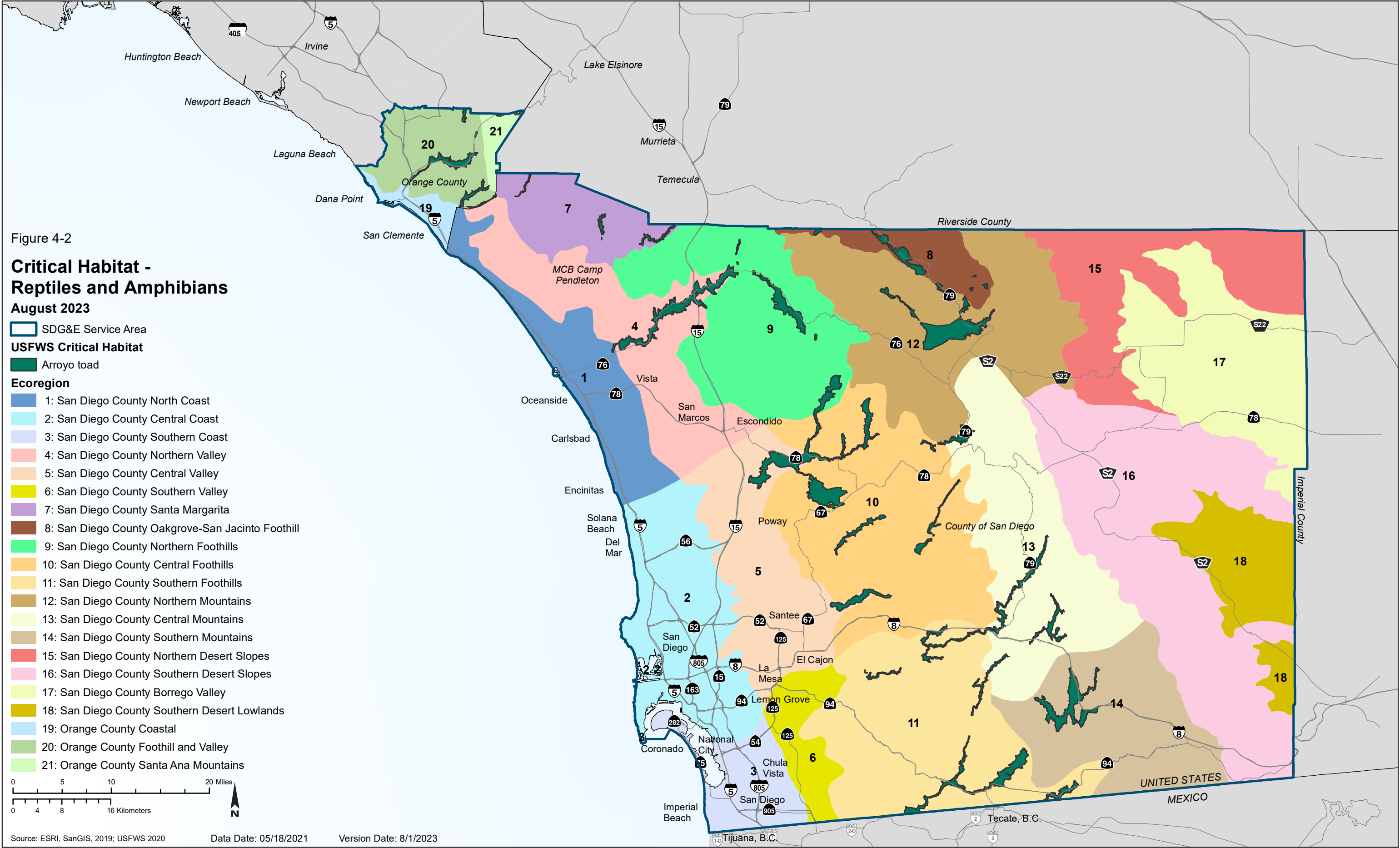
Arroyo toad

Ecoregion

- 1: San Diego County North Coast
- 2: San Diego County Central Coast
- 3: San Diego County Southern Coast
- 4: San Diego County Northern Valley
- 5: San Diego County Central Valley
- 6: San Diego County Southern Valley
- 7: San Diego County Santa Margarita
- 8: San Diego County Oakgrove-San Jacinto Foothill
- 9: San Diego County Northern Foothills
- 10: San Diego County Central Foothills
- 11: San Diego County Southern Foothills
- 12: San Diego County Northern Mountains
- 13: San Diego County Central Mountains
- 14: San Diego County Southern Mountains
- 15: San Diego County Northern Desert Slopes
- 16: San Diego County Southern Desert Slopes
- 17: San Diego County Borrego Valley
- 18: San Diego County Southern Desert Lowlands
- 19: Orange County Coastal
- 20: Orange County Foothill and Valley
- 21: Orange County Santa Ana Mountains



Source: ESRI, SanGIS, 2019; USFWS 2020 Data Date: 05/18/2021 Version Date: 8/1/2023



5.0 COVERED BIRDS

Species accounts for 11 of the 13 Covered Species of birds are provided in this section. Appendix B of the HCP Amendment contains the Eagle Conservation Plan that has been developed for golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*). The Eagle Conservation Plan assesses eagle use in the Plan Area, estimates impacts, identifies avoidance and minimization measures, and provides a monitoring and mitigation approach to offset eagle impacts. Of the 11 Covered Species of birds discussed herein, none are considered vernal pool species. A total of 10 species were qualitatively analyzed using known occurrence data because these species were identified as having more specialized or restrictive habitat requirements and/or highly limited populations with specific known localities in the Plan Area. Figure 5-1 displays known CNDDDB and USFWS database detections between 1990 and 2020 for Listed Species and Non-Listed Species. Federally listed avian species with designated critical habitat in the Plan Area are shown in Figure 5-2. All figures are provided at the end of the section.

5.1 TRICOLORED BLACKBIRD (*AGELAIUS TRICOLOR*)

Listing Status

- CESA: Threatened (2018)
- ESA: None
- Other: CDFW Species of Special Concern, BLM sensitive, USFWS Bird of Conservation Concern (BCC)
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: None

5.1.1 Background

Distribution, Abundance, and Trends

Tricolored blackbirds form the largest breeding colonies of any North American passerine (perching songbird). In California, the tricolored blackbird is common locally throughout the Central Valley and in coastal districts from Sonoma County south to Baja, Mexico (Granholm 2008). Historically, breeding colonies were strongly associated with emergent marshes dominated by cattails and bulrushes (*Typha* spp.), but more recently they have shifted to disturbed areas dominated by nonnative vegetation as well as to established agricultural areas (Granholm 2008). Larger colonies are often found near expansive grasslands or agricultural fields. The tricolored blackbird is a resident passerine to southern California that generally occupies marshlands, edges of fields and ponds, and some croplands. In San Diego County, tricolored blackbird colonies are concentrated in two areas: (1) north-central San Diego County from Dameron Valley and Oak Grove south to Ramona and Santa Ysabel, and (2) the Campo Plateau from Potrero to Jacumba (Unitt 2004).

The tricolored blackbird also occurs in Orange County but has likely been extirpated as a breeder (Hamilton and Willick 1996). Historically, nesting colonies were scattered throughout Orange County, including several large colonies at Cañada Chiquita, San Diego Creek, and Peters Canyon Regional Park, as well as smaller colonies at city parks in Huntington Beach and Costa Mesa (Hamilton and Willick 1996). Recent breeding activity in the county was not recorded during previously conducted statewide survey efforts (Meese 2017). This species also has potential to occur in the portion of the Plan Area that includes the Moreno Compressor Station, which is located in Riverside County. The population of this species has declined dramatically in the last 25 years, primarily due to loss of habitat. San Diego and Orange Counties have exhibited a negative abundance trend since 1994 (Western Riverside County MCHCP 2010).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

This species primarily occupies emergent washes and agricultural areas. The loss and contamination of local wetlands have contributed to the decline in number and size of tricolored blackbird breeding colonies (Beedy and Hayworth 1992). Other cumulative threats include human disturbance and massive nest loss by a large number of avian and mammalian predators (Beedy and Hayworth 1992). Many tricolored blackbirds have adapted by nesting in agricultural crops, typically dairy silage fields. Harvesting of these crops often coincides with egg laying and hatching, and many tricolored blackbird eggs and nests are destroyed during harvests.

Special Considerations

Breeding sites within San Diego County are not consistently used by this species due to their highly nomadic behavior. Timing of the breeding colony development is dependent on geographical locations; however, breeding is usually completed by late June to early August, and pairs rear multiple broods per season (Granholm 2008; Unitt 2004). Breeding activity in Orange County was not recorded during previously conducted survey efforts and is unlikely to occur within the county (Meese 2017).

In Preserves that coincide with the Plan Area, the tricolored blackbird has been prioritized for management and is categorized at a risk level of “SL,” which indicates a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.1.2 Conservation Analysis

Existing Regional Conservation Efforts

The tricolored blackbird is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- SDCWA Subregional NCCP/HCP
- Western Riverside County MSHCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 11,337 acres of Modeled Habitat occurs within Preserves and 779 acres of Modeled Habitat occurs within Proposed Preserves (collectively, approximately 57% of all Modeled Habitat) associated with these regional conservation efforts in the Plan Area. In addition, 37 occurrences of tricolored blackbird recorded in the SDMMMP MOM database are located within Preserves.

Presence in the Plan Area and PIZ

Based on the tricolored blackbird Modeled Habitat, there is approximately 21,116 acres in the Plan Area and approximately 693 acres in the PIZ that are associated with existing SDG&E Facilities. There is also 6 acres of suitable habitat for this species on the Moreno Compressor Station property. In the Plan Area in San Diego County, the three ecoregions with the highest acreages of tricolored blackbird habitat are the north coast, northern valley, and northern mountains ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of tricolored blackbird Modeled Habitat is found in the Orange County foothill and valley ecoregion.

Known tricolored blackbird occurrences within the Plan Area and PIZ were collected from CNDDB, SDMMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-1. Population hotspots within the Plan Area in Orange County are primarily found along San Juan Creek and throughout the Cañada Chiquita canyon. Within San Diego County, populations are scattered throughout the county in areas associated with reservoirs, tributaries, and ephemeral water sources, with the largest concentrations occurring east of Lake Henshaw, at the Tijuana River, Otay River, Sweetwater Reservoir, San Luis River, Upper Otay Reservoir, and Cottonwood Creek. The species is particularly abundant within Preserves in the Lake Henshaw area.

Table 5-1. Historical Tricolored Blackbird Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	NA	NA	NA
CNDDB	11	3	14
SDMMMP MOM	2	6	8
SDG&E	13	1	14

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts on suitable tricolored blackbird Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.19 acre (or approximately 8,276 square feet) of permanent impacts (Attachment B); and
- Approximately 0.11 acre (or approximately 4,792 square feet) of temporary impacts (Attachment C).

Direct impacts to tricolored blackbirds include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of tricolored blackbird Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, HCP Amendment implementation is expected to result in the following impacts to tricolored blackbird Modeled Habitat within the Plan Area:

- Approximately 5.67 acres (or 0.03%) of permanent impacts (Attachment B); and
- Approximately 3.31 acres (or 0.02%) of temporary impacts (Attachment C).

In addition, expansion of the Moreno Compressor Station Facility is expected to impact up to 5 acres of suitable habitat for tricolored blackbirds. SDG&E's historical data shows that less than 1% of impacts occurred in riparian and wetland habitat (Table 4.1 of the HCP Amendment) associated with Covered Activities over 23 years of operations. The implementation of SDG&E Operational Protocols has been effective in encouraging avoidance and minimization of impacts to riparian and wetland areas. Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations most at risk of being impacted are those within areas where SDG&E Facilities cross undeveloped habitat; however, the majority of tricolored blackbird occurrences are found in undeveloped habitat associated with water sources located outside of the PIZ, with most major populations and breeding colonies occurring in the eastern portion of San Diego County where SDG&E Facilities are less prevalent. Lesser populations along the San Luis River in the city of Oceanside and in the Las Peñasquitos Marsh in Sorrento Valley occur within the PIZ associated with various SDG&E transmission and distribution lines. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area; however, the population in this region is somewhat insulated from Covered Activities. SDG&E Facilities in these locations are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities

would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species.

Due to the limited acreage of tricolored blackbird habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any tricolored blackbird population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.2 BURROWING OWL (*ATHENE CUNICULARIA*)

Listing Status

- CESA: None
- ESA: None
- Other: CDFW Species of Special Concern, USFWS BCC, BLM Sensitive
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: None

5.2.1 Background

Distribution, Abundance, and Trends

The western burrowing owl (burrowing owl) subspecies is a semi-colonial owl found in open grasslands, prairies, farmlands, deserts, scrubland, and other disturbed areas characterized by the low-growing vegetation of coastal southern California. Once common to both San Diego and Orange Counties, this species has now been reduced to a few fragmented areas where suitable habitat remains (Hamilton and Willick 1996). In San Diego County, the largest recorded numbers of burrowing owls occur in Otay Mesa, and the greatest concentration is at the mesa's extreme east end, at the southwest base of Otay Mountain (Unitt 2004). In Orange County, the burrowing owl is nearing extirpation as a breeding species and is very rare in winter, with less than 50 individuals remaining (Comrack and Mayer 2003). The remaining nesting colony in Orange County is located at Seal Beach Naval Weapons Station, which is outside the Plan Area (Bloom 2014). This

species also has potential to occur in the vicinity of the Plan Area that includes the Moreno Compressor Station, located in Riverside County.

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

Burrowing owl populations are declining due to several cumulative threat factors, including the lack of ground squirrel burrows associated with ground squirrel control, vehicle collisions, the introduction of nonnative predators, and the extensive agricultural development and urbanization that has contributed to habitat loss in both San Diego and Orange Counties (Hamilton and Willick 1996).

Special Considerations

Breeding season generally occurs from March through August, with a peak in April and May. Burrowing owls are migratory; however, on certain rare occasions individuals have been known to winter in San Diego and Orange Counties (Polite 1999; Unitt 2004). Burrowing owls rely heavily on burrows made by fossorial mammals, such as ground squirrels or badgers, but they may also use man-made structures such as cement culverts or wood debris piles. The species will use burrows during the breeding season as nesting cover and year-round for roosting purposes. Burrowing owls exhibit high site fidelity and will commonly reuse burrows over multiple years (Unitt 2004).

Within Preserves that coincide with the Plan Area, the burrowing owl has been prioritized for management and is categorized a risk level of “SL,” which is a species at high risk of loss because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.2.2 Conservation Analysis

Existing Regional Conservation Efforts

The burrowing owl is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- SDCWA Subregional NCCP/HCP
- Western Riverside County MSHCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 139,520 acres occurs within Preserves and 2,533 acres of Modeled Habitat within Proposed Preserves (collectively, about 65% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area. In addition, 63 occurrences of burrowing owl recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence in the Plan Area and PIZ

Based on the burrowing owl Modeled Habitat, there is approximately 218,362 acres in the Plan Area and approximately 6,519 acres in the PIZ associated with existing SDG&E Facilities. In addition, there is 6 acres of suitable habitat for this species on the Moreno Compressor Station property. In the Plan Area in San Diego County, the three ecoregions with the highest acreages of burrowing owl habitat are the south desert slopes, north coast, and northern valley ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of burrowing owl Modeled Habitat is found in the Orange County foothill and valley ecoregion.

Known burrowing owl occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-2. Within the Plan Area in Orange County, burrowing owl detections have been minimal and have occurred at the Prima Deshecha Landfill located in the city of San Juan Capistrano. Within San Diego County, this species is most commonly detected in east Otay Mesa along the United States and Mexico border, as well as on the Ramona Grasslands Preserve located in the city of Ramona, on North Island Naval Air Station, and at CDFW's Rancho Jamul Ecological Reserve. This species is particularly prevalent within Preserves in the Otay Mesa area as well as scattered observations in the Tijuana Slough National Wildlife Refuge.

Table 5-2. Historical Burrowing Owl Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	2	0	2
CNDDB	10	7	17
SDMMP MOM	4	62	66
SDG&E	3	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to burrowing owl Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 1.78 acres of permanent impacts (Attachment B);
- Approximately 1.04 acres (or approximately 45,302 square feet) of temporary impacts (Attachment C); and
- Approximately 0.93 acre (or approximately 40,511 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to burrowing owls include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP

Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to burrowing owl habitat in the Plan Area:

- Approximately 53.34 acres (or 0.02%) of permanent impacts (Attachment B);
- Approximately 31.10 acres (or 0.01%) of temporary impacts (Attachment C); and
- Approximately 28.13 acres (or 0.01%) of Wildfire Fuels Management impacts (Attachment D).

In addition, expansion of the Moreno Compressor Station Facility is expected to impact up to 5 acres of suitable habitat for the burrowing owl. Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations most at risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. A major population located near the intersection of Otay Mountain Road and Alta Road, directly north of the United States and Mexico border, occurs within undeveloped habitat within the PIZ. In addition, several scattered observations in the city of Carlsbad overlap with undeveloped habitat within the PIZ. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area; however, the population in this region is somewhat insulated from Covered Activities as a result of the development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region. Many of the other remaining observations occur outside of the PIZ in open space preserves such as the Ramona grasslands and Tijuana Slough National Wildlife Refuge where SDG&E Facilities are either not present or are less extensive.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of burrowing owl to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Impacts to this species due to new projects are therefore not covered by the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of burrowing owl habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any burrowing owl population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment), SDG&E will implement additional Species-Specific Protocols, as needed, to ensure minimization of impacts to this species. The following Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) identified for burrowing owls could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.3 COASTAL CACTUS WREN (*CAMPYLORHYNCHUS BRUNNEICAPILLUS SANDIEGENSIS*)

Listing Status

- CESA: None
- ESA: None
- Other: CDFW Species of Special Concern, USFS Sensitive, USFWS BCC
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: None

5.3.1 Background

Distribution, Abundance, and Trends

The coastal subspecies of cactus wren is a nonmigratory, resident species restricted to the coastal slopes in San Diego and Orange Counties, and extending to northwestern Baja California, Mexico. This species is primarily associated with coastal sage scrub and maritime succulent scrub habitat (Hamilton and Willick 1996). Approximately 315 pairs are estimated to be present in San Diego County and are concentrated in four primary areas: southern MCBCP/Fallbrook, Lake Hodges/San Pasqual, Lake Jennings, and Sweetwater/Otay (Unitt 2004). Although previous population assessments of Orange County have not been as extensive, studies indicate that the species inhabits areas of suitable habitat as far north as San Juan Creek (Rea and Weaver 1990). The average territory size for this species is 4.8 acres and is often maintained year-round by pairs (Dobkin 2008; Unitt 2004).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

Cumulative threats to this species include loss, degradation, and fragmentation of coastal sage scrub habitat supporting cactus thickets dominated by large cacti (Unitt 2004).

Special Considerations

The cactus wren breeds from March through June (Unitt 2004). This species builds its nest almost exclusively in relatively tall (≥ 3 feet) thickets of chollas (*Cylindropuntia prolifera*) or prickly pear cacti (*Opuntia* spp.) in coastal sage scrub. This species also builds and uses multiple nests within a territory; thus, an apparently unoccupied nest may still contribute to breeding and fledging success as part of the larger territory. Because of their limited population and fragmented distribution, the species is particularly vulnerable to environmental disasters, including major wildfires and extended drought periods.

Within Preserves that coincide with the Plan Area, the coastal cactus wren has been prioritized for management and is categorized a risk level of "SO," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.3.2 Conservation Analysis

Existing Regional Conservation Efforts

The coastal cactus wren is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 54,374 acres of Modeled Habitat occurs within Preserves and 14,616 acres of Modeled Habitat occurs within Proposed Preserves (collectively, about 52% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area. In addition, 1,952 occurrences of coastal cactus wren recorded in the SDMMP MOM database are located within Preserves.

Presence in the Plan Area and PIZ

Based on the coastal cactus wren Modeled Habitat, there is approximately 133,326 acres in the Plan Area and approximately 10,895 acres in the PIZ associated with existing SDG&E Facilities. In the Plan Area in San Diego County, the highest acreages of coastal

cactus wren habitat occur within the northern valley, central valley, and southern foothills ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of coastal cactus wren Modeled Habitat can be found in the Orange County foothill and valley ecoregion.

Known coastal cactus wren occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-3. Within the Plan Area in Orange County, population hotspots occur along Cristianitos Canyon, and in areas to the north including Bell Canyon. Within San Diego County, coastal cactus wren detections are relatively common throughout the coastal slopes and lowlands of the region. Larger populations occur throughout Los Peñasquitos Canyon Preserve, Tecolote Canyon, and Otay Valley Regional Park, and also occur adjacent to the Sweetwater Reservoir, Lake Hodges, and Lake Jennings. Occurrences have also been noted in and around Torrey Pines State Park and Carmel Valley Openspace. The species is found within Preserves scattered throughout much of the western half of San Diego County, associated with many of the areas noted above.

Table 5-3. Historical Coastal Cactus Wren Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	NA	NA	NA
CNDDB	18	3	21
SDMMMP MOM	32	253	285
SDG&E	16	3	19

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to coastal cactus wren Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 2.97 acres of permanent impacts (Attachment B);
- Approximately 1.73 acres of temporary impacts (Attachment C); and
- Approximately 1.57 acres of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to coastal cactus wrens include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to coastal cactus wren habitat in the Plan Area:

- Approximately 89.13 acres (or 0.07%) of permanent impacts (Attachment B);
- Approximately 51.98 acres (or 0.04%) of temporary impacts (Attachment C); and
- Approximately 47.01 acres (or 0.04%) of Wildfire Fuels Management impacts (Attachment D).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Many of the detections for this species occur within urban canyons or in heavily developed coastal areas and therefore overlap within the PIZ in numerous instances. A large population in the Otay Valley Regional Park occurs in undeveloped habitat in the PIZ associated with both SDG&E transmission and distribution lines. The portion of the PIZ that crosses undeveloped habitat in areas such as this has potential to impact occurrences in this area, and others. Major populations of occurrences are spread throughout urban canyons in the Los Peñasquitos Canyon Preserve, Tecolote Canyon, and Otay Valley Regional Park areas, as well as fragmented slopes surrounding Sweetwater Reservoir, Lake Hodges, and Lake Jennings. Although many of these occurrences occur within the PIZ, the populations in these regions are somewhat insulated from Covered Activities as a result of the development. SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of coastal cactus wren to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Impacts to coastal cactus wren due to new projects are therefore not covered by the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of coastal cactus wren habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably

reduce the numbers, reproduction, or distribution of any coastal cactus wren population in the Plan Area or rangewide.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.4 WESTERN SNOWY PLOVER (*CHARADRIUS NIVOSUS NIVOSUS*)

Listing Status

- CESA: None
- ESA: Threatened (58 FR 12864-12874) (1993)
- Other: CDFW Species of Special Concern
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated, Final Rule (77 FR 36727-36869) (2012)
- Recovery Plan: Final for the Pacific Coast Population of the Western Snowy Plover (USFWS 2007b)

5.4.1 Background

Distribution, Abundance, and Trends

The Pacific coast breeding population of the western snowy plover is federally listed and breeds from central Washington south into Baja California, Mexico. The western snowy plover winters mainly in coastal areas in many of the same breeding locations, but also extends south into Central America (USFWS 2007b). Along the Pacific coast, western snowy plovers breed primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, salt pans, and other sparsely vegetated locations with close access to the Pacific Ocean (USFWS 2007b). Within California, nesting typically starts in March with peak initiation of nesting from mid-April through mid-June, with young hatching May through July and fledging from June through August (but may extend into September) (USFWS 2007b). In Orange County, known breeding populations occur at Bolsa Chica State Ecological Reserve and the Santa Ana River mouth; migrants have been observed at San Joaquin Marsh and the Santa Ana River in Anaheim (Hamilton and Willick 1996). In San Diego County, western snowy plover nesting occurs at MCBP, Batiquitos Lagoon, San Elijo Lagoon, Silver Strand State Beach, and San Diego Bay; migrants are observed throughout San Diego County, although they are often found near nesting sites (Unitt 2004).

Critical Habitat

Critical habitat was most recently revised by USFWS in June 2012 (77 FR 36727-36869). Approximately 25,263 acres of critical habitat is designated across the state of California. A total of 405 acres of designated western snowy plover critical habitat is located in the

Plan Area. There is approximately 10 acres (or approximately 0.04%) located in the undeveloped portion of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

The western snowy plover population has declined due to poor reproductive success as a result of human disturbance, predation, and invasive species. Other cumulative threats include the introduction and spread of nonnative sea grasses resulting in the loss of nesting habitat, coupled with human development, which have caused major declines in western snowy plover nesting and breeding activity (County of San Diego 1997). Human disturbance has had one of the greatest impacts on western snowy plovers, as their nesting season (March through September) coincides with the most popular time for recreational beach use.

Special Considerations

Western snowy plovers nest on sparsely vegetated substrates with a nearby source of invertebrates (such as driftwood, kelp wracks, etc.), and the birds maintain strong nest-site fidelity. The male will dig a scrape and the female will lay eggs into the scrape of her choice. While both sexes share in incubation, double brooding with polyandry (female has simultaneous broods with separate males) is common in coastal California. Precocial chicks leave the nest upon hatching, and males tend to rear the chicks. Both egg and chick mortality can be high, depending upon levels of predation, high tide and wind events, and the levels of beach disturbance (both anthropogenic and natural).

Within Preserves that coincide with the Plan Area, the western snowy plover has been prioritized for management and is categorized a risk level of “SL,” which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.4.2 Conservation Analysis

Existing Regional Conservation Efforts

The western snowy plover is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 1,125 acres of Modeled Habitat occurs within Preserves and 1 acre of Modeled Habitat occurs within Proposed Preserves (collectively, about 67% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area. In addition, 51 occurrences of western snowy plover recorded in the SDMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence in the Plan Area and PIZ

Based on the western snowy plover Modeled Habitat, there is approximately 1,685 acres in the Plan Area and approximately 179 acres in the PIZ associated with existing SDG&E Facilities. In the Plan Area in San Diego County, the highest acreages of western snowy plover Modeled Habitat occur in the southern coast, central coast, and north coast ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of western snowy plover Modeled Habitat can be found in the Orange County coastal ecoregion.

Known western snowy plover occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-4. No occurrences are recorded in the portion of the Plan Area that overlaps with Orange County. Within San Diego County, detections occur throughout the coastal range of the region with major population occurrences on MCBCP, and at Batiquitos Lagoon, South Carlsbad State Beach, Cardiff State Beach, Torrey Pines State Beach, Silver Strand State Beach, and the Tijuana Slough National Wildlife Refuge. Known nesting locations occur on MCBCP, the Batiquitos Lagoon, San Elijo Lagoon, Mission Bay, Naval Air Station North Island, Silver Strand State Beach, and the Tijuana Estuary. The species is more commonly detected within Preserves in the Carlsbad, Encinitas, Del Mar, and Imperial Beach areas.

Table 5-4. Historical Western Snowy Plover Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	1	5	6
CNDDDB	1	1	2
SDMMP MOM	9	29	38
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts to western snowy plover Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.03 acre (or approximately 1,307 square feet) of temporary impacts (Attachment C).

Direct impacts to western snowy plovers include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. No permanent impacts to western snowy plover are anticipated. Wildfire Fuels Management is not expected to occur in areas of western snowy plover Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to western snowy plover habitat in the Plan Area:

- Approximately 0.85 acre (of 0.05%) of temporary impacts (Attachment C).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately <0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 0.05 acre (or <0.01%) of temporary impacts (Attachment A).

Most occurrences for this species are outside the PIZ; however, a few select occurrences in areas including South Carlsbad State Beach, Cardiff State Beach, and Torrey Pines State Beach overlap with areas of the PIZ associated with nearby underground gas Facilities. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area. In the coastal region of San Diego County, SDG&E Facilities are mostly co-located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There may be some circumstances where work areas could require some encroachment into adjacent habitat, but it is expected those impacts would be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species.

Due to the limited acreage of western snowy plover habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any western snowy plover population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment), SDG&E has developed additional Species-Specific Protocols, as needed, to ensure minimization of impacts to this species. The additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) identified for western snowy plovers could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.5 WESTERN YELLOW-BILLED CUCKOO (*COCCYZUS AMERICANUS*)

Listing Status

- CESA: Endangered
- ESA: Threatened (79 FR 59991-60038) (2014)
- Other: USFS Sensitive, BLM Sensitive
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated, Final Rule (86 FR 20798-21005) (2021)
- Recovery Plan: None

5.5.1 Background

Distribution, Abundance, and Trends

The western yellow-billed cuckoo is a Neotropical migratory bird found generally throughout North Central and South America, the western United States, part of northern Mexico, and Baja California, Mexico (Cornell Lab of Ornithology 2020). This species typically arrives in California and Arizona in late spring during the end of May and into July, departing for its wintering range in Mexico as late as October (Halterman et al. 2015). In California, the western yellow-billed cuckoo typically occupies riparian woodland habitat consisting of willows (*Salix* spp.), Fremont cottonwoods (*Populus fremontii*), narrow-leaf cottonwoods (*Populus angustifolia*), and mesquite (*Prosopis* spp.) (Halterman et al. 2015).

Western yellow-billed cuckoo is a rare summer visitor to San Diego County (Clark 2020; Unitt 2004). Breeding of this migrant species has not been confirmed within San Diego County in decades (Unitt 2004). Breeding in California is known to occur in the South Fork Kern River (upstream of Lake Isabella), lower Colorado River, and Sacramento River valleys (USFWS 2013). Historical observations of this species have been documented along rivers, lakes, and other riparian areas including the Santa Margarita River at the upper end of Ysidora Basin, Guajome Lake, Lake Hodges, Tijuana River Valley, and Smuggler's Gulch (Unitt 2004). More recent observations (within the last 10 years) have been recorded along the San Luis Rey River, Otay River Valley, east of Lake Hodges, in Mission Bay, and San Felipe Canyon in Anza Borrego Desert State Park (Clark et al. 2014; eBird 2020; USFWS 2020).

No known species occurrences fall within the portion of the Plan Area that overlaps with Orange County. However, yellow-billed cuckoo also has potential to occur in the portion

of the Plan Area that includes but is not limited to San Juan Creek and Cristianitos Creek, located in Orange County.

Critical Habitat

USFWS most recently revised critical habitat for the yellow-billed cuckoo in April 2021 (86 FR 20798-21005). Approximately 298,845 acres of critical habitat is designated across the distinct population extent for the western yellow-billed cuckoo. No critical habitat is located in the Plan Area in San Diego County nor in the portion of the Plan Area that overlaps with Orange County.

Threats and Limiting Factors

The western yellow-billed cuckoo in the western United States has declined drastically since the 1930s, once described as a common breeder in the early 1900s and later transitioning to an irregular migrant and vagrant from the mid-1900s to today (Clark et al. 2014; Unitt 2004). The decline is primarily due to the large-scale destruction of riparian woodland (Unitt 2004). Cumulative threats include loss and degradation of suitable riparian habitat and conversion of floodplains for agricultural uses (Halterman et al. 2015). Historical loss of riparian habitat is about 90 to 99% (Halterman et al. 2015; Noss et al. 1995; Ohmart 1994; USDOI 1994). The western yellow-billed cuckoo is reported to require the largest stands of suitable habitat of any of California's riparian birds (Unitt 2004), totaling a minimum of 50 acres per breeding territory (Hughes 1999; USFWS 2014b, as cited in Halterman et al. 2015).

Special Considerations

Western yellow-billed cuckoos are riparian woodland obligates. Habitat restrictions include habitat type, size, and configuration (Laymon 1998). The breeding season generally lasts from June through September, and nests in California are usually constructed in outer branches of willow trees. Western yellow-billed cuckoos occasionally parasitize nests of the same species, such as black-billed cuckoos, but will most often build their own nests and raise their own brood (Jay 1911, as cited in Unitt 2004).

Within Preserves that coincide with the Plan Area, yellow-billed cuckoo has not been prioritized for species specific management actions.

5.5.2 Conservation Analysis

Existing Regional Conservation Efforts

The western yellow-billed cuckoo is not currently covered by any existing regional habitat conservation plans. However, recent and historical sightings of western yellow-billed cuckoo have been found in public lands managed by the City of San Diego, County of San Diego, and USFWS that limit urban development. Although this species is not covered by existing regional habitat conservation plans, other San Diego County regional conservation efforts for other species, that have similar requirements, provide umbrella protection for this species to help protect it from urban development and fragmentation. Currently, approximately 5,888 acres of Modeled Habitat occurs within Preserves and 871 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 52% of all Modeled Habitat) associated with these regional conservation efforts.

Presence in the Plan Area and PIZ

Based on the western yellow-billed cuckoo Modeled Habitat, there is approximately 13,110 acres in the Plan Area and approximately 963 acres in the PIZ associated with existing SDG&E Facilities. No suitable habitat is present for this species on the Moreno Compressor Station property. In the Plan Area in San Diego County, the highest acreages of western yellow-billed cuckoo Modeled Habitat occur in the northern valley, north coast, and southern coast ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of western yellow-billed cuckoo Modeled Habitat can be found in the coastal ecoregion.

Known western yellow-billed cuckoo occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-5. This species has not been detected within the portion of the Plan Area that overlaps with Orange County. Within San Diego County, known occurrences are located along San Luis Rey River corridor, Famosa Slough, San Felipe Canyon near Scissors Crossing, and Otay River. Some observations are likely individuals stopping on their way to breeding sites outside of San Diego County (Clark 2020). However, a potential pair and fledgling were in the Bonsall area along the San Luis Rey River and some of the observed birds have behaved territorially or appear to be prospecting for mates, which implies they may be breeding in San Diego County (Clark 2020). Further research needs to be conducted to confirm if this species breeds in San Diego County.

Table 5-5. Historical Western Yellow-billed Cuckoo Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	6	2	8
CNDDDB	1	0	1
SDMMP MOM	0	0	0
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to western yellow-billed cuckoo Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.26 acre (or approximately 11,326 square feet) of permanent impacts (Attachment B);
- Approximately 0.15 acre (or approximately 6,534 square feet) of temporary impacts (Attachment C); and
- Approximately 0.14 acre (or approximately 6,098 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to western yellow-billed cuckoo include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and

degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to western yellow-billed cuckoo habitat in the Plan Area:

- Approximately 7.88 acres (or 0.06%) of permanent impacts (Attachment B);
- Approximately 4.60 acres (0.04%) of temporary impacts (Attachment C); and
- Approximately 4.16 acres (0.03%) of Wildfire Fuels Management impacts (Attachment D).

However, SDG&E's historical data shows that less than 1% of impacts occurred in riparian and wetland habitat (Table 4.1 of the HCP Amendment) associated with Covered Activities over 23 years of operations. The implementation of SDG&E Operational Protocols has been effective in encouraging avoidance and minimization of impacts to riparian and wetland areas. Critical habitat for the western yellow-billed cuckoo does not overlap with the Plan Area.

Given that this species is a rare visitor to San Diego County, impacts are expected to be minimal. Repeated occurrences of this species have been located along the San Luis Rey River corridor, San Felipe Canyon near Scissors Crossing, and Otay River where there is suitable breeding habitat. Should this species breed at one of these locations, the San Luis Rey River and Otay River may be at most risk for impacts as the PIZ traverses the river at several locations in the vicinity of the known occurrences in these areas. The PIZ does not cross San Felipe Creek but does run parallel to the creek in the vicinity of Scissors Crossing.

Future Covered Activities are expected to be largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and the following Species-Specific Protocols will be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of western yellow-billed cuckoo habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will

appreciably reduce the numbers, reproduction, or distribution of any western yellow-billed cuckoo population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.6 SOUTHWESTERN WILLOW FLYCATCHER (*EMPIDONAX TRILLII* *EXTIMUS*)

Listing Status

- CESA: Endangered (1992)
- ESA: Endangered (60 FR 10695-10715) (1995)
- Other:
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (78 FR 343-534) (2013)
- Recovery Plan: Final Recovery Plan for the Southwestern Willow Flycatcher (USFWS 2002b)

5.6.1 Background

Distribution, Abundance, and Trends

The southwestern willow flycatcher is a small migratory passerine (perching songbird) that has a breeding range that includes southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico (60 FR 10695-10715). California, Arizona, and New Mexico account for the majority of the known southwestern willow flycatcher territories (Durst et al. 2008; USFWS 2002b). Current numbers remain significantly reduced from historical levels. Within California, there are now fewer than 200 pairs (Unitt 2004). Relative to the Plan Area, the largest extant populations are known to occur along the upper San Luis Rey River and the Santa Margarita River. In Orange County, this species is known to occur in Gobernadora Creek and in an isolated patch of riparian habitat in the Talega development open space (Orange County et al. 2006). This species also has potential to occur in the portion of the Plan Area that includes the Moreno Compressor Station, located in Riverside County.

Critical Habitat

Critical habitat was designated by USFWS for the southwestern willow flycatcher in 1997 and was subsequently revised in 2013 (78 FR 343-534). Approximately 209,131 acres of critical habitat is designated across federal, state, tribal, and private lands in Inyo, Kern, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura Counties. Approximately 5,373 acres of designated southwestern willow flycatcher critical

habitat occurs in the Plan Area. There is approximately 168 acres (or approximately 0.8%) located within the undeveloped portion of the PIZ associated with existing SDG&E Facilities. No critical habitat for this species is located in the portion of the Plan Area that overlaps with Orange County.

Threats and Limiting Factors

In San Diego and Orange Counties, cumulative threats include extensive loss of and modification of suitable southwestern willow flycatcher habitat as a result of explosive urbanization and brood parasitism by the brown-headed cowbird (*Molothrus ater*) (USFWS 2017). Trapping efforts focused on eliminating the presence of cowbirds could substantially benefit this species. Because of the species' limited population and fragmented distribution, the southwestern willow flycatcher is particularly vulnerable to environmental disasters, including major wildfires and extended drought periods (Gaines 2005).

Special Considerations

The southwestern willow flycatcher typically arrives in San Diego and Orange Counties from Central and South America in late spring (mid-May to early June) before departing again in the fall (mid-August to early September) (Hamilton and Willick 1996). This species typically occupies riparian woodlands and thickets associated with the presence of very moist soil conditions and/or surface water, and thick understory vegetation often dominated by willows (*Salix* spp.); however, migrants may be located among any larger trees or shrubs as well (Gaines 2005). Nesting sites are usually near a stream, standing water, or seep, and are typically built approximately 1.5 to 10 feet from the ground (60 FR 10695-10715).

Within Preserves that coincide with the Plan Area, the southwestern willow flycatcher has been prioritized for management and is categorized a risk level of "SL," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.6.2 Conservation Analysis

Existing Regional Conservation Efforts

The southwestern willow flycatcher is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP
- Western Riverside County MSHCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 24,661 acres of Modeled

Habitat occurs within Preserves and 3,430 acres of Modeled Habitat occurs within Proposed Preserves (collectively, about 57% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area. In addition, 55 occurrences of southwestern willow flycatcher recorded in the SDMMMP MOM database are located within Preserves.

Presence in the Plan Area and PIZ

Based on the southwestern willow flycatcher Modeled Habitat, there is approximately 46,030 acres in the Plan Area and approximately 2,228 acres in the PIZ associated with existing SDG&E Facilities. There is no suitable habitat for this species on the Moreno Compressor Station property. In the Plan Area in San Diego County, the highest acreages of southwestern willow flycatcher Modeled Habitat occur in the northern valley, north coast, and central foothills ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of southwestern willow flycatcher Modeled Habitat can be found in the Orange County foothill and valley ecoregion.

Known southwestern willow flycatcher occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-6. Populations in Orange County are primarily found within Cañada Gobernadora Canyon and along San Juan Creek near the community of Ladera Ranch. Within San Diego County, occurrences are located in various riparian corridors throughout the region with most detections located along the San Luis Rey River and in the Tijuana River Valley Regional Park. Occurrences are also located throughout the various riparian corridors on MCBP; specifically, the Santa Margarita River. In addition, the species occurs within Preserves in the city of Oceanside, east towards Bonsall, and south of Imperial Beach towards the Tijuana River Valley Regional Park.

Table 5-6. Historical Southwestern Willow Flycatcher Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	70	102	172
CNDDDB	3	11	14
SDMMMP MOM	4	51	55
SDG&E	0	1	1

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to southwestern willow flycatcher Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.61 acre (or approximately 26,572 square feet) of permanent impacts (Attachment B);
- Approximately 0.35 acre (or approximately 15,246 square feet) of temporary impacts (Attachment C); and

- Approximately 0.32 acre (or approximately 13,939 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to southwestern willow flycatcher include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to southwestern willow flycatcher habitat in the Plan Area:

- Approximately 18.23 acres (or 0.04%) of permanent impacts (Attachment B);
- Approximately 10.63 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 9.61 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.05 acre (or approximately 2,178 square feet) of permanent impacts (Attachment A);
- Approximately 0.03 acre (or approximately 1,306 square feet) of temporary impacts (Attachment A); and
- Approximately 0.02 acre (or approximately 871 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 1.37 acres (or <0.01%) of permanent impacts (Attachment A);
- Approximately 0.8 acre (or <0.01%) of temporary impacts (Attachment A); and
- Approximately 0.72 acre (or <0.01%) of Wildfire Fuels Management impacts (Attachment A).

Populations at most risk of being impacted are those within areas where SDG&E Facilities cross undeveloped areas. Most major populations along the San Luis Rey River and at the Tijuana River Valley Regional Park occur in riparian corridors located outside of the PIZ and are not expected to be impacted; however, some occurrences do intersect with the PIZ to a minor extent. Additional potentially migratory occurrences in areas in Mission Trails Open Space Preserve, adjacent to Barrett Lake in Pats Canyon, and other more urban canyons and riparian corridors overlap with areas of the PIZ associated with

various SDG&E transmission and distribution lines. The portion of the PIZ that crosses undeveloped habitat in these urban areas has potential to impact nearby occurrences; however, the populations in this region are somewhat insulated from Covered Activities as a result of the development adjacent to urban canyons and riparian corridors.

Within the more urban areas of the Plan Area, SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. Species occurrences that fall within the PIZ in more rural areas where development is less extensive have potential to be impacted as well; however, Covered Activities generally traverse canyons and riparian areas in a perpendicular orientation or span over habitat and therefore reduce the likelihood of extensive impacts to this species. There are some unavoidable circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but it is expected those impacts would be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact an entire population of a known occurrence. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of southwestern willow flycatcher habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any southwestern willow flycatcher population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.7 BELDING'S SAVANNAH SPARROW (PASSERCULUS SANDWICHENSIS BELDINGI)

Listing Status

- CESA: Endangered (1974)
- ESA: None
- Other: CDFW Fully Protected, BLM Sensitive, USFS Sensitive, USFWS BCC

- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: None

5.7.1 Background

Distribution, Abundance, and Trends

The Belding's savannah sparrow is a nonmigratory subspecies of the savannah sparrow (*Passerculus sandwichensis*) and is considered a resident passerine (perching songbird) of southern California (Hamilton and Willick 1996). The historical range for this species includes coastal salt marshes from Goleta in Santa Barbara County south to El Rosario in Baja California, Mexico. This species is restricted to salt marshes around coastal lagoons that are dominated by pickleweed (*Salicornia* spp.). Breeding season for the species occurs from April through July, with a peak in May and June (Unitt 2004). Surveys conducted in southern California between 1996 and 2015 have estimated that the number of breeding pairs ranges between 2,350 and 3,361, and the most recent census efforts in 2015 estimated approximately 3,740 pairs. Relative to the Plan Area, the most established territories for this species include the Santa Margarita River Estuary, San Elijo Lagoon, Los Peñasquitos Lagoon, Sweetwater Marsh National Wildlife Refuge, Western Salt Company Dikes, and Tijuana Marsh (Zembal et al. 2015). There are no major territories located in the portion of the Plan Area that overlaps with Orange County (Zembal et al. 2015).

Critical Habitat

As this is not a USFWS Listed Species, critical habitat has not been designated. Critical habitat is not applicable to species not listed under the ESA.

Threats and Limiting Factors

In both San Diego and Orange Counties, many of the native salt marshes associated with this species have been seriously degraded, resulting in a reduction of pickleweed and loss of suitable breeding and nesting habitat. This in turn has led to a sharp decline in the Belding's savannah sparrow population (Hamilton and Willick 1996). Cumulative threats that contribute to the degradation of native salt marsh habitat include restricting tidal action, development of upper marsh, trampling, filling, illegal dumping, and use of recreational vehicles (CDFG 1987).

Special Considerations

The Belding's savannah sparrow typically builds its nest in dense marsh vegetation, on or near the ground and concealed from above; therefore, nesting success for Belding's savannah sparrow is higher where marsh plants are denser and taller. Habitat fragmentation is a major concern for the success of this species (Dobkin and Granholm 2020; Unitt 2004).

Within Preserves that coincide with the Plan Area, the Belding's savannah sparrow has not been prioritized for species specific management actions.

5.7.2 Conservation Analysis

Existing Regional Conservation Efforts

The Belding's savannah sparrow is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 996 acres of Modeled Habitat occurs within Preserves and 0.98 acre of Modeled Habitat occurs within Proposed Preserves (collectively about 77% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area.

Presence in the Plan Area and PIZ

Based on the Belding's savannah sparrow Modeled Habitat, there is approximately 1,292 acres in the Plan Area and approximately 108 acres in the PIZ associated with existing SDG&E Facilities. In the Plan Area in San Diego County, the highest acreages of Belding's savannah sparrow Modeled Habitat occur in the central coast, southern coast, and north coast ecoregions. There is no Modeled Habitat and no historical CNDDDB occurrences for this species in the portion of the Plan Area that overlaps with Orange County. The three ecoregions in San Diego County that have the highest number of historical CNDDDB occurrences are the southern coast, central coast, and north coast ecoregions.

Known Belding's savannah sparrow occurrences within the Plan Area and PIZ were collected from CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-7. Population hotspots within the Plan Area in San Diego County occur at Torrey Pines State Reserve, Otay River mouth, Santa Margarita River mouth, San Elijo Lagoon, and Las Flores Creek Marsh. Occurrences range from as far north as Carlsbad and south to Chula Vista.

Table 5-7. Historical Belding's Savannah Sparrow Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	0	0	0
CNDDDB	1	1	1
SDMMP MOM	5	126	131
SDG&E	5	0	5

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to Belding's savannah sparrow Modeled Habitat resulting from Covered Activities is as of follows:

- Approximately 0.03 acre (or approximately 1,307 square feet) of permanent impacts (Attachment B); and
- Approximately 0.02 acre (or approximately 871 square feet) of temporary impacts (Attachment C).

Direct impacts to Belding's savannah sparrows include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of Belding's savannah sparrow Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur. More than 90% of the PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions. Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impact.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Belding's savannah sparrow habitat in the Plan Area:

- Approximately 0.89 acre (or 0.07%) of permanent impacts (Attachment B); and
- Approximately 0.52 acre (0.04%) of temporary impacts (Attachment C).

SDG&E's historical data shows that less than 1% of impacts occurred in riparian and wetland habitat (Table 4.1 of the HCP Amendment) associated with Covered Activities over 23 years of operations. The implementation of SDG&E Operational Protocols has been effective in encouraging avoidance and minimization of impacts to riparian and wetland areas. In addition, impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Belding's savannah sparrow occupy native salt marshes with dense marsh vegetation, and nest on or near the ground and are concealed from above. Populations most at risk of being impacted are those within areas where SDG&E Facilities cross undeveloped habitat such as Buena Vista Lagoon, San Elijo Lagoon, San Dieguito Lagoon, and San Diego Bay. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Due to the limited acreage of Belding's savannah sparrow habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Belding's savannah sparrow population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols (in accordance with Section 5.1 of the HCP Amendment), SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.8 COASTAL CALIFORNIA GNATCATCHER (*POLIOPTILA CALIFORNICA CALIFORNICA*)

Listing Status

- CESA: None
- ESA: Threatened (58 FR 16742-16757) (1993)
- Other: CDFW Species of Special Concern
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (72 FR 72010-72213) (2007)
- Recovery Plan: None

5.8.1 Background

Distribution, Abundance, and Trends

The coastal California gnatcatcher subspecies is a nonmigratory songbird that generally occupies open coastal sage scrub habitat dominated by California sagebrush (*Artemisia californica*) and flat-topped buckwheat (*Eriogonum fasciculatum*) on the coastal slopes of southern California and northern Baja California, Mexico (Atwood 1993; Kucera 1997). Relative to the Plan Area in both San Diego and Orange Counties, the coastal California gnatcatcher is more numerous near the sage scrub–grassland interface than the sage scrub–chaparral interface, and the species generally prefers densely vegetated coastal sage scrub below 1,000 feet in elevation over more open and sparsely vegetated sites (Hamilton and Willick 1996). In Orange County, coastal California gnatcatchers have been documented in the Fullerton Hills, Loma Ridge, Starr Ranch Audubon Sanctuary, Bolsa Chica State Ecological Reserve, and Santa Ana River mouth (Hamilton and Willick 1996). In the portion of the Plan Area that overlaps with Orange County, a major population occurs in the Chiquita Canyon area, including Chiquadora Ridge and Wagon Wheel Canyon (Orange County et al. 2006). The coastal California gnatcatcher population in San Diego County currently exceeds 2,000 pairs but continues to fluctuate with shifts in weather patterns, fire events, and continued urbanization (Unitt 2004). The largest population concentration currently occurs around Lake Hodges, located approximately 2 miles east of I-15 (Unitt 2004). This species also has potential to occur in the portion of the Plan Area that includes the Moreno Compressor Station, located in Riverside County.

Critical Habitat

USFWS most recently revised critical habitat for the coastal California gnatcatcher in 2007 (72 FR 72010-72213). Approximately 197,427 acres of coastal California gnatcatcher critical habitat is designated across Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. Approximately 80,372 acres of designated coastal California gnatcatcher critical habitat occurs in the Plan Area. There is approximately 3,389 acres (or approximately 6.96%) located in the undeveloped portion of the PIZ associated with existing SDG&E Facilities.

Threats and Limitations

Cumulative threats to the coastal California gnatcatcher include loss of coastal sage scrub habitat resulting from urbanization and development throughout much of southern California, including San Diego and Orange Counties. This species is highly sensitive to the effects of habitat fragmentation resulting from urbanization (Unitt 2004).

Special Considerations

The coastal California gnatcatcher breeding season extends from approximately late February through August. Territory size depends on time of year (breeding versus non-breeding seasons) and habitat quality; however, breeding territories generally range from 2 to 14 acres, while non-breeding home ranges expand to 13 to 39 acres (58 FR 16742-16757). The coastal California gnatcatcher is subject to predation from a wide variety of species, including urban predators such as house cats, raccoons, ground squirrels, and scrub jays. As a songbird, the species uses vocalizations for communication, particularly during the breeding season. Therefore, noise-generating Covered Activities have the potential to impact the species (Unitt 2004).

Within Preserves that coincide with the Plan Area, the coastal California gnatcatcher has not been prioritized for species specific management actions because this species is likely to persist with appropriate management of the vegetation community it inhabits (SDMMP and The Nature Conservancy 2017). It has been categorized as a “Category VF” species with limited distribution and/or having specific vegetation characteristics that need to be managed for persistence.

5.8.2 Conservation Analysis

Existing Regional Conservation Efforts

The coastal California gnatcatcher is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP
- Western Riverside County MSHCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 39,417 acres of Modeled Habitat occurs within Preserves and 10,722 acres of Modeled Habitat occurs within Proposed Preserves (collectively, about 52% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area.

Presence in the Plan Area and PIZ

Based on the coastal California gnatcatcher Modeled Habitat, there is approximately 95,163 acres in the Plan Area and approximately 7,365 acres in the PIZ associated with existing SDG&E Facilities. There is no suitable habitat for this species on the Moreno Compressor Station property. In the Plan Area in San Diego County, the highest acreages of coastal California gnatcatcher Modeled Habitat occur in the southern foothills, central foothills, and northern valley ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of coastal California gnatcatcher Modeled Habitat can be found in the Orange County foothill and valley ecoregion. The three ecoregions in San Diego County that have the highest number of both historical CNDDDB and USFWS occurrences are the central valley, central coast, and north coast ecoregions. In Orange County, the foothill and valley ecoregion has the highest number of both historical CNDDDB and USFWS occurrences.

Known coastal California gnatcatcher occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-8. Population hotspots within the Plan Area in Orange County occur near Wagon Wheel Canyon, Upper Aliso Creek and Serano Creek, San Onofre Creek, and San Onofre Canyon; and San Diego County near the Otay Reservoir, along San Dieguito River, Santa Margarita River, Pilgrim Creek, Windmill Canyon, Murphy Canyon, and near McGinty Mountain. Additional occurrences range from as far north as Ladera Ranch and south to San Ysidro, along the coast and into mountainous regions of the Laguna Mountains.

Table 5-8. Historical Coastal California Gnatcatcher Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	1301	945	2246
CNDDDB	75	31	106
SDMMP MOM	674	3223	3897
SDG&E NCC PSR	247	33	280

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to coastal California gnatcatcher Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 2.01 acres of permanent impacts (Attachment B);

- Approximately 1.17 acres of temporary impacts (Attachment C); and
- Approximately 1.06 acres of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to coastal California gnatcatchers include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment. More than 90% of the PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions. Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impacts.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to coastal California gnatcatcher habitat in the Plan Area:

- Approximately 60.26 acres (or 0.06%) of permanent impacts (Attachment B);
- Approximately 35.14 acres (or 0.04%) of temporary impacts (Attachment C); and
- Approximately 31.78 acres (or 0.03%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.92 acre (or approximately 40,075 square feet) of permanent impacts (Attachment A);
- Approximately 0.54 acre (or approximately 23,522 square feet) of temporary impacts (Attachment A); and
- Approximately 0.49 acre (or approximately 21,344 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 27.73 acres (or 0.01%) of permanent impacts (Attachment A);
- Approximately 16.17 acres (or 0.01%) of temporary impacts (Attachment A); and
- Approximately 14.62 acres (or 0.01%) of Wildfire Fuels Management impacts (Attachment A).

Populations most at risk of being impacted are those within areas where SDG&E Facilities cross habitat. Coastal California gnatcatcher occupies undeveloped habitat throughout canyons and foothills, near the coast with coastal sage scrub. The species can also be

found in patches of habitat surrounded by development such as housing. SDG&E Facilities in these locations are mostly located within existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Due to the limited acreage of coastal California gnatcatcher habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any coastal California gnatcatcher population in the Plan Area or rangewide, or impair the function of designated critical habitat or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols (in accordance with Section 5.1 of the HCP Amendment), SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.9 LIGHT-FOOTED RIDGWAY'S RAIL (*RALLUS OBSOLETUS LEVIPES*)

Listing Status

- CESA: Endangered (1971)
- ESA: Endangered (35 FR 16047-16048) (1970)
- Other: CDFW Fully Protected
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: Recovery Plan for the Light-footed Clapper Rail (USFWS 1985b)

5.9.1 Background

Distribution, Abundance, and Trends

The light-footed Ridgway's rail is an uncommon breeding species in coastal southern California. This species is not strictly migratory, but it exhibits strong post-breeding dispersal. Light-footed Ridgway's rails are primarily restricted to coastal salt marsh, often preferring marshes dominated by cordgrass (*Spartina*); however, dispersing birds have been found to use freshwater marshes at least 13 miles inland, and breeding has occasionally been documented in freshwater marsh habitat (eBird 2017). Breeding pairs of the light-footed Ridgway's rail have been found at 22 marshes throughout its range since 1980. More recently, however, this number has declined, with light-footed Ridgway's rails found in only 11 marshes in 1991. In 1990, the U.S. population of

light-footed Ridgway's rail was estimated at 190 pairs (USFWS 1985b). Relative to the Plan Area in San Diego County, light-footed Ridgway's rails have been documented at the Cocklebur Canyon mouth, Santa Margarita River Estuary, San Luis Rey River mouth, Guajome Lake, Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito River Estuary, Los Peñasquitos Lagoon, Kendall-Frost Marsh in Mission Bay, San Diego River flood-control channel, Famosa Slough, Paradise Creek Marsh, Sweetwater River Estuary, J Street Marsh, Otay River mouth, South Bay Marine Biology Study Area, Tijuana River Estuary, and Dairy Mart ponds (Unitt 2004). In Orange County, light-footed Ridgway's rails have been observed in Upper Newport Bay, the Seal Beach National Wildlife Refuge, and San Joaquin Marsh (Hamilton and Willick 1996).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats to this species include urban and agricultural development, predation, disturbance, disease, low genetic diversity due to small population size, altered hydrological conditions, and contaminants (SDMMP and The Nature Conservancy 2017; USFWS 2019c). In San Diego and Orange Counties, the light-footed Ridgway's rail primarily occupies salt marsh habitat and, thus, is particularly susceptible to habitat loss, degradation, and fragmentation.

Special Considerations

Light-footed Ridgway's rails have shown an increasing tendency to be found in freshwater marsh away from the immediate coast in recent years. If their coastal salt marsh habitat continues to be lost and/or degraded or their populations grow with the success of ongoing management practices, inland freshwater marshes can be expected to begin to host breeding populations in the future. This will create challenges for land managers going forward, as areas not currently considered suitable may need to be considered suitable going forward.

Within Preserves that coincide with the Plan Area, the light-footed Ridgway's rail has been prioritized for management and is categorized a risk level of "SO," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.9.2 Conservation Analysis

Existing Regional Conservation Efforts

The light-footed Ridgway's rail is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 2,198 acres of Modeled Habitat occurs within Preserves and 111 acres of Modeled Habitat occurs within Proposed Preserves (collectively, about 63% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area.

Presence in the Plan Area and PIZ

Based on the light-footed Ridgway's rail Modeled Habitat, there is approximately 3,661 acres in the Plan Area and approximately 308 acres in the PIZ associated with existing SDG&E Facilities. In the Plan Area in San Diego County, the majority of light-footed Ridgway's rail Modeled Habitat is in the San Diego County north, central, and southern coast ecoregions. There is no Modeled Habitat for this species in the portion of the Plan Area in Orange County. The three ecoregions in San Diego County that have the highest number of both historical CNDDDB and USFWS occurrences are the central, north, and southern coast ecoregions. There are no historical CNDDDB occurrences in Orange County.

Known light-footed Ridgway's rail occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, and SDMMP MOM species databases. These occurrences are detailed in Table 5-9. Population hotspots within the Plan Area on MCBCP and in the San Diego County Area occur at Buena Vista Lagoon, Batiquitos Lagoon, San Elijo Lagoon, Agua Hedionda Lagoon, San Dieguito Lagoon, Torrey Pines State Reserve, San Diego Bay Marshes, Tijuana River Estuary, and Santa Margarita Estuary. Additional occurrences range from Oceanside to Torrey Pines along the coast.

Table 5-9. Historical Light-footed Ridgway's Rail Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	4	20	24
CNDDDB	2	1	3
SDMMP MOM	27	354	381
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to light-footed Ridgway's rail Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.08 acre (or approximately 3,485 square feet) of permanent impacts (Attachment B); and
- Approximately 0.05 acre (or approximately 2,178 square feet) of temporary impacts (Attachment C).

Direct impacts to light-footed Ridgway's rail include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of light-footed Ridgway's rail Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur. More than 90% of the PIZ falls within the San Diego County central coast, central valley, north coast, northern valley, southern coast, southern valley, northern foothills, central foothills, and southern foothills ecoregions. Therefore, suitable habitat that coincides with these ecoregions will be at greatest risk of potential impacts.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to light-footed Ridgway's rail habitat in the Plan Area:

- Approximately 2.52 acres (or 0.07%) of permanent impacts (Attachment B); and
- Approximately 1.47 acres (or 0.04%) of temporary impacts (Attachment C).

SDG&E's historical data shows that less than 1% of impacts occurred in riparian and wetland habitat (Table 4.1 of the HCP Amendment) associated with Covered Activities over 23 years of operations. The implementation of SDG&E Operational Protocols has been effective in encouraging avoidance and minimization of impacts to riparian and wetland areas. In addition, impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Light-footed Ridgway's rail occupies undeveloped habitat near water sources of coastal salt marshes and inland freshwater marshes. Populations most at risk of being impacted are those within areas where SDG&E Facilities cross habitat such as Buena Vista Lagoon, San Elijo Lagoon, Los Peñasquitos Lagoon, and San Diego Bay. There are circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Due to the limited acreage of light-footed Ridgway's rail habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any light-footed Ridgway's rail population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols (in accordance with Section 5.1 of the HCP Amendment), SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in

coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.10 CALIFORNIA LEAST TERN (*STERNULA ANTILLARUM BROWNI*)

Listing Status

- CESA: Endangered (1984)
- ESA: Endangered (35 FR 8491-8498) (1970)
- Other: CDFW Fully Protected
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: Revised California Least Tern Endangered Species Recovery Plan (USFWS 1985c)

5.10.1 Background

Distribution, Abundance, and Trends

The California least tern breeds from San Francisco Bay south to Baja California. Historically, the species inhabited the beaches of southern California. With disturbance and development of its habitat, this once common bird became rare and was among the first species listed as endangered in 1970 by both the California Department of Fish and Game (now California Department of Fish and Wildlife) and USFWS. Intensive study, monitoring, and management have allowed San Diego County's least tern population to increase from about 500 pairs in the late 1970s to about 2,100 to 2,800 pairs from 1997 through 2002, and to nearly 4,000 pairs in 2003; however, nesting success and breeding pairs fluctuate from year to year (Unitt 2004).

In Orange County, California least terns occur at the Seal Beach National Wildlife Refuge, Bolsa Chica State Ecological Reserve, Santa Ana River mouth, Upper Newport Bay, Villa Park Basin, San Joaquin Marsh, Sand Canyon Reservoir, Oso Reservoir, and Laguna Reservoir (Hamilton and Willick 1996). In San Diego County, known nesting sites include Aliso Creek, Santa Margarita River mouth, Batiquitos Lagoon, Mission Bay, North Island Naval Air Station, Lindbergh Field, Naval Amphibious Base, D Street Fill, Chula Vista Wildlife Reserve, San Diego Bay National Wildlife Refuge, and the Tijuana River mouth (Unitt 2004). The nesting colonies of California least tern that occur at Aliso Creek, the Santa Margarita River mouth, Naval Amphibious Base, and the Tijuana River mouth are notable because they are the only San Diego County sites where the tern still nests on dunes and flats more or less in their natural condition. At Batiquitos Lagoon, the California least terns nest on several artificial sand flats installed for them when the lagoon was dredged and reopened to the tide as part of an attempt at restoration of this badly silted lagoon in the mid-1990s. Around Mission and San Diego Bays, most of the California least tern's nesting sites are fills, islands, or dikes built of dredge spoil, sometimes covered with sand (Unitt 2004).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

The species historically nested colonially on beaches that are undisturbed, sparsely vegetated, flat areas with loose, sandy substrate. Intense coastal development and increased human activity on beaches have seriously affected populations. Few beach nesting areas remain, and California least terns are now found in varied habitat ranging from mudflats to airports. Other cumulative threats include predation by introduced predators and artificially enhanced populations of native predators, human disturbance, recreational activities, military activities, disturbances due to altered hydrological conditions, and climate change. The California least tern's nesting sites are actively managed through special protection of colony sites and control of nonnative plants and predators (SDMMP and The Nature Conservancy 2017; Unitt 2004).

Special Considerations

Adults roost primarily on the ground. They typically forage in areas with water less than 60 feet in depth and within 2 miles of roosting sites, although they are considered opportunistic and often shift their behavior in response to local prey patterns (Atwood and Minsky 1983). This small migratory tern begins nesting in mid-May and is present at nesting colonies from April through August. This species responds well to created nesting habitat that is protected by fencing from predators and human disturbance. Seemingly suitable breeding habitat may go unused if human disturbance or high nest predation has impacted previous breeding attempts (Unitt 2004). Unnaturally large populations of small mammalian predators, such as skunks and foxes, can adversely affect nesting terns through nest predation. The California least tern is closely managed and monitored by USFWS pursuant to the Revised California Least Tern Recovery Plan (USFWS 1985c).

Within Preserves that coincide with the Plan Area, the California least tern has been prioritized for management and is categorized a risk level of "SO," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.10.2 Conservation Analysis

Existing Regional Conservation Efforts

The California least tern is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 143 acres of Modeled Habitat

occurs within Preserves and 0.64 acre of Modeled Habitat occurs within Proposed Preserves (collectively, about 28% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area. In addition, 148 occurrences of California least tern recorded in the SDMMP MOM database are located within Preserves.

Presence in the Plan Area and PIZ

Based on the California least tern Modeled Habitat, there is approximately 520 acres in the Plan Area and approximately 86 acres in the PIZ associated with existing SDG&E Facilities. In the Plan Area in San Diego County, the highest acreages of California least tern Modeled Habitat occur in the southern coast, north coast, and central coast ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of least tern Modeled Habitat can be found in the Orange County Coastal ecoregion.

Known California least tern occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-10. No occurrences are located in the portion of the HCP Amendment that overlaps with Orange County. Within San Diego County, occurrences are scattered along the length of the coastline with population hotspots associated with known nesting locations on MCBCP, at the Batiquitos Lagoon Ecological Reserve, San Elijo Lagoon and the adjacent Cardiff State Beach, San Dieguito Lagoon, Mission Bay, San Diego Bay/Lindbergh Field, Naval Air Station North Island, Silver Strand State Beach, and the Tijuana Estuary. The species is particularly abundant within Preserves in the Encinitas, Oceanside, and Carlsbad area as well as south towards Chula Vista and Imperial Beach.

Table 5-10. Historical California Least Tern Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	1	6	7
CNDDB	0	3	3
SDMMP MOM	1	112	113
SDG&E	0	0	0

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts to California least tern Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.01 acre (or approximately 436 square feet) of temporary impacts (Attachment C).

Direct impacts to California least tern include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP

Amendment. No permanent impacts to California least tern are anticipated. Wildfire Fuels Management is not expected to occur in areas of California least tern Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to California least tern habitat in the Plan Area:

- Approximately 0.41 acre (or 0.08%) of temporary impacts (Attachment C).

SDG&E's historical data shows that less than 1% of impacts occurred in riparian and wetland habitat (Table 4.1 of the HCP Amendment) associated with Covered Activities over 23 years of operations. The implementation of SDG&E Operational Protocols has been effective in encouraging avoidance and minimization of impacts to riparian and wetland areas. In addition, impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Most of the occurrences are concentrated in the coastal region of San Diego County and are located outside the PIZ. Occurrences are generally associated with flight observations over open water or roosting detections on state beaches that are generally outside the area where Covered Activities typically occur. Several occurrences at Cardiff State Beach and South Carlsbad State Beach lie within the PIZ associated with nearby gas pipelines. The portion of the PIZ that crosses undeveloped habitat in these areas has potential to impact occurrences in this area. In the coastal region of San Diego County, SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. There are circumstances where work areas could potentially require some encroachment into adjacent habitat, but those impacts are expected to be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols would be implemented to further minimize unavoidable impacts to this species.

Due to the limited acreage of California least tern habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any California least tern population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols (in accordance with Section 5.1 of the HCP Amendment), SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

5.11 LEAST BELL'S VIREO (*VIREO BELLII PUSILLUS*)

Listing Status

- CESA: Endangered (1980)
- ESA: Endangered (51 FR 16474-16482) (1986)
- Other:
- SDG&E: HCP Amendment Covered
- Critical Habitat: Designated (59 FR 4845-4867) (1994)
- Recovery Plan: Draft Recovery Plan for the Least Bell's Vireo (USFWS 1998c)

5.11.1 Background

Distribution, Abundance, and Trends

The least Bell's vireo is a migratory passerine (perching songbird) that is restricted to southern California and portions of northern Baja California, Mexico. This species typically arrives in San Diego and Orange Counties in March and departs for its wintering range in Mexico in late August or early September (USFWS 1998c). Although once considered a rare migrant to Orange County, breeding recurrence began in 1991 and has since continued (Hamilton and Willick 1996). This species typically occupies riparian woodland habitat within or adjacent to wet areas and prefers areas that support an understory of dense young willows (*Salix* sp.) or mule fat (*Baccharis salicifolia*), with a canopy of tall mature willows (Gaines 1990). Relative to the Plan Area, vireo populations are currently present on six rivers and major creeks, including the Tijuana River, Sweetwater River, San Diego River, Santa Ysabel Creek, San Luis Rey River/Pilgrim Creek, and Santa Margarita River (Unitt 2004). It should be noted that none of these territories fall within the portion of the Plan Area that overlaps with Orange County. The least Bell's vireo also has potential to occur in the portion of the Plan Area that includes the Moreno Compressor Station, located in Riverside County.

The least Bell's vireo population in the United States has increased tenfold since its listing in 1986, from 291 to 2,968 known territories (USFWS 2006). Population growth has been greatest in San Diego County (621% increase) and Riverside County (2,997% increase), with lesser but significant increases in Orange County, Ventura County, San Bernardino County, and Los Angeles County (USFWS 2006).

Critical Habitat

USFWS most recently revised critical habitat for the least Bell's vireo in February 1994 (59 FR 4845-4867). Approximately 36,991 acres of critical habitat is designated across Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego

Counties. No critical habitat is located in the portion of the Plan Area that overlaps with Orange County. A total of 13,416 acres of designated least Bell's vireo critical habitat is located in the Plan Area. There is approximately 380 acres (or approximately 1%) located in the undeveloped portion of the PIZ associated with existing SDG&E Facilities.

Threats and Limiting Factors

At the time of listing, the least Bell's vireo had declined more drastically than any other passerine species. Cumulative threats include loss of suitable riparian habitat and brood parasitism by the brown-headed cowbird, both of which contributed to the sharp decline (USFWS 2006). Much of the reversal in the regional population trend is probably attributable to extensive cowbird management in core least Bell's vireo habitat areas.

Special Considerations

Least Bell's vireos exhibit high site tenacity and often return to the same territories over successive years. The breeding season generally lasts from April through July, and nests are usually constructed in low thickets along willow-dominated riparian habitat. Reduction or elimination of cowbirds in least Bell's vireo nesting habitat appears to substantially benefit this species.

Within Preserves that coincide with the Plan Area, the least Bell's vireo has been prioritized for management and is categorized a risk level of "SO," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

5.11.2 Conservation Analysis

Existing Regional Conservation Efforts

The least Bell's vireo is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- San Diego MSCP Subregional Plan
- San Diego MHCP Subregional Plan
- Orange County Southern Subregion HCP
- SDCWA Subregional NCCP/HCP
- Western Riverside County MSHCP

Together, these plans form a network of large blocks of conserved habitat and linkages to facilitate connectivity, dispersal, and gene flow that protect this species from urban development and fragmentation. Currently, approximately 20,881 acres of Modeled Habitat occurs within Preserves and 2,815 acres of Modeled Habitat occurs within Proposed Preserves (collectively, about 56% of all Modeled Habitat) associated with regional conservation efforts in the Plan Area. In addition, 2,146 occurrences of least Bell's vireo recorded in the SDMMP MOM database are located within Preserves.

Presence in the Plan Area and PIZ

Based on the least Bell's vireo habitat, there is approximately 36,832 acres in the Plan Area and approximately 1,799 acres in the PIZ associated with existing SDG&E Facilities. No suitable habitat is present for this species on the Moreno Compressor Station property. In the Plan Area in San Diego County, the highest acreages of least Bell's vireo Modeled Habitat occur in the northern valley, central foothills, and north coast ecoregions. In the portion of the Plan Area that overlaps with Orange County, the highest acreage of least Bell's vireo Modeled Habitat can be found in the Orange County foothill and valley ecoregion.

Known least Bell's vireo occurrences within the Plan Area and PIZ were collected from USFWS, CNDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 5-11. Populations in Orange County are primarily found at the Prima Deschecha Landfill located in San Juan Capistrano, Arroyo Trabuco Canyon, San Juan Creek, and Cañada Gobernadora Canyon. Within San Diego County, population hotspots occur throughout the San Luis Rey River, Sweetwater Reservoir, and Tijuana River Valley Regional Park. In addition, large populations occur within the various riparian corridors throughout MCBCP. The species is also abundant within Preserves in the Carlsbad and Lake Hodges area as well as portions of east San Diego County within Anza Borrego State Park.

Table 5-11. Historical Least Bell's Vireo Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	648	1,737	2,385
CNDDB	22	21	43
SDMMP MOM	303	2,106	2,409
SDG&E	30	5	35

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

The annual acreage of anticipated temporary direct impacts and permanent direct impacts to least Bell's vireo Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.49 acre (or approximately 21,344 square feet) of permanent impacts (Attachment B);
- Approximately 0.29 acre (or approximately 12,632 square feet) of temporary impacts (Attachment C); and
- Approximately 0.26 acre (or approximately 11,326 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to least Bell's vireo include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP

Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to least Bell's vireo habitat in the Plan Area:

- Approximately 14.71 acres (or 0.04%) of permanent impacts (Attachment B);
- Approximately 8.58 acres (or 0.02%) of temporary impacts (Attachment C); and
- Approximately 7.76 acres (or 0.02%) of Wildfire Fuels Management impacts (Attachment D).

Estimated impacts to critical habitat were quantified following the same methodology for Modeled Habitat. Approximate annual acreage of anticipated permanent and temporary direct impacts to critical habitat resulting from Covered Activities is as follows:

- Approximately 0.10 acre (or approximately 4,356 square feet) of permanent impacts (Attachment A);
- Approximately 0.06 acre (or approximately 2,614 square feet) of temporary impacts (Attachment A); and
- Approximately 0.05 acre (or approximately 2,178 square feet) of Wildfire Fuels Management impacts (Attachment A).

Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to critical habitat in the Plan Area:

- Approximately 3.11 acres (or 0.01%) of permanent impacts (Attachment A);
- Approximately 1.81 acres (or <0.01%) of temporary impacts (Attachment A); and
- Approximately 1.64 acres (or <0.01%) of Wildfire Fuels Management impacts (Attachment A).

Major populations with numerous occurrence data located within the PIZ and consequently at most risk for impacts are discussed herein. This includes the populations in Orange County that occur at the Prima Deschecha Landfill, Arroyo Trabuco Canyon, San Juan Creek, and Cañada Gobernadora Canyon. Although most of these populations occur outside the PIZ, some select occurrences associated with these populations intersect with the PIZ. Other major populations within San Diego County that are within the PIZ to a minor extent include the western portion of the San Luis Rey River where development is more prevalent and Sweetwater Reservoir, as well as some of the populations located on MCBCP. Species occurrences also overlap the PIZ along San Felipe Creek east of Yaqui Flat, Vallecito Creek in Vallecito Valley, and at Agua Caliente Park. In addition, lesser populations throughout San Diego County with occurrences in urban canyons and riparian corridors adjacent to developed areas occasionally intersect with the PIZ.

The portion of the PIZ that crosses undeveloped habitat in these more urban areas has potential to impact nearby occurrences; however, the populations in this region are

somewhat insulated from Covered Activities as a result of the development adjacent to urban canyons and riparian corridors. Within the more urban areas of the Plan Area, SDG&E Facilities are mostly located with existing roads and highways that are lined with housing or other development that buffers known locations from the Facility. Species occurrences that fall within the PIZ in more rural areas where development is less extensive have potential to be impacted as well; however, Covered Activities generally traverse riparian areas in a perpendicular orientation or span over riparian habitat and therefore reduce the likelihood of extensive impacts to this species. There are some unavoidable circumstances where Facilities may cross undeveloped habitat or work areas may require some encroachment into adjacent habitat, but it is expected those impacts would be minimal relative to the overall species population in this region.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

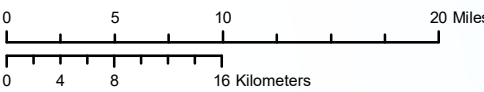
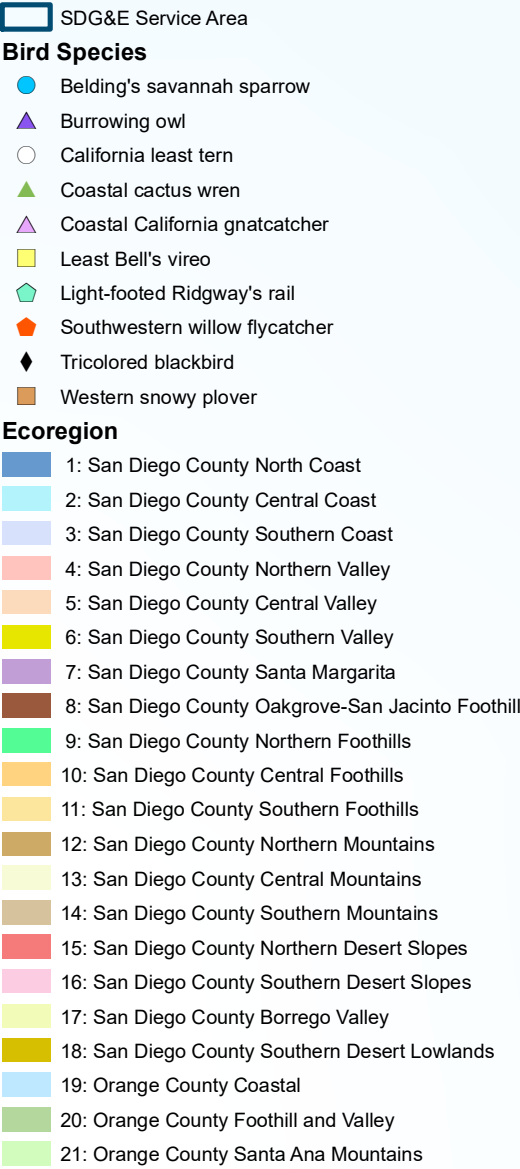
Due to the limited acreage of least Bell's vireo habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any least Bell's vireo population in the Plan Area or rangewide, or impair the function of designated critical habitat, or the species' survival or recovery.

Species-Specific Protocols

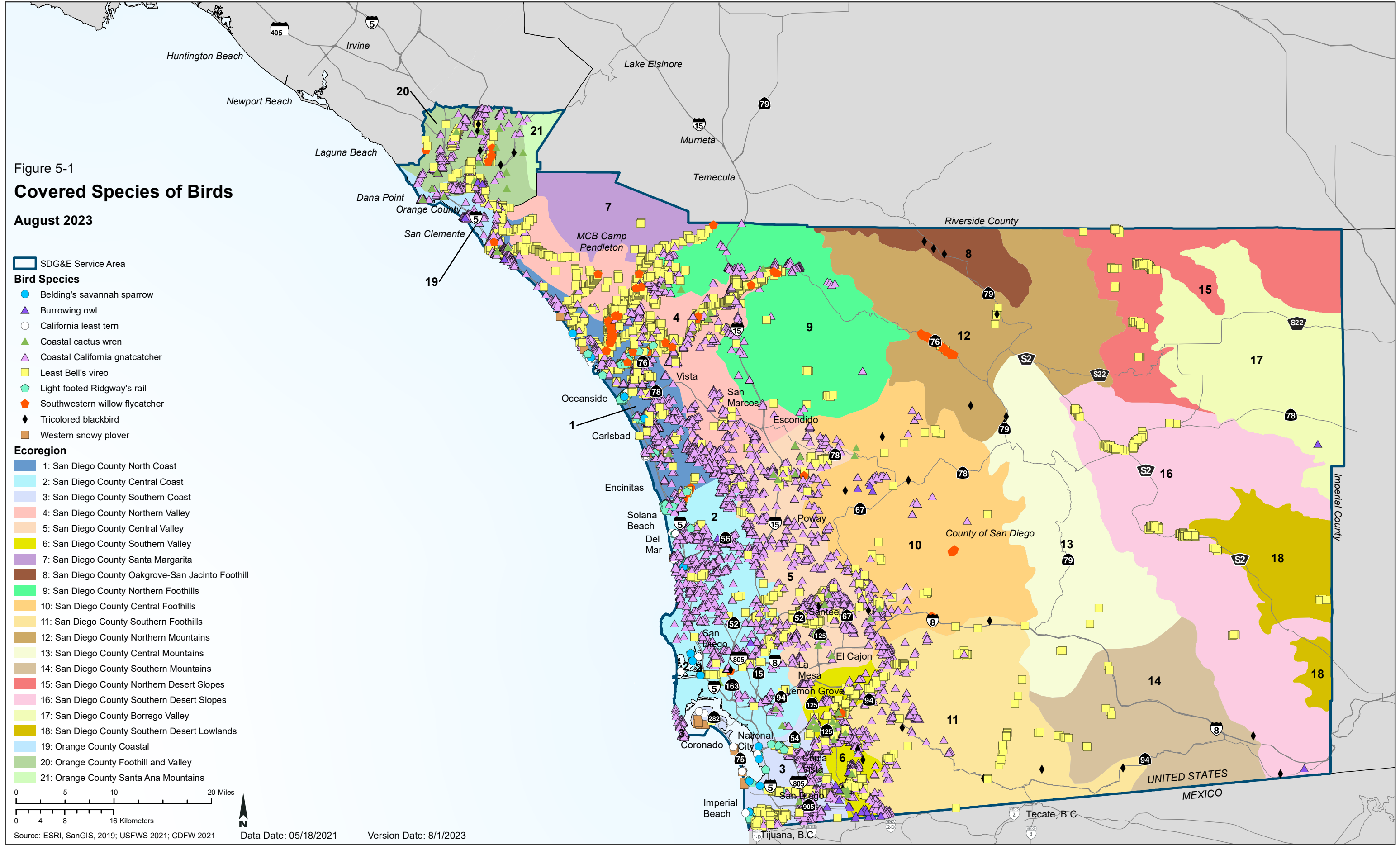
While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

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Figure 5-1
Covered Species of Birds
August 2023




Source: ESRI, SanGIS, 2019; USFWS 2021; CDFW 2021 Data Date: 05/18/2021 Version Date: 8/1/2023



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Critical Habitat - Birds

 SDG&E Service Area

- Coastal California gnatcatcher
- Least Bell's vireo
- Southwestern willow flycatcher
- Western snowy plover

1:	San Diego County North Coast
2:	San Diego County Central Coast
3:	San Diego County Southern Coast
4:	San Diego County Northern Valley
5:	San Diego County Central Valley
6:	San Diego County Southern Valley
7:	San Diego County Santa Margarita
8:	San Diego County Oakgrove-San Jacinto Foothill
9:	San Diego County Northern Foothills
10:	San Diego County Central Foothills
11:	San Diego County Southern Foothills
12:	San Diego County Northern Mountains
13:	San Diego County Central Mountains
14:	San Diego County Southern Mountains
15:	San Diego County Northern Desert Slopes
16:	San Diego County Southern Desert Slopes
17:	San Diego County Borrego Valley
18:	San Diego County Southern Desert Lowlands
19:	Orange County Coastal
20:	Orange County Foothill and Valley
21:	Orange County Santa Ana Mountains



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6.0 COVERED MAMMALS

Species accounts for two of the three Covered Species of mammals are provided herein. Appendix C of the HCP Amendment contains the Peninsular Bighorn Sheep Evaluation that was completed for this species. The evaluation assesses peninsular bighorn sheep (*Ovis canadensis nelsoni*) use in the Plan Area, estimates impacts, identifies avoidance and minimization measures, and provides a monitoring and mitigation approach to offset habitat impacts. Of the two Covered Species of mammals discussed herein, neither is considered a vernal pool species. Both species were qualitatively analyzed using known occurrence data because these species were identified as having more specialized or restrictive habitat requirements and/or highly limited populations with specific known localities in the Plan Area. Figure 6-1 displays known CNDDDB and USFWS database occurrences between 1990 and 2020 for Listed Species and Non-Listed Species. All figures are provided at the end of the section.

6.1 STEPHENS' KANGAROO RAT (*DIPODOMYS STEPHENSI*)

Listing Status

- CESA: Threatened (1971)
- ESA: Threatened (87 FR 8967) (2022)
- Other: None
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: Draft Recovery Plan for the Stephens' Kangaroo Rat (USFWS 1997b)

6.1.1 Background

Distribution, Abundance, and Trends

The Stephens' kangaroo rat occupies open grasslands and sparse coastal sage scrub that consists of both native and nonnative herbs and grasses (Spencer 2005; USFWS 1997b). Historical distribution of Stephens' kangaroo rat ranged from San Jacinto Valley in Riverside, Riverside County; southwestern San Bernardino County; and south to the vicinity of Vista, San Diego County (Thomas 1975; USFWS 1997b; Zeiner et al. 1990). This species now only occurs within San Diego County and western Riverside County (Spencer et al. 2017). In San Diego County, this species is known to occupy grassland habitat on and near MCBP, Fallbrook Naval Weapons Station, Lake Henshaw, Rancho Guejito, and Ramona. The Lake Henshaw population may be the largest contiguous population remaining in the species' range (Spencer et al. 2017).

Population trends for Stephens' kangaroo rats have declined throughout their range; of the 79 populations described by early researchers, only 25 are currently assumed extant (USFWS 1997b). Despite habitat loss and fragmentation, populations of Stephens' kangaroo rat continue to persist in areas throughout the species' native range because

of management and habitat conservation (USFWS 2010e). In 2010, baseline occupied habitat was estimated based on any habitat areas occupied by the species since 1988 (USFWS 2010e). The total baseline Stephens' kangaroo rat occupied habitat mapped for Riverside and San Diego Counties from 1988 through 2010 was estimated to be 54,909 acres with 17,968 acres occurring in San Diego (USFWS 2010e). Of that baseline habitat, 3,538 acres have been lost to development and 19,439 acres have been conserved (USFWS 2010e). In San Diego County, little baseline Stephens' kangaroo rat occupied habitat has been developed (46 acres) and 3,932 acres have been conserved; however, the potential for impact due to direct urban development remains high (USFWS 2010e).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative threats for Stephens' kangaroo rat include habitat loss and fragmentation as a result of agriculture and urban development (Spencer et al. 2017). Secondary threats as a result of the increased urban development and habitat fragmentation include livestock grazing, off-road vehicle activity, use of rodenticides, genetic bottlenecks, and domestic predators such as cats (*Felis catus*) (USFWS 1997b). Naturally occurring fluctuations in abundance as a result of climate, fire, and other factors make small Stephens' kangaroo rat populations highly susceptible to chance local extirpation (Spencer et al. 2017; USFWS 2010e).

Special Considerations

The Stephens' kangaroo rat requires specific texture of soil that is neither too hard/compacted nor too sandy, in which to dig burrows (Lackey 1967; Zeiner et al. 1990) and prefers flat terrain (USFWS 1997b), so their occupation of certain areas is also limited by these environmental factors. Stephens' kangaroo rat home range varies from 0.06 hectare (0.14 acre) to 0.10 hectare (0.24 acre) and densities vary from 40/hectare (16.4/acre) to 58/hectare (23.7/acre) (Thomas 1975; Zeiner et al. 1990).

It is well documented that Stephens' kangaroo rats require sparsely vegetated (usually less than 30% shrub cover) coastal sage scrub or grasslands to forage and breed (Bleich and Schwartz 1974; Lackey 1967; O'Farrell and Clark 1987; USFWS 1997b). In many cases, this vegetative condition is maintained due to some type of disturbance, such as fire, grazing, and brush removal. When disturbance activities are removed, the vegetation tends towards denser scrub or exotic annual grasslands, which are not as suitable for Stephens' kangaroo rat. Habitat management can allow the species to expand its population and occupied habitat (Spencer et al. 2017).

Within Preserves that coincide with the Plan Area, Stephens' kangaroo rat has been prioritized for management and is categorized a risk level of "SO," which is a species at high risk of loss of one or more significant occurrences because vegetation management alone will not suffice to ensure persistence of the species (SDMMP and The Nature Conservancy 2017).

6.1.2 Conservation Analysis

Existing Regional Conservation Efforts

The Stephens' kangaroo rat is covered by the following existing regional habitat conservation plans that overlap the Plan Area:

- SDCWA Subregional NCCP/HCP
- San Diego MHCP Subregional Plan
- Western Riverside County MSHCP
- Stephens' Kangaroo Rat HCP

Collectively, these existing regional habitat conservation plans provide for long-term conservation of a large portion of the current Stephens' kangaroo rat range in San Diego County and western Riverside County. Though the San Diego MHCP Subregional Plan covers Stephens' kangaroo rat, no extant populations are known to occur in the MHCP area. Given that, implementation of the MHCP may only minimally benefit the Stephens' kangaroo rat by allowing for natural recolonization of Preserve Areas north of the San Luis Rey River, thereby possibly increasing distribution within the region. The Western Riverside County MSHCP will conserve approximately 22,400 acres of known occupied and potential/probable habitat for Stephens' kangaroo rat within the associated plan area. The Stephens' kangaroo rat HCP targets conservation of 15,000 acres of occupied Stephens' kangaroo rat habitat within the associated plan area.

As noted above, 3,932 of 17,968 acres of occupied habitat occurring in San Diego have been conserved (USFWS 2010e). MCBP's integrated natural resources management plan has guidelines for managing Stephens' kangaroo rat, and populations in Ramona are protected by the Ramona Airport and County of San Diego (Spencer et al. 2017). Approximately 16,618 acres of Modeled Habitat occurs within Preserves and 8,367 acres of Modeled Habitat occurs within Proposed Preserves (collectively, 48% of all Modeled Habitat) associated with these regional conservation efforts within the Plan Area. In addition, 93 occurrences of Stephens' kangaroo rat recorded in the SDMMMP MOM database are located within San Diego County Preserves in the Plan Area.

Presence within Plan Area and PIZ

Based on the Stephens' kangaroo rat Modeled Habitat, there is approximately 52,039 acres present within the Plan Area and approximately 574 acres located within the PIZ associated with existing SDG&E Facilities. There is also 6 acres of suitable habitat present for this species on the Moreno Compressor Station property. Within the Plan Area in San Diego County, the highest acreages of Stephens' kangaroo rat Modeled Habitat occur in the central foothills, northern mountains, and northern valley ecoregions. This species does not occur in Orange County.

Known Stephens' kangaroo rat occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 6-1. Based on the review of this data, there are several major populations in San Diego County including those on MCBP, Fallbrook Naval

Weapons Station, Lake Henshaw and Warner Springs area, Rancho Guejito, and west of Ramona in the Santa Maria Valley.

Table 6-1. Historical Stephens' Kangaroo Rat Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	81	256	337
CNDDB	0	11	11
SDMMP MOM	3	90	93
SDG&E	18	0	18

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Stephens' kangaroo rat Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.16 acre (or approximately 6,970 square feet) of permanent impacts (Attachment B);
- Approximately 0.09 acre (or approximately 3,920 square feet) of temporary impacts (Attachment C); and
- Approximately 0.08 acre (or approximately 3,485 square feet) of Wildfire Fuels Management impacts (Attachment D).

Direct impacts to Stephens' kangaroo rat include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. A detailed discussion of Wildfire Fuels Management direct and indirect impacts associated with individual animals is included in Section 4.4.3.1 of the HCP Amendment.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Stephens' kangaroo rat Modeled Habitat within the Plan Area:

- Approximately 4.70 acres (or 0.01%) of permanent impacts (Attachment B);
- Approximately 2.74 acres (or 0.01%) of temporary impacts (Attachment C); and
- Approximately 2.48 acres (or <0.01%) of Wildfire Fuels Management impacts (Attachment D).

In addition, expansion of the Moreno Compressor Station Facility is expected to impact up to 5 acres of suitable habitat for Stephens' kangaroo rat. Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Stephens' kangaroo rat occurrences that overlap with the PIZ primarily include those within the Lake Henshaw and Warner Springs, Ramona, and Fallbrook Naval Weapons Station populations. Both transmission and distribution lines traverse the Lake Henshaw and Warner Springs populations and Covered Activities within this area have potential to impact individuals. Occurrences within the PIZ at the Ramona population are located on Montecito Ranch and centered around the airport. The occurrences within the PIZ at Fallbrook Naval Weapons Station are in proximity to an access road. In all cases, most occurrences and habitat are located outside the PIZ in these areas.

Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. Steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of Stephens' kangaroo rat habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably reduce the numbers, reproduction, or distribution of any Stephens' kangaroo rat population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

6.2 PACIFIC POCKET MOUSE (*PEROGNATHUS LONGIMEMBRIS PACIFICUS*)

Listing Status

- CESA: None
- ESA: Endangered (59 FR 49752) (1994)
- Other: CDFW Species of Special Concern
- SDG&E: HCP Amendment Covered
- Critical Habitat: None
- Recovery Plan: Pacific Pocket Mouse Recovery Plan (USFWS 1998d)

6.2.1 Background

Distribution, Abundance, and Trends

The Pacific pocket mouse is one of eight subspecies of little pocket mouse (*P. longimembris*) in California (Hall 1946; USFWS 1998d) and occupies fine, sandy substrates in coastal habitat within 2.5 miles of the ocean (USFWS 2010f). Historically, this subspecies was distributed between El Segundo in Los Angeles County south to the vicinity of the international border in San Diego County (Miller et al. 2017).

The Pacific pocket mouse was thought extinct for 20 years until one population was rediscovered at Dana Point Headlands in the city of Dana Point, Orange County (Miller et al. 2017). In San Diego County, the only extant population known to occur is on MCBCP (Miller et al. 2017; USFWS 2010f).

Critical Habitat

Critical habitat has not been designated for this species.

Threats and Limiting Factors

Cumulative primary threats to the Pacific pocket mouse include habitat loss and fragmentation due to agricultural, industrial (USFWS 1998d), suburban, and urban development (USFWS 2010f). The great majority of suitable habitat for this subspecies has been converted to human uses. Habitat degradation as a result of the introduction of invasive plant species, increased wildfires due to anthropogenic ignitions, military training operations, and road and utility maintenance on MCBCP likely also play a role. Loss of top predators (i.e., coyote), leading to an increase in smaller predators (i.e., domestic and/or feral cats and red foxes) is believed a contributing factor to the extirpation of the species at El Segundo Dunes (USFWS 2010f). As a result of habitat fragmentation, small population size also threatens the continued existence of the subspecies and can result in contributing factors such as inbreeding, loss of genetic variation, and high variability in age and sex ratios. Other naturally occurring events such as droughts or disease also threaten the species (USFWS 2010f). Nonnative Argentine ants are subsidized by landscaping irrigation (Suarez et al. 1998) and are thought to adversely affect pocket mice by direct predation in their burrows as well as indirectly by outcompeting native ants. Displacing native pollinators and seed dispersers, such as native ants, alters the plant species and seed bank composition, which threatens the pocket mice food source (USFWS 1998d; Zeiner et al. 1990). Climate change is thought a potentially significant threat to Pacific pocket mice; however, the magnitude is unknown at this time (USFWS 2010f).

Special Considerations

Along with the rest of the genus *Perognathus*, pocket mice are known to spend the winter in a low metabolic state, called torpor and, as such, are rarely detected above ground between fall and spring (Zeiner et al. 1990). Due to their extremely low mass (between 8 and 11 grams), it can be difficult to set the sensitivity of Sherman traps high enough to accurately detect the species. Small body mass coupled with long hibernation periods and low population densities can result in difficulty detecting the species, leaving it vulnerable to impacts if undetected during presence/absence surveys. Pacific pocket

mouse density data is only known from the Dana Point Headlands population and reported densities vary widely from 1.6 per hectare (2.5 acres) to 26 per hectare in different years (USFWS 2010f).

Within Preserves that coincide with the Plan Area, Pacific pocket mouse has not been prioritized for species specific management actions.

6.2.2 Conservation Analysis

Existing Regional Conservation Efforts

The Pacific pocket mouse is not covered by any existing regional habitat conservation plan that overlaps the HCP Amendment. There is no Modeled Habitat present within Preserves or Proposed Preserves associated with regional conservation efforts within the Plan Area. There are no occurrences recorded in the SDMMP MOM database within Preserves.

Presence within Plan Area and PIZ

Based on the Pacific pocket mouse Modeled Habitat, there is approximately 2,557 acres present within the Plan Area and approximately 183 acres located within the PIZ associated with existing SDG&E Facilities. Within the Plan Area in San Diego County, the highest acreages of Pacific pocket mouse Modeled Habitat occur in the north coast, central coast, and southern coast ecoregions. Within the portion of the Plan Area that overlaps with Orange County, the highest acreage of Pacific pocket mouse Modeled Habitat can be found in the coastal ecoregion.

Known Pacific pocket mouse occurrences within the Plan Area and PIZ were collected from USFWS, CNDDDB, SDMMP MOM, and SDG&E species databases. These occurrences are detailed in Table 6-2. In Orange County, this species is only known to occur at Dana Point Headlands in the city of Dana Point. In San Diego County, this species is only known to occur on MCBCP along Cristianitos Road, north of Basillone Road near the San Mateo housing, and east of Stuart Mesa Road in the vicinity of French Canyon. An occurrence also occurs south of San Dieguito Lagoon, but that location may no longer be extant as recent surveys have not detected the species in that area.

Table 6-2. Historical Pacific Pocket Mouse Data within the Plan Area

Source	Within PIZ	Outside PIZ	Total within Plan Area ¹
USFWS	26	44	70
CNDDDB	1	1	2
SDMMP MOM	0	0	0
SDG&E	1	0	1

¹ There may be overlap between data sources; therefore, numbers should not be summed among sources.

Potential Impacts, Effects on Population Viability and Species Recovery

Approximate annual acreage of anticipated temporary direct impacts and permanent direct impacts to Pacific pocket mouse Modeled Habitat resulting from Covered Activities is as follows:

- Approximately 0.05 acre (or approximately 2,178 square feet) of permanent impacts (Attachment B); and
- Approximately 0.03 acre (or approximately 1,307 square feet) of temporary impacts (Attachment C).

Direct impacts to Pacific pocket mouse include habitat loss and death, harm, or harassment to individuals, and indirect impacts may include displacement and degradation of suitable habitat from edge effects. A detailed discussion of O&M and New Construction direct and indirect impacts associated with individual animals is included in Section 4.2.1 of the HCP Amendment. Wildfire Fuels Management is not expected to occur in areas of Pacific pocket mouse Modeled Habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur.

Over the remaining duration of the permit, implementation of the HCP Amendment is anticipated to result in the following impacts to Pacific pocket mouse Modeled Habitat within the Plan Area:

- Approximately 1.50 acres (or 0.06%) of permanent impacts (Attachment B); and
- Approximately 0.87 acre (or 0.03%) of temporary impacts (Attachment C).

Impacts of this magnitude are not expected to negatively affect existing regional conservation efforts.

Occurrences within each of the aforementioned locations overlap with the PIZ, including Dana Point Headlands and the location on MCBP. Only a portion of the overall number of known occurrences on MCBP are within the PIZ. Covered Activities are largely focused on O&M of existing Facilities, which have small footprints spread throughout the PIZ. Accordingly, it is unlikely that Covered Activities would impact or destroy the entire population of a known occurrence. That conclusion is further supported by the fact that the HCP Amendment also limits Take authorization of Pacific pocket mouse to unavoidable impacts from repairs to existing Facilities (including those required during or in response to emergencies) and requires additional project-specific coordination with USFWS prior to project impacts. Impacts to this species due to new projects are therefore not covered by the HCP Amendment. All steps will be taken to ensure Covered Activities avoid impacts to the extent practical and in accordance with the HCP Amendment. Additionally, SDG&E Operational Protocols and Species-Specific Protocols would be implemented to further minimize unavoidable impacts to this species. As avoidance is a priority, implementation of the HCP Amendment Operational Protocols and Species-Specific Protocols further reduces potential impacts to this species.

Due to the limited acreage of Pacific pocket mouse habitat impacted in comparison to the available habitat in the HCP Amendment, the distribution of these impacts primarily along linear impact areas, and minimal impacts to known occurrences, and with the implementation of the Operational Protocols and the additional Species-Specific Protocols referenced below, it is not anticipated that Covered Activities will appreciably


reduce the numbers, reproduction, or distribution of any Pacific pocket mouse population in the Plan Area or rangewide, or the species' survival or recovery.

Species-Specific Protocols

While SDG&E will continue to implement the Operational Protocols in accordance with Section 5.1 of the HCP Amendment, SDG&E has developed additional Species-Specific Protocols (as described in Section 5.1.13 of the HCP Amendment) that could be used in coordination with USFWS to further reduce and mitigate impacts to the maximum extent practicable.

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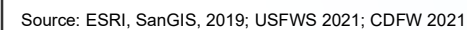
Covered Species of Mammals



SDG&E Service Area

- Pacific pocket mouse
- Stephens' kangaroo rat

1: San Diego County North Coast
2: San Diego County Central Coast
3: San Diego County Southern Coast
4: San Diego County Northern Valley
5: San Diego County Central Valley
6: San Diego County Southern Valley
7: San Diego County Santa Margarita
8: San Diego County Oakgrove-San Jacinto Foothill
9: San Diego County Northern Foothills
10: San Diego County Central Foothills
11: San Diego County Southern Foothills
12: San Diego County Northern Mountains
13: San Diego County Central Mountains
14: San Diego County Southern Mountains
15: San Diego County Northern Desert Slopes
16: San Diego County Southern Desert Slopes
17: San Diego County Borrego Valley
18: San Diego County Southern Desert Lowlands
19: Orange County Coastal
20: Orange County Foothill and Valley
21: Orange County Santa Ana Mountains



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Attachment A

Anticipated Critical Habitat Impacts

Attachment A
Anticipated Permanent, Temporary, and Wildfire Fuels Management Critical Habitat Impacts (acres)

Common Name	Total Designated Critical Habitat	Plan Area	PIZ	Undeveloped PIZ ²	Percentage of Undeveloped PIZ where there is Critical Habitat ³	Permanent Impacts ¹					Temporary Impacts ¹			Wildfire Fuels Management ¹			Total Impacts through 2050 ¹⁰
						Annual Impacts ⁴	Total O&M and New Construction Impacts through 2050 ⁵	O&M Impacts through 2050 ⁶	New Construction Impacts through 2050 ⁶	Percentage of Total Designated Critical Habitat Impacted through 2050 ⁷	Annual Impacts ⁸	Impacts through 2050 ⁵	Percentage of Total Designated Critical Habitat Impacted through 2050 ⁷	Annual Impacts ⁹	Impacts through 2050 ⁵	Percentage of Total Designated Critical Habitat Impacted through 2050 ⁷	
Plants (6)																	
San Diego thornmint	671	671	12	11.66	0.02%	<0.01	0.10	0.08	0.02	0.01%	<0.01	0.06	0.01%	<0.01	0.05	0.01%	0.20
San Diego ambrosia	783	594	124	68.60	0.14%	0.02	0.56	0.47	0.09	0.07%	0.01	0.33	0.04%	0.01	0.30	0.04%	1.18
Thread-leaved brodiaea	2,950	1,558	211	124.55	0.26%	0.03	1.02	0.85	0.17	0.03%	0.02	0.59	0.02%	0.02	0.54	0.02%	2.15
Otay tarplant	6,333	6,333	770	671.57	1.38%	0.18	5.49	4.58	0.91	0.09%	0.11	3.20	0.05%	0.10	2.90	0.05%	11.60
Willowy monardella	122	122	3	0.03	<0.01%	<0.01	<0.01	<0.01	<0.01	<0.01%	<0.01	<0.01	<0.01%	<0.01	<0.01	<0.01%	<0.01
Spreading navarretia	6,725	1,068	69	47.06	0.10%	0.01	0.38	0.32	0.06	0.01%	0.01	0.22	<0.01%	-	-	-	0.61
Wildlife (9)																	
San Diego fairy shrimp	2,933	2,918	218	138.57	0.28%	0.04	1.13	0.95	0.19	0.04%	0.02	0.66	0.02%	-	-	-	1.79
Riverside fairy shrimp	1,670	914	21	18.14	0.04%	<0.01	0.15	0.12	0.02	0.01%	<0.01	0.09	0.01%	-	-	-	0.23
Hermes copper butterfly	35,052	35,052	2,436	1,833.42	3.77%	0.50	15.00	12.51	2.49	0.04%	0.29	8.75	0.02%	0.26	7.91	0.02%	31.66
Laguna Mountains Skipper	6,259	6,259	83	59.23	0.12%	0.02	0.48	0.40	0.08	0.01%	0.01	0.28	<0.01%	0.01	0.26	<0.01%	1.02
Arroyo toad	98,428	64,133	3,613	2,243.69	4.61%	0.61	18.36	15.31	3.05	0.02%	0.36	10.70	0.01%	0.32	9.68	0.01%	38.7
Western snowy plover	25,263	405	14	10.11	0.02%	-	-	-	-	-	<0.01	0.05	<0.01%	-	-	-	0.05
Southwestern willow flycatcher	209,131	5,373	246	167.86	0.34%	0.05	1.37	1.15	0.23	<0.01%	0.03	0.80	<0.01%	0.02	0.72	<0.01%	2.90
Coastal California gnatcatcher	197,427	80,372	6,313	3,389.15	6.96%	0.92	27.73	23.12	4.60	0.01%	0.54	16.17	0.01%	0.49	14.62	0.01%	58.52
Least Bell’s vireo	36,991	13,416	2,038	379.92	0.78%	0.10	3.11	2.59	0.52	0.01%	0.06	1.81	<0.01%	0.05	1.64	<0.01%	6.56

¹ Note that anticipated impacts to Critical Habitat have been calculated to provide an approximation of the potential impacts on Critical Habitat for each Covered Species. Actual impacts on Critical would be assessed, avoided, and minimized through the existing Pre-activity Survey Report [PSR] process. Note all numbers rounded after calculations complete.

² Critical Habitat with agriculture and developed areas removed per the process described in HCP Amendment Section 4.1.3.

³ The portion of the PIZ with undeveloped habitat totals 48,665 acres. The percentage represents Critical Habitat within the undeveloped PIZ divided by 48,665 acres.

⁴ Based on SDG&E historical impact trends under the Subregional Plan for the period of 1996 through 2018, an average of approximately 11.54 acres of total impacts are expected on an annual basis with implementation of Operations and Maintenance (O&M) and New Construction. The average annual total impacts (11.54 acres) was multiplied by the percentage of PIZ supporting Critical Habitat for a given species to estimate the permanent impacts on Critical Habitat on an annual basis. This total was increased by 15% to accommodate unanticipated impacts. For example, to estimate the impact to Otay tarplant, 11.54 acres was multiplied by 1.38% (i.e., percent within PIZ). This equals approximately 0.16 acre. This amount was increased by 0.02 acre (i.e., 15% of 0.16 acre) for a total of 0.18 acre of permanent impacts.

⁵ Annual average multiplied by 30 years.

⁶ Based on historical data, New Construction was assumed to represent 16.6% of the total O&M and New Construction impact estimate. O&M represents the difference between the total impacts and New Construction impacts.

⁷ Total impacts over 30 years divided by all designated Critical Habitat.

⁸ Based on SDG&E historical impact trends under the Subregional Plan for the period of 1996 through 2018, an average of approximately 6.73 acres of temporary impacts are expected on an annual basis with implementation of Operations and Maintenance (O&M) and New Construction. The average annual temporary impacts (6.73 acres) was multiplied by the percentage of PIZ supporting Critical Habitat for a given species to estimate the temporary impacts on Critical Habitat on an annual basis. This total was increased by 15% to accommodate unanticipated impacts.

⁹ Based on SDG&E’s 2019 Pilot Study (see HCP Amendment Section 4.4), SDG&E assumed that up to 100 acres per year will undergo Wildfire Fuels Management over the next 30 years, and that a 7% net percent reduction of native canopy cover will be consistent, on average, over the remaining permit term; resulting in 7 acres of habitat impacts per year. The percentage of the undeveloped portion of PIZ that consisted of Critical Habitat for applicable Covered Species was quantified, and this percentage was multiplied by Wildfire Fuels Management annual impact estimate of 7 acres per year, to estimate the impacts on Critical Habitat on an annual basis. Species with no impacts within the table will not be impacted by Wildfire Fuels Management because Wildfire Fuels Management would not have direct habitat impacts on peninsular bighorn sheep, vernal pool, or beach species.

¹⁰ Total permanent, temporary, and Wildfire Fuels Management impacts.

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Attachment B

**Anticipated
Permanent Species Impacts Associated with
Covered Activities**

Attachment B
Anticipated Permanent Species Impacts Associated with O&M and New Construction

(Note that anticipated permanent impacts to Modeled Habitat have been calculated to provide an approximation of the potential permanent impacts on Modeled Habitat for each Covered Species. Actual permanent impacts on Covered Species habitat would be assessed, avoided, and minimized through the existing Pre-activity Survey Report [PSR] process.)

Common Name	Scientific Name	Acres of Modeled Habitat in Service Territory (Plan Area) ¹ (Acres)	Modeled Habitat in the PIZ (Acres)	Percentage of PIZ Supporting Modeled Habitat ²	Anticipated Annual Average Permanent Impacts ³ (Acres)	Potential Unanticipated Permanent Impacts from Future Covered Activities (15% of Anticipated Average) (Acres)	Anticipated and Potential Unanticipated Annual Permanent Impacts ^{4,5} (Acres)	Total Permanent Impacts through 2050 ⁵	O&M Impacts through 2050	New Construction Impacts through 2050	Percentage of Modeled Habitat Permanently Impacted through 2050 ⁶
<i>Plants</i>											
San Diego thornmint	<i>Acanthomintha ilicifolia</i>	43,598.13	4,959.73	10.19%	1.18	0.18	1.35	40.58	33.84	6.74	0.09%
San Diego ambrosia	<i>Ambrosia pumila</i>	9,687.10	676.83	1.39%	0.16	0.02	0.18	5.54	4.62	0.92	0.06%
Del Mar manzanita	<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	4,435.99	858.52	1.76%	0.20	0.03	0.23	7.02	5.85	1.17	0.16%
Encinitas baccharis	<i>Baccharis vanessae</i>	46,669.96	1,599.70	3.29%	0.38	0.06	0.44	13.09	10.92	2.17	0.03%
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	8,424.05	1,090.49	2.24%	0.26	0.04	0.30	8.92	7.44	1.48	0.11%
Salt marsh bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> (<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>)	659.38	29.13	0.06%	0.01	<0.01	0.01	0.24	0.2	0.04	0.04%
Orcutt's spineflower	<i>Chorizanthe orcuttiana</i>	1,847.97	320.70	0.66%	0.08	0.01	0.09	2.62	2.19	0.43	0.14%
Otay tarplant	<i>Deinandra conjugens</i> (<i>Hemizonia conjugens</i>)	2,074.93	369.66	0.76%	0.09	0.01	0.10	3.02	2.52	0.5	0.15%
Short-leaved dudleya	<i>Dudleya brevifolia</i>	2,007.85	346.59	0.71%	0.08	0.01	0.09	2.84	2.37	0.47	0.14%
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	6,411.79	603.68	1.24%	0.14	0.02	0.16	4.94	4.12	0.82	0.08%
Willowly monardella	<i>Monardella viminea</i> (<i>Monardella linoides</i> ssp. <i>viminea</i>)	14,891.11	1,464.11	3.01%	0.35	0.05	0.40	11.98	9.99	1.99	0.08%
Spreading navarretia	<i>Navarretia fossalis</i>	6,411.79	603.68	1.24%	0.14	0.02	0.16	4.94	4.12	0.82	0.08%
Dehesa beargrass	<i>Nolina interrata</i>	2,295.68	123.82	0.25%	0.03	<0.01	0.03	1.01	0.84	0.17	0.04%
California Orcutt grass	<i>Orcuttia californica</i>	4,559.70	831.83	1.71%	0.20	0.03	0.23	6.81	5.68	1.13	0.15%
San Diego mesa mint	<i>Pogogyne abramsii</i>	2,536.16	341.16	0.70%	0.08	0.01	0.09	2.79	2.33	0.46	0.11%
Otay Mesa mint	<i>Pogogyne nudiuscula</i>	691.32	115.89	0.24%	0.03	<0.01	0.03	0.95	0.79	0.16	0.14%
<i>Invertebrates</i>											
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	7,153.19	785.41	1.61%	0.19	0.03	0.21	6.43	5.36	1.07	0.09%
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	8,075.11	1,153.42	2.37%	0.27	0.04	0.31	9.44	7.87	1.57	0.12%
Laguna Mountains Skipper	<i>Pyrgus ruralis lagunae</i>	1,172.46	13.50	0.03%	<0.01	<0.01	<0.01	0.11	0.09	0.02	0.01%
Hermes copper butterfly	<i>Lycaena hermes</i>	503,764.71	18,195.00	37.39%	4.31	0.65	4.91	148.85	124.14	24.71	0.03%
<i>Amphibians</i>											
Arroyo toad – breeding and nonbreeding riparian habitat ⁷	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	26,702.02	1,176.17	2.42%	0.28	0.04	0.32	9.62	8.02	1.6	0.04%
Arroyo toad – nonbreeding upland habitat ⁷	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	1,323,401.31	47,674.56	97.96%	11.31	1.70	13.00	390.03	325.29	64.74	0.03%
California red-legged frog	<i>Rana draytonii</i> (<i>Rana aurora draytonii</i>)	61,071.29	2,620.41	5.38%	0.62	0.09	0.71	21.44	17.88	3.56	0.04%
Western spadefoot– breeding habitat ⁸	<i>Spea hammondi</i> or <i>Scaphiopus hammondi</i>	39,348.14	2,159.64	4.44%	0.51	0.08	0.59	17.67	14.74	2.93	0.04%

Common Name	Scientific Name	Acres of Modeled Habitat in Service Territory (Plan Area) ¹ (Acres)	Modeled Habitat in the PIZ (Acres)	Percentage of PIZ Supporting Modeled Habitat ²	Anticipated Annual Average Permanent Impacts ³ (Acres)	Potential Unanticipated Permanent Impacts from Future Covered Activities (15% of Anticipated Average) (Acres)	Anticipated and Potential Unanticipated Annual Permanent Impacts ^{4,5} (Acres)	Total Permanent Impacts through 2050 ⁵	O&M Impacts through 2050	New Construction Impacts through 2050	Percentage of Modeled Habitat Permanently Impacted through 2050 ⁶
Western spadefoot – upland habitat ⁸	<i>Spea hammondi</i> or <i>Scaphiopus hammondi</i>	1,183,765.51	37,080.81	76.20%	8.79	1.32	10.11	303.36	253.00	50.36	0.03%
Reptiles											
Southwestern pond turtle	<i>Actinemys pallida</i>	48,245.92	2,366.10	4.86%	0.56	0.08	0.65	19.36	16.15	3.21	0.04%
Coast horned lizard	<i>Phrynosoma blainvillii</i>	933,391.29	26,019.18	53.47%	6.17	0.93	7.10	212.86	177.53	35.33	0.02%
Birds											
Tricolored blackbird	<i>Agelaius tricolor</i>	21,116.41	692.87	1.42%	0.16	0.02	0.19	5.67	4.73	0.94	0.03%
Burrowing owl	<i>Athene cunicularia</i> (<i>Athene cunicularia</i> ssp. <i>hypugaea</i>)	218,361.64	6,519.36	13.40%	1.55	0.23	1.78	53.34	44.49	8.85	0.02%
Coastal cactus wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	133,326.07	10,895.07	22.39%	2.58	0.39	2.97	89.13	74.33	14.8	0.07%
Western yellow-billed cuckoo (western distinct population segment)	<i>Coccyzus americanus</i>	13,110.66	963.16	1.98%	0.23	0.03	0.26	7.88	6.57	1.31	0.06%
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	46,030.28	2,228.06	4.58%	0.53	0.08	0.61	18.23	15.2	3.03	0.04%
Belding's savannah sparrow	<i>Passerculus sandwichensis beldingi</i>	1,292.30	108.28	0.22%	0.03	<0.01	0.03	0.89	0.74	0.15	0.07%
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	95,162.97	7,365.30	15.13%	1.75	0.26	2.01	60.26	50.26	10	0.06%
Light-footed Ridgway’s rail (light-footed clapper rail)	<i>Rallus obsoletus levipes</i> (<i>Rallus longirostris levipes</i>)	3,661.38	307.80	0.63%	0.07	0.01	0.08	2.52	2.1	0.42	0.07%
Least Bell's vireo	<i>Vireo bellii pusillus</i>	36,832.29	1,798.65	3.70%	0.43	0.06	0.49	14.71	12.27	2.44	0.04%
Mammals											
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	52,039.43	574.04	1.18%	0.14	0.02	0.16	4.70	3.92	0.78	0.01%
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	2,557.00	183.00	0.38%	0.04	0.01	0.05	1.50	1.25	0.25	0.06%

¹ County of San Diego predictive species models as modified by AECOM to extend into Orange County and include additional species covered in the HCP Amendment.

² The portion of the Probable Impact Zone (PIZ) with undeveloped habitat totals 48,665 acres.

³ Based on SDG&E historical impact trends under the Subregional Plan for the period of 1996 through 2018, an average of approximately 11.5 acres of total impacts are expected on an annual basis with implementation of Operations and Maintenance (O&M) and New Construction. The average annual total impacts (11.5 acres) was multiplied by the percentage of PIZ Supporting suitable habitat for a given species to estimate the permanent impacts on Modeled Habitat on an annual basis.

⁴ The sum of anticipated and potential unanticipated permanent impacts.

⁵ Numbers rounded after summation.

⁶ Total O&M and New Construction impacts divided by all Modeled Habitat within the Plan Area.

⁷ The County of San Diego Species Habitat Model for arroyo toad consist of riparian breeding habitat along the banks of a stream and non-breeding riparian habitat (i.e., riparian habitat outside the banks of a stream channel would not be considered breeding habitat). In order to estimate nonbreeding upland habitat for arroyo toad, all grassland, agriculture, coastal sage scrub, and chaparral within the Plan Area and PIZ was considered suitable nonbreeding upland habitat.

⁸ The overall extent of suitable upland habitat within the Plan Area for spadefoot is overestimated as it includes all grassland, coastal sage scrub, and chaparral within the Plan Area and PIZ regardless if it is adjacent to breeding habitat.

Attachment C

**Anticipated
Temporary Species Impacts Associated with
Covered Activities**

Attachment C
Anticipated Temporary Species Impacts Associated with O&M and New Construction

(Note that anticipated temporary impacts to Modeled Habitat have been calculated to provide an approximation of the potential temporary impacts on Modeled Habitat for each Covered Species. Actual temporary impacts on Covered Species habitat would be assessed, avoided, and minimized through the existing Pre-activity Survey Report [PSR] process.)

Common Name	Scientific Name	Acres of Modeled Habitat in Service Territory (Plan Area) ¹ (Acres)	Modeled Habitat in the PIZ (Acres)	Percentage of PIZ Supporting Modeled Habitat ²	Anticipated Annual Average Temporary Impacts ³ (Acres)	Potential Unanticipated Temporary Impacts from Future Covered Activities (15% of Anticipated Average) (Acres)	Anticipated and Potential Unanticipated Annual Temporary Impacts ^{4,5} (Acres)	Total Temporary Impacts through 2050 ⁵	Percentage of Modeled Habitat Temporarily Impacted through 2050
Plants									
San Diego thornmint	<i>Acanthomintha ilicifolia</i>	43,598.13	4,959.73	10.19%	0.69	0.10	0.79	23.66	0.05%
San Diego ambrosia	<i>Ambrosia pumila</i>	9,687.10	676.83	1.39%	0.09	0.01	0.11	3.23	0.03%
Del Mar manzanita	<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	4,435.99	858.52	1.76%	0.12	0.02	0.14	4.10	0.09%
Encinitas baccharis	<i>Baccharis vanessae</i>	46,669.96	1,599.70	3.29%	0.22	0.03	0.25	7.63	0.02%
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	8,424.05	1,090.49	2.24%	0.15	0.02	0.17	5.20	0.06%
Salt marsh bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>maritimum</i> (<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>)	659.38	29.13	0.06%	<0.01	<0.01	<0.01	0.14	0.02%
Orcutt's spineflower	<i>Chorizanthe orcuttiana</i>	1,847.97	320.70	0.66%	0.04	0.01	0.05	1.53	0.08%
Otay tarplant	<i>Deinandra conjugens</i> (<i>Hemizonia conjugens</i>)	2,074.93	369.66	0.76%	0.05	0.01	0.06	1.76	0.08%
Short-leaved dudleya	<i>Dudleya brevifolia</i>	2,007.85	346.59	0.71%	0.05	0.01	0.06	1.65	0.08%
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	6,411.79	603.68	1.24%	0.08	0.01	0.10	2.88	0.04%
Willow monardella	<i>Monardella viminea</i> (<i>Monardella linoides</i> ssp. <i>viminea</i>)	14,891.11	1,464.11	3.01%	0.20	0.03	0.23	6.99	0.05%
Spreading navarretia	<i>Navarretia fossalis</i>	6,411.79	603.68	1.24%	0.08	0.01	0.10	2.88	0.04%
Dehesa beargrass	<i>Nolina interrata</i>	2,295.68	123.82	0.25%	0.02	<0.01	0.02	0.59	0.03%
California Orcutt grass	<i>Orcuttia californica</i>	4,559.70	831.83	1.71%	0.12	0.02	0.13	3.97	0.09%
San Diego mesa mint	<i>Pogogyne abramsii</i>	2,536.16	341.16	0.70%	0.05	0.01	0.05	1.63	0.06%
Otay Mesa mint	<i>Pogogyne nudiuscula</i>	691.32	115.89	0.24%	0.02	<0.01	0.02	0.55	0.08%
Invertebrates									
San Diego fairy shrimp	<i>Branchinecta sandiegonensis</i>	7,153.19	785.41	1.61%	0.11	0.02	0.12	3.75	0.05%
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	8,075.11	1,153.42	2.37%	0.16	0.02	0.18	5.50	0.07%
Laguna Mountains Skipper	<i>Pyrgus ruralis lagunae</i>	1,172.46	13.50	0.03%	<0.01	<0.01	<0.01	0.06	0.01%
Hermes copper butterfly	<i>Lycaena Hermes</i>	503,764.71	18,195.00	37.39%	2.52	0.38	2.89	86.81	0.02%
Amphibians									
Arroyo toad – breeding and nonbreeding riparian habitat ⁶	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	26,702.02	1,176.17	2.42%	0.16	0.02	0.19	5.61	0.02%
Arroyo toad – nonbreeding upland habitat ⁶	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	1,323,401.31	47,674.56	97.96%	6.59	0.99	7.58	227.46	0.02%
California red-legged frog	<i>Rana draytonii</i> (<i>Rana aurora draytonii</i>)	61,071.29	2,620.41	5.38%	0.36	0.05	0.42	12.50	0.02%
Western spadefoot – breeding habitat	<i>Spea hammondi</i> or <i>Scaphiopus hammondi</i>	39,348.14	2,159.64	4.44%	0.30	0.04	0.34	10.30	0.03%
Western spadefoot – upland habitat ⁷	<i>Spea hammondi</i> or <i>Scaphiopus hammondi</i>	1,183,765.51	37,080.81	76.20%	5.13	0.77	5.90	176.92	0.01%

Common Name	Scientific Name	Acres of Modeled Habitat in Service Territory (Plan Area) ¹ (Acres)	Modeled Habitat in the PIZ (Acres)	Percentage of PIZ Supporting Modeled Habitat ²	Anticipated Annual Average Temporary Impacts ³ (Acres)	Potential Unanticipated Temporary Impacts from Future Covered Activities (15% of Anticipated Average) (Acres)	Anticipated and Potential Unanticipated Annual Temporary Impacts ^{4,5} (Acres)	Total Temporary Impacts through 2050 ⁵	Percentage of Modeled Habitat Temporarily Impacted through 2050
Reptiles									
Southwestern pond turtle	<i>Actinemys pallida</i>	48,245.92	2,366.10	4.86%	0.33	0.05	0.38	11.29	0.02%
Coast horned lizard	<i>Phrynosoma blainvillii</i>	933,391.29	26,019.18	53.47%	3.60	0.54	4.14	124.14	0.01%
Birds									
Tricolored blackbird	<i>Agelaius tricolor</i>	21,116.41	692.87	1.42%	0.10	0.01	0.11	3.31	0.02%
Burrowing owl	<i>Athene cunicularia</i> (<i>Athene cunicularia ssp. hypugaea</i>)	218,361.64	6,519.36	13.40%	0.90	0.14	1.04	31.10	0.01%
Coastal cactus wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	133,326.07	10,895.07	22.39%	1.51	0.23	1.73	51.98	0.04%
Western snowy plover (Pacific Coast population distinct population segment)	<i>Charadrius nivosus nivosus</i> (<i>Charadrius alexandrinus nivosus</i>)	1,685.26	178.91	0.37%	0.02	<0.01	0.03	0.85	0.05%
Western yellow-billed cuckoo (western distinct population segment)	<i>Coccyzus americanus</i>	13,110.66	963.16	1.98%	0.13	0.02	0.15	4.60	0.04%
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	46,030.28	2,228.06	4.58%	0.31	0.05	0.35	10.63	0.02%
Belding's savannah sparrow	<i>Passerculus sandwichensis beldingi</i>	1,292.30	108.28	0.22%	0.01	<0.01	0.02	0.52	0.04%
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	95,162.97	7,365.30	15.13%	1.02	0.15	1.17	35.14	0.04%
Light-footed Ridgway's rail (light-footed clapper rail)	<i>Rallus obsoletus levipes</i> (<i>Rallus longirostris levipes</i>)	3,661.38	307.80	0.63%	0.04	0.01	0.05	1.47	0.04%
California least tern	<i>Sternula antillarum browni</i> (<i>Sterna antillarum browni</i>)	519.67	85.92	0.18%	0.01	<0.01	0.01	0.41	0.08%
Least Bell's vireo	<i>Vireo bellii pusillus</i>	36,832.29	1,798.65	3.70%	0.25	0.04	0.29	8.58	0.02%
Mammals									
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	52,039.43	574.04	1.18%	0.08	0.01	0.09	2.74	0.01%
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	2,557.00	183.00	0.38%	0.03	<0.01	0.03	0.87	0.03%

¹ County of San Diego predictive species models as modified by AECOM to extend into Orange County and include additional species covered in the HCP Amendment.

² The portion of the Probable Impact Zone (PIZ) with undeveloped habitat totals 48,665 acres.

³ Based on SDG&E historical impact trends under the Subregional Plan for the period of 1996 through 2018, an average of approximately 6.7 acres of temporary impacts are expected on an annual basis with implementation of Operations and Maintenance (O&M) and New Construction. The average annual temporary impacts (6.7 acres) was multiplied by the percentage of PIZ Supporting suitable habitat for a given species to estimate the temporary impacts on Modeled Habitat on an annual basis.

⁴ The sum of anticipated and potential unanticipated temporary impacts.

⁵ Numbers rounded after summation.

⁶ The County of San Diego Species Habitat Model for arroyo toad consist of riparian breeding habitat along the banks of a stream and non-breeding riparian habitat (i.e., riparian habitat outside the banks of a stream channel would not be considered breeding habitat). In order to estimate nonbreeding upland habitat for arroyo toad, all grassland, agriculture, coastal sage scrub, and chaparral within the Plan Area and PIZ was considered suitable nonbreeding upland habitat.

⁷ The overall extent of suitable upland habitat within the Plan Area for spadefoot is overestimated as it includes all grassland, coastal sage scrub, and chaparral within the Plan Area and PIZ regardless if it is adjacent to breeding habitat.

Attachment D

**Anticipated
Species Impacts Associated with
Wildfire Fuels Management**

Attachment D
Anticipated Species Impacts Associated with Wildfire Fuels Management

(Note that anticipated impacts to Modeled Habitat have been calculated to provide a reasonable approximation of the potential impacts on Modeled Habitat for Covered Species that may be impacted from Wildfire Fuels Management. Actual impacts on Covered Species habitat would be assessed, avoided, and minimized through the existing Pre-activity Survey Report [PSR] process and are thus expected to be lower than the potential modeled impacts detailed below.)

Common Name ¹	Scientific Name	Acres of Modeled Habitat in Service Territory (Plan Area) ² (Acres)	Modeled Habitat in the PIZ (Acres)	Percentage of PIZ Supporting Modeled Habitat ³	Anticipated Annual Average Impacts from Wildfire Fuels Management (Acres) ^{4,6}	Impacts through 2050 ^{5,6}	Percentage of Modeled Habitat Impacted by Wildfire Fuels Management through 2050 ⁷
Plants							
San Diego thornmint	<i>Acanthomintha ilicifolia</i>	43,598.13	4,959.73	10.19%	0.71	21.40	0.05%
San Diego ambrosia	<i>Ambrosia pumila</i>	9,687.10	676.83	1.39%	0.10	2.92	0.03%
Del Mar manzanita	<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	4,435.99	858.52	1.76%	0.12	3.70	0.08%
Encinitas baccharis	<i>Baccharis vanessae</i>	46,669.96	1,599.70	3.29%	0.23	6.90	0.01%
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	8,424.05	1,090.49	2.24%	0.16	4.71	0.06%
Orcutt's spineflower	<i>Chorizanthe orcuttiana</i>	1,847.97	320.70	0.66%	0.05	1.38	0.07%
Otay tarplant	<i>Deinandra conjugens</i> (<i>Hemizonia conjugens</i>)	2,074.93	369.66	0.76%	0.05	1.60	0.08%
Short-leaved dudleya	<i>Dudleya brevifolia</i>	2,007.85	346.59	0.71%	0.05	1.50	0.07%
Willow monardella	<i>Monardella viminea</i> (<i>Monardella linoides</i> ssp. <i>viminea</i>)	14,891.11	1,464.11	3.01%	0.21	6.32	0.04%
Dehesa beargrass	<i>Nolina interrata</i>	2,295.68	123.82	0.25%	0.02	0.53	0.02%
Invertebrates							
Laguna Mountains Skipper	<i>Pyrgus ruralis lagunae</i>	1,172.46	13.50	0.03%	<0.01	0.06	0.01%
Hermes copper butterfly	<i>Lycaena hermes</i>	503,764.71	18,195.00	37.39%	2.61	78.52	0.02%
Amphibians							
Arroyo toad – breeding and nonbreeding riparian habitat ⁸	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	26,702.02	1,176.17	2.42%	0.17	5.08	0.02%
Arroyo toad – nonbreeding upland habitat ⁸	<i>Anaxyrus californicus</i> (<i>Bufo microscaphus californicus</i>)	1,323,401.31	47,674.56	97.96%	6.86	205.73	0.02%
California red-legged frog	<i>Rana draytonii</i> (<i>Rana aurora draytonii</i>)	61,071.29	2,620.41	5.38%	0.38	11.31	0.02%
Western spadefoot – upland habitat ⁹	<i>Spea hammondi</i> or <i>Scaphiopus hammondi</i>	1,183,765.51	37,080.81	76.20%	5.33	160.01	0.01%
Reptiles							
Southwestern pond turtle	<i>Actinemys pallida</i>	48,245.92	2,366.10	4.86%	0.34	10.21	0.02%
Coast horned lizard	<i>Phrynosoma blainvillii</i>	933,391.29	26,019.18	53.47%	3.74	112.28	0.01%
Birds							
Burrowing owl	<i>Athene cunicularia</i> (<i>Athene cunicularia</i> ssp. <i>hypugaea</i>)	218,361.64	6,519.36	13.40%	0.93	28.13	0.01%
Coastal cactus wren	<i>Campylorhynchus brunneicapillus sandiegensis</i>	133,326.07	10,895.07	23.39%	1.57	47.01	0.04%
Western yellow-billed cuckoo (western distinct population segment)	<i>Coccyzus americanus occidentalis</i>	13,110.66	963.16	1.98%	0.14	4.16	0.03%
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	46,030.28	2,228.06	4.58%	0.32	9.61	0.02%
Coastal California gnatcatcher	<i>Polioptila californica californica</i>	95,162.97	7,365.30	15.13%	1.06	31.78	0.03%
Least Bell's vireo	<i>Vireo bellii pusillus</i>	36,832.29	1,798.65	3.70%	0.26	7.76	0.02%
Mammals							
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	52,039.43	574.04	1.18%	0.08	2.48	<0.01%

¹ Species not included within the table will not be impacted by Wildfire Fuels Management. Wildfire Fuels Management would not have direct habitat impacts on vernal pool, marsh, or beach species. Wildfire Fuels Management would also not be conducted within Pacific pocket mouse habitat.

² County of San Diego predictive species models as modified by AECOM to extend into Orange County and include additional species covered in the HCP Amendment.

³ The portion of the Probable Impact Zone (PIZ) with undeveloped habitat totals 48,665 acres.

⁴ Based on SDG&E's 2019 Pilot Study, it is assumed that up to 100 acres per year will undergo Wildfire Fuels Management over the next 30 years, and that a 7% net percent reduction of native canopy cover will be consistent, on average, over the remaining permit term; resulting in 7 acres of habitat impacts per year. The percentage of the undeveloped portion of PIZ that consisted of potentially suitable habitat for applicable Covered Species was quantified, and this percentage was multiplied by Wildfire Fuels Management annual impact estimate of 7 acres per year, to estimate the impacts on Modeled Habitat on an annual basis.

⁵ Annual average multiplied by 30 years.

⁶ Numbers rounded after summation.

⁷ Total impacts divided by all Modeled Habitat within the Plan Area.

⁸ The County of San Diego Species Habitat Model for arroyo toad consist of riparian breeding habitat along the banks of a stream and non-breeding riparian habitat (i.e., riparian habitat outside the banks of a stream channel would not be considered breeding habitat). In order to estimate nonbreeding upland habitat for arroyo toad, all grassland, agriculture, coastal sage scrub, and chaparral within the Plan Area and PIZ was considered suitable nonbreeding upland habitat. The overall extent of suitable nonbreeding habitat within the Plan Area is overestimated as it includes all agriculture, grassland, coastal sage scrub, chaparral, and riparian and wetland vegetation without consideration or restriction based on elevation or distance from the stream channel.

⁹ The overall extent of suitable nonbreeding habitat within the Plan Area for spadefoot is overestimated as it includes all grassland, coastal sage scrub, and chaparral within the Plan Area and PIZ regardless if it is adjacent to breeding habitat.



Eagle Conservation Plan

APPENDIX B

**EAGLE CONSERVATION PLAN
FOR THE
SAN DIEGO GAS & ELECTRIC COMPANY**

FINAL

May 2022

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ACRONYMS AND ABBREVIATIONS

APLIC	Avian Power Line Interaction Committee
APP	Avian Protection Program
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
C.F.R.	Code of Federal Regulations
CAL FIRE	California Department of Forestry and Fire Protection
CDFW	California Department of Fish & Wildlife
CPUC	California Public Utilities Commission
DDT	Dichloro-Diphenyl-Trichloroethane
EA	Environmental Assessment
EAA	Eagle Awareness Area
ECP	Eagle Conservation Plan
EIS	Environmental Impact Statement
EMU	eagle management unit
ESA	Endangered Species Act
GIS	Geographic Information System
GO	General Order
HCP	Habitat Conservation Plan
LAP	Local Area Population
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NPS	National Park Service
O&M	operations and maintenance
OP	Operational Protocol
PIZ	Probable Impact Zone
PRC	Public Resources Code
REA	Resource Equivalency Analysis
ROW	Right-of-Way
SDG&E	San Diego Gas & Electric
SRA	State Responsibility Areas
U.S.C.	U.S. Code
UAS	Unmanned Aircraft System
USFWS	U.S. Fish & Wildlife Service

GLOSSARY OF DEFINED TERMS

No.	Term	Definition
1.	Alternate Nest	One of potentially several eagle nests within a nesting territory that is not an in-use nest at the current time. When there is no in-use nest, all nests in the territory are alternate nests. 50 C.F.R. § 22.3.
2.	Amendment or HCP Amendment	The 2022 SDG&E Habitat Conservation Plan Amendment to its 1995 Subregional Natural Community Conservation Plan/Habitat Conservation Plan to the United States Fish & Wildlife Service (USFWS) and California Department of Fish & Wildlife (CDFW).
3.	Avian Power Line Interaction Committee (APLIC)	An organization that 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. SDG&E is a member of APLIC.
4.	Avian Protection Program	SDG&E's program of retrofitting existing facilities to make them avian safe for large birds such as eagles and other raptors. Retrofitting can be accomplished by (1) relocating conductors on a cross arm or on the pole; (2) lengthening a cross arm; (3) installing nest platforms; (4) placing covers over conductors and wires; (5) modifying the location of jumper wires; and/or (6) insulating wiring and other components of transformers. Under its Avian Protection Plan, SDG&E undertakes proactive pole retrofits and reactive pole retrofits, as defined herein.
5.	APLIC Guidance	Guidance documents developed by APLIC identifying causes and minimization methods for avian electrocutions and collisions.
6.	Compensatory Mitigation	Under the 2016 Eagle Rule, compensatory mitigation is required only where the permitted take is inconsistent with management goals. Compensatory mitigation may also be required when available data indicates that the cumulative, unauthorized fatalities of a Local Area Population exceeds 10%. Under this ECP, compensatory mitigation is allowable in lieu of short-term or long-term retrofits for golden eagles; compensatory mitigation is not required for bald eagles.

No.	Term	Definition
7.	Disturb	To agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. 50 C.F.R. § 22.3.
8.	Eagle Awareness Areas (EAAs)	Screening tool used by SDG&E for projects when they are submitted for internal environmental review; consists of a 1-mile polygon placed around each golden eagle and bald eagle breeding record location.
9.	Eagle Conservation Plan Area (ECP Area)	SDG&E's approximately 4,100-square-mile service area as depicted on the map attached to this ECP as Figure 1.
10.	Eagle Conservation Plan Guidance (ECP Guidance)	Eagle Conservation Plan Guidance Module 1 Land Based Wind Energy Version 2. Division of Migratory Bird Management. April 2013.
11.	Eagle Management Unit (EMU)	A geographically bounded region within which permitted take is regulated to meet the management goal of maintaining stable or increasing breeding populations of bald or golden eagles. 50 C.F.R. § 22.3.
12.	Eagle Nest	Any assemblage of materials built, maintained, or used by bald eagles or golden eagles for the purpose of reproduction. 50 C.F.R. § 22.3.
13.	Eagle Preservation Standard	The term used to describe BGEPA's requirement that any authorized take of eagles be "compatible with the preservation," of bald eagles and golden eagles, which USFWS defined as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units and the persistence of local populations throughout the geographic range of each species."
14.	Existing Access Roads	A maintained or unmaintained dirt road in a natural or agricultural area.
15.	Facilities	Those electric facilities that are part of SDG&E's operations as a public utility, whether owned or operated by SDG&E, as described in Section 2.2 of this ECP.
16.	Fuels Modification	The suite of activities used by SDG&E as part of its Wildfire Fuels Management Program to reduce fire fuel load around distribution and transmission lines within the ECP Area.

No.	Term	Definition
17.	In-use nest	A bald or golden eagle nest characterized by the presence of one or more eggs, dependent young, or adult eagles on the nest in the past 10 days during the breeding season. 50 C.F.R. § 22.3; see <i>Programmatic Environmental Impact Statement for the Eagle Rule Revision</i> , United States Department of the Interior, Fish and Wildlife Service, December 2016 (“breeding begins... with the start of courtship...”).
18.	Incidental take	Eagle take that is associated with, but not the purpose of, an activity. 50 C.F.R. § 22.26.
19.	Mitigation	Short-term and long-term retrofits required to offset take of <i>golden eagles</i> as outlined in this ECP.
20.	Nesting territory	The area that contains one or more eagle nests within the home range of a mated pair of eagles, regardless of whether such nests were built by the current resident pair. 50 C.F.R. § 22.3.
21.	Operational Protocols	Those procedures detailed in Section 5.1 of SDG&E’s Habitat Conservation Plan Amendment, and as adapted for Section 5.2 of this ECP, that are designed to avoid, minimize, and mitigate impacts from activities by providing an environmentally sensitive approach to SDG&E’s day-to-day operations, including traditional utility construction, maintenance, and repair activities.
22.	Potential nest disturbance	Incursion into a standard buffer that has the potential to disturb nesting eagles.
23.	Proactive pole retrofits	Retrofits undertaken by SDG&E pursuant to its Avian Protection Program when new poles are installed, or existing poles are replaced, with the goal of creating an avian safe electric system as part of normal operations and maintenance planning.
24.	Probable Impact Zone (PIZ)	The defined area where future operations and maintenance and new construction is reasonably likely to occur, which captures and extends around all components associated with existing linear infrastructure, including poles and towers, guy wires, and gates, and 50 feet beyond existing substations. Overlapping PIZ polygons were merged into a single boundary using geographic information system (GIS) software. The PIZ encompasses 352,909 total acres in the ECP Area, as depicted on the map attached to this ECP as Figure 1. The PIZ represents approximately 12.5% of SDG&E’s overall service area and was developed to derive take estimates of bald and golden eagles for SDG&E’s service area.

No.	Term	Definition
25.	Public road	A road that is not used exclusively by SDG&E, which generally means a paved road or street that is maintained for public use and/or which the public has the right to use.
26.	Reactive pole retrofits	Retrofits undertaken by SDG&E pursuant to its Avian Protection Program when a facility is implicated in the electrocution of a migratory bird (i.e., a raptor, eagle, or other large bird) and the incident facility where the electrocution event occurred is made avian safe to prevent further electrocutions.
27.	Regional Guidance	USFWS's guidance on recommended buffer zones for ground-based human activities around nesting sites of golden and bald eagles in California.
28.	Resource Equivalency Analysis (REA)	USFWS worksheets used to calculate the number of utility pole retrofits required to offset estimated impacts to golden eagle and bald eagle.
29.	SDG&E access roads	The 1,340 miles of roads that are exclusively owned and/or maintained by SDG&E to access transmission facilities in natural areas.
30.	Take	To pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. 50 C.F.R. § 22.3.

1.0 INTRODUCTION

San Diego Gas & Electric Company (SDG&E) is a California investor-owned utility company providing natural gas, electricity, and other services to customers within its 2,815,930-acre service area (Figure 1), which includes San Diego County, portions of Orange County, and Riverside County (Moreno Compressor Station only). SDG&E's ability to provide these services depends upon the operations and maintenance (O&M) of an evolving array of utility facilities located throughout its service area. SDG&E performs regular maintenance and repair of these facilities to prolong their useful life and to ensure safe and reliable utility services. Both new and existing facilities are subject to the regulatory authority and requirements of the California Public Utilities Commission (CPUC), and various other federal and state agencies.

This Eagle Conservation Plan (ECP) supports SDG&E's application for an amended incidental take permit under Endangered Species Act (ESA) Section 10(a)(1)(B) and has been developed as part of SDG&E's Habitat Conservation Plan (HCP) Amendment.¹ It provides the information necessary to include golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) as Covered Species under the HCP Amendment and is consistent with the Bald and Golden Eagle Protection Act (BGEPA) and its implementing regulations (16 U.S. Code [U.S.C.] § 668 and 50 Code of Federal Regulations [C.F.R.] § 22). SDG&E developed this ECP in consultation with the U.S. Fish & Wildlife Service (USFWS) in accordance with BGEPA, its implementing regulations, and USFWS's Final Rule (December 16, 2016), which revised regulations that govern USFWS's eagle take permit program (50 C.F.R. Parts 13 and 22 and 81 Fed. Reg. 91,494) (2016 Eagle Rule; USFWS 2016a, 2016b).

The ECP also considered recommendations in the USFWS *Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy Version 2* (ECP Guidance; USFWS 2013), in consultation with USFWS. USFWS developed its ECP Guidance for wind energy projects as a vehicle to address permit requirements. USFWS has recognized, however, that with modification, the ECP Guidance may be applied to other types of projects. SDG&E also incorporated the USFWS Southwestern U.S. Region guidance documents pertaining to disturbance avoidance at eagle nests (Regional Guidance; USFWS 2017a, 2017b), and additional guidance documents developed by the Avian Power Line Interaction Committee (APLIC) identifying causes and minimization methods for avian electrocutions and collisions (APLIC Guidance; APLIC 2006, 2012, 2014, 2018).

The ECP is organized around the five stages recommended in the ECP Guidance for developing an ECP. Because the ECP Guidance was designed for use with wind projects at the earliest conceptual planning stage, however, it was not perfectly applicable to an operational utility system. Accordingly, this ECP was modified to apply to SDG&E.

¹ Applicants seeking an incidental take permit under Section 10(a)(1)(B) of the Endangered Species Act (ESA) can choose to include bald and golden eagles on an incidental take permit for a Habitat Conservation Plan (HCP). Doing so confers take authorization under the Bald and Golden Eagle Protection Act (BGEPA) without the need for a separate permit.

The five stages of this ECP, as modified from the ECP Guidance, are included in the following Sections:

- Section 3, “Assessment of Eagle Use (Stages 1 and 2)”
 - Stage 1—assessment of eagle use on a landscape scale
 - Stage 2—obtaining site-specific data to predict eagle fatality rates and disturbance take
- Section 4, “Estimating Impacts to Eagles (Stage 3)”
 - Stage 3—using available eagle data to estimate an annual eagle fatality rate and consider possible effects from disturbance
- Section 5, “Avoidance and Minimization (Stage 4)”
 - Stage 4—identify and evaluate conservation measures to minimize impacts to eagles and, where necessary, identify mitigation; and
- Section 6, “Mitigation and Monitoring (Stage 5)”
 - Stage 5—monitoring of mitigation and annual eagle fatality rates

The anticipated permit term for the proposed incidental take permit is 30 years. Once issued, the eagle permit would allow incidental take of golden eagles and bald eagles from electrocutions and collisions with existing facilities and from nest disturbance or nest removal.

1.1 PURPOSE OF THE EAGLE CONSERVATION PLAN

This ECP assesses eagle use in the ECP Area and evaluates, using bald and golden eagle data from the SDG&E service area, three main sources of potential impacts to eagles: (1) disturbance to eagle nests located near work areas, (2) fatalities from electrocution or collision when eagles interact with infrastructure, and (3) removal of eagle nests for reasons of safety or operational hazards and to avoid potential future impacts to eagles that establish new nests on or near infrastructure. In addition, this ECP provides a framework for avoiding and minimizing eagle fatalities from interactions with SDG&E infrastructure and potential disturbance related to SDG&E activities, and mitigating impacts that cannot practicably be avoided, when required under BGEPA.

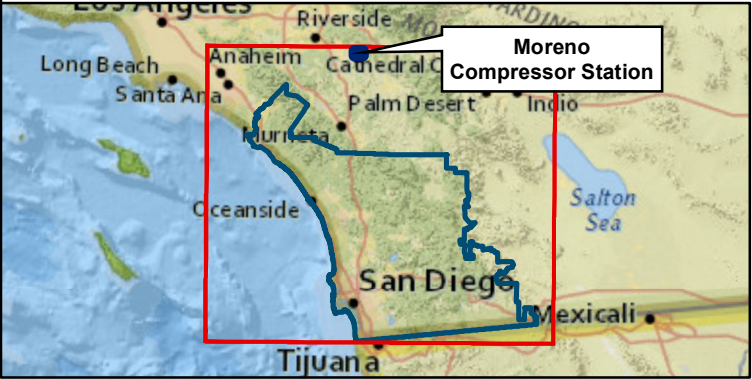
To assess potential nest disturbance, this ECP considered both the proximity of nests to electric facilities and potential occupancy of known eagle nests. As SDG&E continues its resiliency efforts in high-fire threat areas, it will continue to balance the potential for working near in-use eagle nests with its efforts to fire harden the utility system ahead of wildfire seasons. To that end, the ECP outlines SDG&E’s approach to managing potential nest disturbance that could result in injuries to an eagle, a reduction in productivity, or nest abandonment.

SDG&E Service Territory/Eagle Conservation
Plan Area and
Probable Impact Zone
Figure 1

- Legend**
- SDG&E Service Territory/Eagle Conservation Plan Area (ECP Area)
2,815,930 Acres
 - PIZ within SDG&E Service Territory
352,909 Acres



Data Date: 03/13/2020 Version Date: 8/1/2023



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To estimate potential eagle fatalities from electrocution and calculate appropriate mitigation, the ECP correlated eagle electrocutions to electric outage reports. Eagle collisions with utility infrastructure are difficult to model or estimate with confidence. As a result, the ECP acknowledged incidental take from collisions as a potential means of incidental take and prescribed mitigation for such take if it occurs.

Because eagles may possibly establish nests in locations that impose a safety or operational hazard, this ECP also evaluated the potential need to remove eagle nests. Although SDG&E has not in the past removed eagle nests, this ECP calculated a conservative estimate of the maximum number of nest removals with appropriate levels of mitigation per removal. (Also see Sections 4.1.3 and 4.2.3 of this ECP.)

1.2 REGULATORY FRAMEWORK

USFWS is charged with implementing statutes that protect eagles, including BGEPA and the Migratory Bird Treaty Act (MBTA). Additionally, discretionary federal activities that affect eagles—including the issuance of an eagle permit—may be subject to review under the National Environmental Policy Act (NEPA). These acts and their associated regulations are discussed in turn below.

1.2.1 Bald and Golden Eagle Protection Act

BGEPA (16 U.S.C. § 668 and 50 C.F.R. § 22) prohibits unauthorized take of bald or golden eagles, including their parts, nests, or eggs. BGEPA defines take as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Disturb is further defined in 50 C.F.R. § 22.3 to mean “to agitate or bother a bald or golden eagle to a degree that it causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.”

BGEPA authorizes USFWS to issue eagle take permits when the take is compatible with the preservation of each eagle species, defined as “consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units (EMUs) and the persistence of local populations throughout the geographic range of each species” (USFWS 2016b).

Under BGEPA, USFWS may, upon receipt of an application and in accordance with the issuance criteria of its regulations, issue a permit authorizing any person to take alternate golden eagle nests during a resource development or recovery operation if the taking is compatible with the preservation of golden eagles. 50 C.F.R. § 22.25. In addition, USFWS may authorize take of bald eagles and golden eagles where the take is compatible with the preservation of the bald eagle and the golden eagle; is necessary to protect an interest in a particular locality; is associated with, but not the purpose of, the activity; and cannot practicably be avoided. *Id.* § 22.26.

USFWS also may issue a permit to authorize removal or relocation of (i) an in-use or alternate nest where necessary to alleviate an existing safety emergency, or to prevent a rapidly developing safety emergency that is otherwise likely to result in bodily harm to humans or eagles while the nest is still in use by eagles for breeding purposes; (ii) an alternate nest when the removal is necessary to ensure public health and safety; (iii) an alternate nest, or an in-use nest prior to egg-laying, that is built on a human-engineered structure and creates, or is likely to create, a functional hazard that renders the structure inoperable for its intended use; or (iv) an alternate nest, provided the take is necessary to protect an interest in a particular locality and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a net benefit to eagles.

1.2.1.1 2009 Eagle Rule

USFWS published a Final Rule on September 11, 2009, to authorize limited issuance of standard permits (i.e., for individual instances of take) and programmatic permits (i.e., for recurring take) to take bald and golden eagles during otherwise lawful activities (74 Fed. Reg. 46,836) (2009 Eagle Rule). In February 2011, USFWS issued the first version of the ECP Guidance to help project developers assess, mitigate, and monitor the adverse effects of wind energy projects on bald and golden eagles (USFWS 2011a). As noted above, the ECP Guidance provides project developers with a five-stage, iterative process to assess a project's potential risk to eagles. USFWS published a second version of the ECP Guidance in April 2013 (USFWS 2013). In December 2013, USFWS published a final rule that extended the maximum term for programmatic permits to 30 years and increased administrative fees for processing programmatic permit applications (78 Fed. Reg. 73,704) (December 2013 Amendment).

1.2.1.2 2016 Eagle Rule

On December 16, 2016, USFWS published a Final Rule that revises agency regulations for eagle incidental take and take of eagle nests (50 C.F.R. Parts 13 and 22 and 81) (2016 Eagle Rule).² Among other things in the 2016 Eagle Rule, USFWS: modified the "preservation standard" of BGEPA and codified the new definition at 50 C.F.R. § 22.3; and standardized requirements for compensatory mitigation.³

² This is the second update to the 2009 Eagle Rule, following the December 2013 Amendment and a 2015 U.S. District Court for the Northern District of California decision, *Shearwater v. Ashe*, Case No. 14-CV-02830-LHK, setting aside and remanding the amendment to USFWS for further environmental review. The 2016 Final Eagle Rule reinstates the 30-year permit term maximum, along with several other significant changes to the 2009 Eagle Rule (USFWS 2016a, 2016b).

³ BGEPA requires that any authorized take of eagles be "compatible with the preservation" of bald eagles and golden eagles. This clause is commonly referred to as the BGEPA "preservation standard." The Final Rule revised this standard to mean "consistent with the goals of maintaining stable or increasing breeding populations in all EMUs and the persistence of local populations throughout the geographic range of both species." To achieve the goal of persistence of local populations, the Final Rule incorporated a local area population (LAP) cumulative effects analysis, previously included in ECP Guidance, into the permit issuance criteria. To issue an eagle take permit, USFWS must find that cumulative authorized take does not exceed 5% of the LAP, or alternatively, demonstrate why allowing take to exceed this 5% limit is still compatible with the preservation of eagles (USFWS 2016a, 2016b). Under the 2016 Eagle Rule,

1.2.2 Migratory Bird Treaty Act

The MBTA (16 U.S.C. § 703) enacts the provisions of treaties between the United States, Canada (originally as Great Britain), Mexico, Japan, and Russia (originally as the Soviet Union) and prohibits take of migratory birds, including their occupied nests, eggs, and parts. Take is defined by the MBTA as “pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect” (50 C.F.R. § 10.12). Avian species protected by the MBTA are listed in 50 C.F.R. § 10.13. Most avian species that occur in the ECP Area and vicinity, including the golden and bald eagle, are protected under the MBTA.

1.2.3 National Environmental Policy Act

NEPA requires federal agencies to analyze the environmental impacts of their actions and include public participation in the planning and implementation of their actions (42 U.S.C. §§ 4321, *et seq.*). Issuance of the eagle incidental take permit by USFWS under BGEPA constitutes a discretionary federal action that may be subject to NEPA.

Under NEPA, USFWS must evaluate the effects of its proposed action and prepare one of the following: (1) a categorical exclusion; (2) an environmental assessment (EA); or (3) an environmental impact statement (EIS). A categorical exclusion is appropriate for “a category of actions which do not individually or cumulatively have a significant effect on the human environment.” 40 C.F.R. § 1501.4. An EA is a concise document that provides “sufficient evidence and analysis” to determine whether a proposed action will create a significant effect on the environment. 40 C.F.R. § 1508.9. If a proposed action will not create a significant effect, the EA results in a “Finding of No Significant Impact” (or FONSI), which briefly presents the reasons why the proposed agency action will not have a significant impact on the human environment. *Id.* An EIS would be required if the proposed action will “significantly affect [] the quality of the human environment.” 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.4.

1.2.4 Endangered Species Act

The ESA was enacted in 1973 to protect plant and animal species that are in danger of or threatened with extinction. Section 9 of the ESA and its implementing regulations prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval, via an incidental take permit under Section 10(a)(1)(B) of the ESA, or an incidental take statement under Section 7 of the ESA. The ESA defines

compensatory mitigation is required only where the permitted take is inconsistent with management goals. Compensatory mitigation may also be required when available data indicate that cumulative unauthorized fatality exceeds 10% of the LAP. Because take limits for golden eagles are set at zero throughout the United States, all permits for golden eagle take must incorporate compensatory mitigation, which must be designed to offset take at a 1.2 to 1 mitigation ratio. Compensatory mitigation for bald eagles would not be required so long as take levels remain below the applicable EMU take limit and cumulative authorized take does not exceed 5% of the LAP, or if available data indicate that cumulative unauthorized fatality exceeds 10% of the LAP.

“take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The terms “harass” and “harm” used in the definition of “take” in the ESA are further defined at 50 C.F.R. § 17.3.

Section 10(a)(1)(B) of the ESA establishes a process for obtaining an incidental take permit that authorizes nonfederal entities to incidentally take federally listed wildlife or fish, subject to certain conditions. Per the ESA, incidental take is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” ESA Section 10(a)(1)(B) requires that the effects of authorized incidental take be minimized and mitigated to the maximum extent practicable, that the effects not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and that adequate funding for a plan must be ensured. Preparation of a conservation plan (HCP) is required for all Section 10(a)(1)(B) (i.e., incidental take permit) permit applications.

Application requirements, issuance criteria, and permit conditions for an incidental take permit are described at 50 C.F.R. § 17.22(b)(1) through (b)(3), respectively, and include specific requirements for a conservation plan. Applicants can choose to include bald and golden eagles on an incidental take permit for an HCP. Doing so also confers take authorization under BGEPA (50 C.F.R. § 22.11) without the need for a separate permit.

1.2.5 Regulations Governing the Management of Trees and Plants Near Power Lines

The following regulations govern vegetation management work at SDG&E.

CPUC General Order 95. Addresses requirements for all primary and secondary distribution and transmission overhead electric conductors. Issued by the CPUC, requires a year-round clearance below power lines of a minimum 18 inches. New fire safety regulations require a minimum clearance of 4 feet year-round for high-voltage power lines in the CPUC-designated High Fire-Threat Districts.

SDG&E is required to establish and implement an auditable maintenance program for its facilities and lines for the purpose of ensuring that they are in good condition to conform to the rules under General Order No. (GO) 95 (May 2018). Auditable maintenance programs must include, at a minimum, records that show the date of the inspection, type of equipment/facility inspected, findings, and a timeline for corrective actions to be taken following the identification of a potential violation of GO 95 or a Safety Hazard on the company’s facilities.

California Public Resources Code (PRC) 4292. Addresses poles and towers with specific types of equipment (subject poles) on distribution and transmission overhead electric facilities in State Responsibility Areas (SRAs) and some select Local Responsibility Areas (LRAs) during fire season. PRC 4292 is administered by the California Department of Forestry and Fire Protection (CAL FIRE). It requires that SDG&E maintain a firebreak of at least 10 feet in radius of a utility pole, with tree limbs within the

10-foot radius of the pole being removed up to 8 feet above ground. From 8 feet to conductor height requires removal of dead, diseased, or dying limbs and foliage.

California PRC 4293. Addresses primary distribution and transmission overhead electric conductors in SRAs during fire season. PRC 4293, administered by CAL FIRE, requires a 4-foot minimum clearance be maintained for power lines between 2,400 and 72,000 volts, and a 10-foot clearance for conductors 115,000 volts and above. PRC 4293 also requires the removal of dead, diseased, defective, and dying trees that could fall into the lines.

CPUC Resolution ESRB-4. Following the Governor's January 2014 Drought State of Emergency Proclamation, the CPUC issued Resolution ESRB-4. The resolution directs utilities to take practicable measures necessary to reduce the likelihood of fires. Those measures include increasing vegetation inspections; removing hazardous, dead, and sick trees and other vegetation near electric power lines and poles; sharing resources with CAL FIRE to staff lookouts adjacent to the utilities' property; and clearing access roads under power lines for fire truck access.

North American Electric Reliability Corporation Standard – FAC 003-4. This standard is a Federal Energy Regulatory Commission (FERC)-approved standard implemented to eliminate transmission outages and resulting blackouts due to vegetation contact. The standard applies to all utilities across the United States and directs them to manage vegetation clearances between trees and power lines to ensure the reliable operation of the transmission system. The standard applies to transmission line voltages carrying 200,000 volts and higher and certain lower-voltage transmission lines identified as critical by the Western Electric Coordinating Council.

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2.0 PROJECT DESCRIPTION

This section describes the types of facilities SDG&E constructs, operates, and maintains within the ECP Area (Section 2.1) and the types of activities that occur in those areas (Section 2.2). SDG&E activities related to these facilities are described below to provide an overview of the types of O&M activities occurring within electric utility corridors. These activities do not result in electrocutions or collisions, but some activities may have the potential to result in disturbance that could lead to injury of an eagle, reduction in productivity, or nest abandonment. Additionally, the area in which SDG&E construction and O&M activities are expected to occur over the 30-year permit term is characterized and defined as the Probable Impact Zone (PIZ) (Section 3.1). While this ECP assesses potential impacts to bald and golden eagles in the ECP Area and how those risks can be avoided, minimized, and mitigated when legally authorized by the appropriate entity (i.e., CPUC, GO 131-D, etc.), approval of this ECP and the issuance of an eagle take permit do not authorize any activities within this project description.

2.1 ELECTRIC UTILITY CORRIDORS

Although a good portion of SDG&E's easements are located within urbanized areas, many large easement corridors cross through and connect biologically sensitive and diverse areas. In addition, several substations adjoin high quality habitat. Provided below are brief descriptions of the types of easement corridors typical for SDG&E facilities, including electric distribution, electric transmission, and substation properties.

2.1.1 Electric Distribution and Easement Corridors

Aboveground (i.e., overhead) and underground electric distribution easements are typically 12 feet in width or narrower. Overhead facilities typically consist of power poles (i.e., wood, fiberglass, and steel poles) located in the center of the easement with attachments such as guy anchors, circuit switches, stubs and anchors, wires, and communication cables. Underground facilities may consist of ground-level transformers and manholes or hand holes to provide access for repairs and maintenance. Access routes to these facilities are not usually maintained, enabling the habitat to recover.

2.1.2 Electric Transmission Easement Corridors

Overhead and underground electric transmission easements are typically 20 feet in width or greater. Aboveground facilities typically consist of utility poles, two-pole structures, tubular steel poles, or lattice steel towers. Corridors that are 20 feet in width contain a single pole line, while corridors greater than 100 feet in width could contain as many as five individual transmission lines and multiple towers or poles. Underground electric transmission lines may consist of ground-level transformers and manholes or hand holes to provide access for repairs and maintenance. Access routes to these facilities are typically provided via SDG&E-maintained access roads to inspect and maintain the utility structures as mandated by the CPUC for safe and reliable service.

2.1.3 Electric Substations

Electric substations are located along or at the terminus of electric easement corridors and are usually surrounded by landscaped areas or open space areas. Storage facilities may be associated with, and located nearby or adjacent to, electric substations.

2.2 SDG&E ACTIVITIES AT ELECTRIC TRANSMISSION AND DISTRIBUTION FACILITIES

SDG&E activities on fee-owned properties, easements, and Rights-of-Way (ROWs) make up electric utility corridors where O&M of SDG&E facilities occur. Electric transmission and distribution facilities are utilized in the transmission and distribution of electricity. Generally, overhead conductors (wires) are supported by wood, fiberglass, or steel poles, or by lattice steel towers. O&M refers to construction work to operate, maintain, repair, modify, relocate, or upgrade existing facilities. During the eagle permit term, SDG&E activities will include operating, maintaining, repairing, and upgrading its existing system. As an investor-owned utility company, SDG&E activities described herein would be undertaken when necessary to maintain and provide service in a safe and reliable manner in compliance with the CPUC and/or other state and federal requirements.

New construction occurs where SDG&E is expanding or extending electric facilities to provide safe and reliable energy to the region. Going forward, SDG&E anticipates building new facilities (i.e., new construction) at a far lower rate than prior decades. Accordingly, in future years, SDG&E activities will be predominantly maintaining, repairing, and upgrading its existing system.

2.2.1 Routine Operations and Maintenance

2.2.1.1 Replacement of Structures

Steel lattice towers are installed using concrete or micropile foundations. Wood, fiberglass, or steel poles are installed using direct burial, concrete or micropile foundations. Maintenance will be performed, and repairs may be required, to address corrective maintenance issues in a foundation or transmission structure caused by erosion, damage, or age.

2.2.1.2 Replacement of Electrical Equipment on Structures

Towers and poles support a variety of electrical equipment, including insulators, switches, fuses, transformers, and conductors. Pole equipment such as transformers, fuses, and switches are attached directly to poles, or to arms mounted on the structures. Pole equipment is installed by workers who climb the structure or access the structure in bucket trucks/cranes.

2.2.1.3 Insetting Poles

Pole inseting places poles in-line between existing structures. The new poles provide additional strength to support new or heavier conductors. The new poles are also used to achieve necessary wire clearances from the belly of the wire to the ground, consistent with applicable standards and regulations.

2.2.1.4 Equipment Repair and Replacement

Poles or towers may support a variety of equipment such as conductors, insulators, switches, transformers, lightning arresters, line junctions, and other electrical equipment. This type of equipment may need to be added, repaired, or replaced to maintain uniform, adequate, safe, and reliable service. Due to damage or required upgrades and modifications, an existing transmission structure such as a wood pole is often replaced with a larger and stronger structure at the same location. This could also include replacing existing wood poles with steel poles for fire hardening purposes.

2.2.1.5 Pole Anchors and Stubs

Anchors, guy wires, and stubs (i.e., typically a short length of a wood pole) are used to support poles. Generally, one end of a guy wire attaches to the upper portion of a wood pole. The other end attaches to the top of a stub pole or to an anchor buried in the ground. These anchors can be in or out of alignment with the pole line. To maintain pole stability, new anchors or stubs, or replacement anchors or stubs may be needed. Stubs can be made of wood, fiberglass, or steel and sometimes require concrete foundations.

2.2.1.6 Insulator Washing

In some areas prone to atmospheric moisture, condensation combines with dust on insulators and can create an electrical discharge. This discharge, known as “arcing,” poses a significant risk of service outages and/or can be a source of possible fire ignition. This risk can be substantially reduced by periodic washing of the insulators. The process of washing insulators involves driving a water truck or flying a helicopter to within 60 feet of the facility. A high-pressure hose is used to spray water at the insulator.

2.2.1.7 Staging and Other Work Areas

The disturbed areas within the property line of a substation or fee-owned property may be used as a staging area for the temporary storage of large equipment used in construction and maintenance activities. These properties may also serve as equipment turn-around areas, wire pulling sites, equipment parking, assembly, and storage sites. Staging areas are used for equipment lay-down areas and pads for equipment positioning during construction. SDG&E also routinely leases sites for the same purposes of staging equipment and vehicles.

2.2.1.8 Geotechnical Testing and Remediation

Geotechnical tests are conducted to determine soil stability, depth of water table, and engineering design values, and for the presence of hazardous waste. Testing may involve sample drilling, monitoring wells, excavation pits, or trenches. Geotechnical remediation is necessary when geotechnical failure is imminent or has occurred and threatens the integrity of a facility such as a transmission line or substation. Preventative maintenance includes slope reconstruction and the repair or addition of drainage structures and retaining walls. Access is needed to various sites proposed for electrical substations for the purpose of obtaining engineering design information on the soils.

2.2.1.9 Pest Control

Pest control at electric facilities may be necessary to ensure system integrity. Facilities that may require pest control are electric substations, utility equipment yards, and various storage facilities. Non-native rats, mice, and other rodents have been known to cause electrical outages within substation transformers, chew through metering equipment, and eliminate the effectiveness of valve boxes. When necessary, pest control measures are used in accordance with the written recommendation of a licensed, registered Pest Control Advisor. Pesticides are applied by a licensed applicator in accordance with label precautions and applicable law in a manner that does not affect native plants or animals.

2.2.2 Use of Helicopters and Unmanned Aircraft Systems/Drones

Helicopters and unmanned aircraft systems (UASs; e.g., drones) are used in the visual inspection and surveying of overhead facilities. Electric lines are inspected⁴ regularly via helicopter and/or UAS. These practices are and will continue to be undertaken in compliance with applicable state and federal requirements and will be updated as these regulations are modified over time. Helicopters are also occasionally used to bring crewmembers to a worksite and deliver equipment, position poles and towers, string lines, and position aerial markers as required by Federal Aviation Administration regulations. Additionally, helicopters and UASs may be used to efficiently gather existing site condition information that can be used for future engineering/design purposes associated with existing or siting of new facilities.

2.2.3 Vegetation Management

Vegetation management plays a critical role in maintaining reliable and safe electric service throughout the region. Vegetation is managed within and adjacent to all SDG&E facilities including but not limited to overhead electric lines, substations, access roads, drainage structures, and buildings. Vegetation is controlled to facilitate the construction and use of roads, allow inspection and maintenance of infrastructure and facilities, expose hazards such as ruts to drivers, eliminate noxious weeds, prevent fires, and provide safe working areas.

⁴ See, e.g., CPUC GO 95.

2.2.3.1 Mechanical Removal

The simplest method of removing vegetation is by hand, such as the removal of isolated large shrubs or trees growing in areas where roots can damage facilities or where vegetation size restricts visual inspection. Raking is a means of removal usually used to gather debris in preparation for disposal. Mowing will be used to control vegetation where low vegetation is desirable for erosion control. Clearing and/or grubbing an area of vegetation by grading will also be used where no other means are appropriate.

2.2.3.2 Herbicide Spraying

Herbicide spraying, although not commonly employed by SDG&E, may be used around buildings and where bare ground is required for fire control. The typical regimen for herbicide use includes the application of pre-emergent herbicides during the fall and winter and spot application of contact herbicides during the growing season. All herbicides are applied by a registered applicator in accordance with label precautions and applicable law. All vehicles remain on public or existing access roads. Crews access facilities off existing roads in natural areas on foot.

2.2.3.3 Fire Control Areas

SDG&E conducts ongoing vegetation removal and management around electric infrastructure to comply with CPUC GOs, PRC 4292, and other applicable laws for fire prevention or control. These fire control measures can aid in the prevention of fire caused by arcing and can protect facilities from failure due to a fire in a surrounding area.

Fire control areas around electric distribution and transmission facilities are typically 10 feet in circumference but could vary depending on site conditions and/or changes in required regulations. Structures such as substations may require up to 100 feet of brush management around the perimeter of a facility to maintain appropriate and defensible areas and otherwise comply with applicable regulations. Frequency of abatement activities will vary based on vegetation type, density, and height, and are undertaken as appropriate to ensure fire-control clearances around facilities are properly maintained. All vehicles remain on public or existing access roads. Crews access facilities off existing roads in natural areas on foot.

2.2.3.4 Fuels Modification Management

Fuels Modification reduces fire fuel load around distribution and transmission lines within the SDG&E service area. Fuels Modification Activities are conducted inside and outside of SDG&E ROWs, when determined necessary and beneficial to reduce fire risk from O&M of infrastructure. Fuels Modification serves the public interest as it reduces wildfire fuel loads in the vicinity of rural communities within high fire threat areas, which are the most vulnerable areas subject to wildfires in San Diego County. Fuels Modification may involve the thinning of select native vegetation in treatment areas with a focus on preserving habitat value and native species diversity, with the goal of creating space among thick vegetation such as shrubs to resemble an early successional state of the

vegetation community. All vehicles remain on public or existing access roads. Crews access facilities off existing roads in natural areas on foot.

2.2.3.5 Tree Trimming

Tree limb contact with electrical lines is a potential cause of power outages and is also a source of possible ignition and, as such, a potential fire hazard. SDG&E's tree trimming practices are completed annually throughout the service area, and are necessary to maintain required line clearances. Pursuant to Operational Protocol (OP) 31 (see Section 5.1.4 of the HCP), SDG&E has identified environmentally sensitive areas where tree trimming would be scheduled during non-sensitive times such as outside the bird breeding seasons to the extent feasible. Information on sensitive areas is maintained in a database managed by SDG&E's Vegetation Management group to inform tree trimming schedules and annual trimming cycles.

Annual tree trimming involves two types of activities: (1) routine pruning of required minimum clearances per state and federal mandates (GO 95, Rule 35; PRC 4293; NERC FAC-003-4), and (2) removal of hazard trees that pose a risk to the adjacent overhead electrical facilities. Routine pruning involves pruning of branches on trees within the Vegetation Management group tree inventory database. Hazard tree work or removal affects larger portions of a tree (up to, and including, complete removal) and is conducted on dead/dying trees and those with structural defects that increase the risk of electrical line contact. Routine pruning work accounts for the majority of annual tree trimming activities, with a smaller proportion targeting hazard tree removal. Tree work involves small teams (two crew members) using hand tools, such as hand saws, loppers, and chainsaws. Not all distribution and transmission lines require annual tree trimming activities as they are located in scrubland habitats where tree limb interactions with the lines are not expected to occur. All vehicles remain on paved roads or existing access roads. Crews access facilities off existing roads in natural areas on foot.

2.2.4 Access Road Repair and Maintenance

Access roads compose part of SDG&E's facilities. Cost-effective and efficient installation, maintenance, and repair of its facilities depend upon the availability of adequate access roads. Most electric transmission facilities, and some distribution facilities, require access roads. New access roads are, to the extent feasible, designed to minimize habitat impacts and direct impacts to protected species. When new access roads must be routed in undisturbed areas, they are routed in disturbed or lower quality habitat areas as determined by a qualified Biologist performing preliminary surveys. Within the ECP Area, SDG&E exclusively uses and maintains a widespread system of access roads to access SDG&E facilities. In certain areas, SDG&E access roads may be close to road networks maintained by other entities, including municipalities, state and federal agencies, and private property owners. Cut and fill slopes are constructed to create pads/foundations for utility structures or access roads. Slopes may require erosion repair.

2.2.5 Fiber Optic Lines/Telecommunications

Installation of fiber optic and other telecommunications lines and equipment requires access to existing overhead and underground facilities. Fiber optic cable or other telecommunications lines and equipment may be necessary to provide direct communication between two or more locations.

2.2.6 New Construction

The construction of new electric projects, whether electric transmission, distribution, or substations, is like that of routine O&M activities. While there may be additional requirements for land, entitlements, authorizations, approvals, and state and federal environmental reviews, new construction into areas where SDG&E currently does not have an existing facility can be anticipated to occur over the next 30 years depending on a wide range of customer demands, reliability improvements, or changes in technology. Overall, SDG&E anticipates building new facilities (i.e., new construction that expands or extends electric facilities) at a far lower rate than prior decades. Where possible, APLIC guidelines will be utilized to reduce avian electrocutions and collisions that typically occur on existing facilities. As such, bald and golden eagles are not expected to be electrocuted or collide with new facilities being constructed, and disturbance of in-use nests from new construction activities can be planned to avoid and minimize impacts through measures listed in Section 5 of this ECP.

2.2.6.1 Electric Transmission and Distribution Facilities

New electric transmission and distribution facilities will, to the extent feasible, be routed and designed to avoid and minimize habitat impacts and direct impacts to protected species. This will be accomplished by avoiding the routing of new facilities in sensitive areas and by prioritizing disturbed areas and utility compatible corridors over undisturbed areas.

2.2.6.2 Substation Siting

New substations are sited to avoid and minimize habitat impacts and direct impacts to protected wildlife. When sensitive habitats cannot be avoided, the siting of new facilities prioritizes disturbed or lower quality habitats over higher quality or undisturbed areas.

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3.0 ASSESSMENT OF EAGLE USE (STAGES 1 AND 2)

This section describes the life history, status, and range of golden and bald eagles within the ECP Area. Information presented herein is applied in Section 4 to estimate nest disturbance to breeding eagles and fatality of eagles arising from electrocution and collision.

3.1 PROBABLE IMPACT ZONE

To determine potential effects to bald and golden eagles from SDG&E facilities and activities, this ECP first established a defined area around existing SDG&E facilities, referred to hereafter as the PIZ, where future O&M and new construction were reasonably likely to occur. The PIZ was designed to capture and extend around all components associated with existing linear infrastructure, including poles and towers, guy wires, gates, and existing substations. SDG&E's facilities are extensive and have variable easements and ROW widths, which are dependent on many factors, such as underlying land ownership, year issued, voltage of the line, and potential for future expansion. To develop a more consistent and replicable analysis, standard widths were created for each type of facility and then buffered beyond that standard width to create PIZ polygons to allow for potential impacts outside of the easement or ROW (see Section 4.1.3.2 of the HCP for further details). Overlapping PIZ polygons were merged into a single boundary using GIS software. The resulting PIZ encompasses 352,909 total acres in the 2,815,930-acre ECP Area (Figure 1).

Total acreages of suitable habitat for both species within the PIZ and ECP Area, provided in Sections 3.2.4 and 3.3.4 below, respectively, were calculated. As described in Section 4, the PIZ was then used to help estimate potential nest disturbance and fatality (associated with electrocution and collision) for both bald and golden eagles within the ECP Area.

SDG&E compiled breeding records for golden and bald eagles presented below (Sections 3.2.4 and 3.3.4), respectively from various sources, including USFWS, the California Natural Diversity Database, and the U.S. Geological Survey, and were documented mainly through surveys conducted by Wildlife Resource Institute, Bloom Biological, and the U.S. Forest Service. A 1-mile polygon was placed around the location of each golden and bald eagle breeding record to create Eagle Awareness Areas (EAAs). The EAAs are used as a screening tool by SDG&E for projects when they are submitted for environmental review. For purpose of this ECP, the EAAs were used to identify SDG&E facilities in the vicinity of nesting territories.

3.2 GOLDEN EAGLE

3.2.1 Life History

In southern California, golden eagles occupy most habitat types except for densely populated urban areas, the ocean, and extensive alkali flats. Golden eagles have been detected in coastal areas and deserts, and up to 7,300 feet in higher elevation mountainous regions. Golden eagles require grassy and open shrubby habitat for foraging and consume a wide variety of prey items consisting of mammals, fish, carrion, and birds, among others; with rabbits (*lagomorph* sp.) and squirrels (*sciurid* sp.) composing the bulk of prey items typically found in nests (Bloom and Hawks 1982).

The species maintains a large breeding season nesting territory that encompasses both suitable nesting and foraging habitat. While golden eagles display a high fidelity to previously used nest sites, a breeding pair may have multiple nest locations within a nesting territory and do not necessarily utilize the same nest every year. The size and shape of golden eagle nesting territories vary with topography, abundance, and availability of prey, and even between sexes within a pair. Because this species requires extensive areas of potential foraging habitat, the home range for this species can range from 36 to 48 square miles. As with nesting territories, the specific size of the home range is relative to prey density, availability, and openness of terrain. Golden eagles will aggressively defend nesting territories or use undulating flight displays; therefore, overlap of golden eagle nesting territories is generally minimal (Kochert et al. 2002). Golden eagles typically build their nests in cliffs or in mature pine and oak trees, depending on the dominant landscape and suitable foraging areas nearby (Polite and Pratt 2015). Within San Diego County, nests are often found in rocky cliffsides and slopes and are rarely found in trees. Golden eagles may refurbish and reuse nests over the course of decades (Kochert et al. 2002). The species generally avoids nesting near populous areas and has been found sensitive to some forms of human disturbance, which can lead to reproductive failure (USFWS 2011b). Within southwestern California, golden eagle nesting densities are highest in undeveloped areas of the Cleveland National Forest. Breeding occurs from late January through August and females lay clutches of one to three eggs. Young hatch after an incubation period of 41 to 45 days and typically fledge around 10 weeks of age (USFWS 2011b).

3.2.2 Distribution, Abundance, and Trends

The golden eagle is an uncommon year-round resident in southern California. Relative to the ECP Area, historic nesting territories occurred at the following locations within San Diego and Orange Counties: Canada Gobernadora, Prado Dam, Pala, Palomar Observatory, Oceanside, Tecate, Barrett Lake, Morena Reservoir, El Cajon Mountain, San Vicente Reservoir, Rodriguez Mountain, San Pasqual, Boucher Hill, Otay Mountain, Jacumba, Sombrero Peak, Descanso, Mount Laguna, Monument Peak, Whale Peak, and Harper Canyon (CDFW 2019a). Historical nesting locations in Orange County included Laguna Niguel, San Juan Capistrano, Arroyo/Plano Trabuco, and Lemon Heights (Hamilton and Willick 1996).

In southern California, no golden eagles are known to nest west of Interstate 5 south of Los Angeles. In San Diego County, the species prefers remote locations for breeding and foraging, and primarily occupies the less populated eastern part of the county, presently nesting west of Interstate 15; the only known nests are on Marine Corps Base Camp Pendleton. In Orange County, several pairs attempt to nest in the Santa Ana Mountains and Chino Hills annually; however, these nesting attempts are usually unsuccessful (Hamilton and Willick 1996). Recent global positioning system transmitter work in southern California from 2014 through 2017 resulted in a clearer understanding of the patterns, movements, and areas of use by golden eagles in San Diego and Orange Counties (Tracey et al. 2016, 2017). Depending on the season, California golden eagle populations are composed of resident adult territorial breeders, adult floaters, locally fledged juveniles and subadults, and migrants (Tracey et al. 2017). The data from recent transmitter work show that golden eagles in San Diego County range widely within the county, with several individuals making long-distance movements out of the county south into Mexico and north into Nevada, Utah, Colorado, and beyond (Tracey et al. 2017).

Based largely on the egg collection data maintained at the Western Foundation of Vertebrate Zoology (Camarillo, California) and Thomas Scott's master's thesis at the beginning of the 20th century, the golden eagle population in San Diego County was estimated at approximately 108 pairs (Unitt 2004). From 1997 to 2001, about 50 to 55 pairs nested within the county (Unitt 2004). In 2008, San Diego County's breeding golden eagle population was estimated to be approximately 46 pairs (Aspen 2008).

3.2.3 Threats and Limiting Factors

Golden eagles have declined drastically in San Diego County due to a loss of foraging habitat from urban sprawl and development throughout. Other cumulative threats, such as human disturbance or presence near nest sites and electrocution, have also likely contributed to the decline (Unitt 2004). While not studied specifically in San Diego County, lead poisoning has been found to be pervasive in Kern County and surrounding areas (Kelly et al. 2011). Hence, preservation of large blocks of relatively undisturbed habitat is necessary for continued persistence of the species.

3.2.4 Presence in the ECP Area and PIZ

Golden eagle habitat is found throughout much of San Diego County, particularly east of Interstate 15, away from development, and where more open habitats are dominant. In the ECP Area in San Diego County, the three ecoregions with the greatest amount of golden eagle habitat are the southern foothills, northern mountains, and central foothills ecoregions. In the portion of the ECP Area that overlaps with Orange County, golden eagle habitat is mainly found in the Orange County foothill and valley ecoregion.

As stated above, 1-mile polygons were placed around each golden eagle breeding record location to create EAAs to identify SDG&E facilities in the vicinity of known nesting territories. In total, 164 golden eagle EAAs have been identified within the ECP Area, 117 of which overlap with the PIZ in San Diego County. Three of the 164 EAAs are present

within the ECP Area in Orange County but all are more than 2.5 miles north of the PIZ, in the vicinity of Trabuco Canyon.

Nesting territories in the ECP Area that also occur within the PIZ include one or more in the following general vicinities (from north to south): San Mateo Canyon, Palomar Mountain, Mendenhall Valley, Aguanga Mountains, Pamo Valley, Lake Henshaw, Bandy Canyon, Iron Mountain, San Vicente Reservoir, El Cajon Mountain, Loveland Reservoir, Bell Bluff, Lyon's Valley, Barrett Reservoir, Lawson's Peak, Morena Butte, Corte Madera Mountain, Glen Cliff/Buckman Springs, and Thing Valley. To help protect the species and keep nesting locations confidential, the specific locations of these nesting territories are not mapped or otherwise provided in this document.

3.3 BALD EAGLE

3.3.1 Life History

In southern California, bald eagles occupy wetland habitats including rivers, large lakes, marshes, reservoirs, and any other type of large body of open water where there is an adequate food supply. Bald eagles require a water source for foraging (including lakes, rivers, and oceans), as they primarily prey upon fish and waterfowl (Polite and Pratt 1999). Bald eagles are opportunistic feeders and may feed gregariously, especially on spawning fish in rivers (Polite and Pratt 1999). They are also known to eat carrion, including dead fish, deer, and cattle (CDFW 2019b).

Bald eagles are monogamous and often mate for life, repairing the same nest or using the same nesting territory annually (CDFW 2019b). A territory includes the in-use nest and may also include one or more alternate nests that are built or maintained but not used for nesting. Nesting territory size varies depending on location, abundance of food, and presence of other nearby eagles. In an area with abundant resources, a territory could be quite small; however, pairs will vigorously defend their territories from intrusion by other eagles. Nesting occurs in large, old-growth trees located near large bodies of water; however, as the breeding population of bald eagles in California expands, pairs are establishing nesting territories in areas farther from bodies of water than previously observed. Trees that provide an unobstructed view of a body of water and/or are the dominant tree in the surrounding landscape are generally favored as nesting sites. Breeding occurs from January through August and females lay clutches of one to three eggs. Young hatch after an incubation period of 34 to 36 days and often fledge after 11 or 12 weeks (CDFW 2019b; Polite and Pratt 1999). During the winter, bald eagles roost communally in dense, sheltered conifer stands (Polite and Pratt 2019).

3.3.2 Distribution, Abundance, and Trends

The bald eagle occurs as a permanent resident in portions of northern California, the central coast, inland areas of southern California, and lower elevations of the Sierra Nevada. Overwintering populations of bald eagles can be found throughout much of the state, excluding the southeastern deserts and higher elevations of the Sierra Nevada (Polite and Pratt 1999). Bald eagles primarily occur near rivers or large lakes in mountains

or open country, although they are also common along the coast. In these types of habitats, bald eagles require large old-growth trees, snags, or rocks near water sources (Polite and Pratt 1999). In San Diego County, bald eagles have been observed nesting at Lake Cuyamaca, Lake Henshaw, Corte Madera, and Lake Wohlford, and in the Ramona grasslands (Jones 2018). In Orange County, bald eagles have been documented nesting near Laguna and near Irvine Lake, but both are outside the ECP Area (Hamilton and Willick 1996; Sahagun 2019).

Bald eagle populations experienced significant declines throughout the late 19th and early 20th centuries. Bald eagles were commonly perceived as a threat to livestock and were often shot as part of typical farming practice. Coupled with the loss of nesting habitat and use of dichloro-diphenyl-trichloroethane (DDT) as a pesticide to control mosquitos and other insects, the species declined to near extinction. From 1972 through 1982, breeding populations in California were restricted to eight counties in the northern portion of the state. While there were no successful breeding bald eagles in San Diego County as of 2002 (Unitt 2004), SDG&E has observed and reported on successful breeding bald eagles near Lake Henshaw in the 2019–2020 breeding season.

Today, bald eagles have made an impressive recovery due in part to the ban on DDT, enforcement of protective laws prohibiting the killing of individuals and harm to nests, and improved water quality in many lakes and rivers. Populations have rebounded due to recovery efforts throughout the late 20th century, and breeding pairs are now found in 41 of California's 58 counties (CDFW 2019b). Numbers in California are on the rise, and the number of breeding pairs known to be occupying territories in California is steadily growing. Along with this growth, the breeding range is expanding in California.

The recovery effort in the Channel Islands may be contributing to the recovery and increased nesting of bald eagles in San Diego County. Bald eagles were introduced to the Channel Islands by various conservation organizations over the last few decades (NPS 2020). Individuals released and/or born in the Channel Islands are likely dispersing to mainland California, including San Diego. The population in San Diego County is likely to continue to recover so long as food resources and nesting sites remain available.

3.3.3 Threats and Limiting Factors

Historically, bald eagle populations were threatened by the use of pesticides and other toxins—primarily DDT—that bioaccumulated in bald eagles and led to eggshell thinning and subsequent incubation failure. The banning of DDT in 1972 greatly reduced this threat, and bald eagle populations have been increasing ever since; however, bioaccumulation of pesticides and other toxins remains a concern (CDFW 2019b; Jurek 1988). Other cumulative threats to this species include habitat loss due to urban development, agricultural practices, and timber harvest; lead poisoning; off-road vehicle recreation and other human disturbances; electrocution and collision with utility lines and wind turbines; and direct fatality from illegal hunting.

3.3.4 Presence in the ECP Area and PIZ

In the ECP Area in San Diego County, the greatest amount of bald eagle habitat occurs in the central foothills, southern valley, and central valley ecoregions. In the portion of the ECP Area that overlaps with Orange County, the highest acreage of suitable bald eagle habitat can be found in the Orange County foothill and valley ecoregion. Within the ECP Area, bald eagles typically forage in or near water bodies such as lakes, rivers, and the ocean.

As stated above, 1-mile polygons were placed around each bald eagle breeding record location to create EAAs to identify SDG&E facilities in the vicinity of known nesting territories. In total, four bald eagle EAAs have been identified within the ECP Area, all of which are in San Diego County and overlap with the PIZ. These include nesting locations at Corte Madera, Lake Henshaw, and Lake Wohlford, and in the Ramona grasslands. No bald eagles are known to nest in the portion of the ECP Area within Orange County. To help protect the species and keep nesting locations confidential, the specific locations of these nesting territories are not mapped or otherwise provided in this document.

4.0 ESTIMATING IMPACTS TO EAGLES (STAGE 3)

This section describes the following potential impacts to eagles: (1) disturbance impacts on nesting eagles that may result in a decrease in its productivity or nest abandonment; (2) fatality from electrocution and collision; and (3) the potential nest removal during the permit period. Impacts are addressed separately, for golden eagles and for bald eagles. Quantitative estimates for nest disturbance and electrocutions are generated, based on existing information. Collision impacts and the expected number of nest removals are conservatively estimated based on qualitative factors.

4.1 GOLDEN EAGLE

4.1.1 Potential Nest Disturbance

SDG&E pre-construction, construction, or O&M activities have the potential to disturb nesting eagles. Such disturbance would amount to take under BGEPA if it causes or is likely to cause the loss of productivity at an eagle nest or nest abandonment. To ameliorate this risk, USFWS Regional Guidance recommends a 1-mile no-disturbance buffer of in-use⁵ golden eagle nests. Regional Guidance suggests that buffers may increase or decrease depending on specific site or activity circumstances (USFWS 2017a).

As described in Section 5, SDG&E will implement numerous eagle impact avoidance and minimization measures, including operating outside the eagle breeding season. In general, SDG&E's implementation of these measures will avoid impacts to nesting eagles to the maximum extent practicable. Nonetheless, in certain limited circumstances, SDG&E activities may affect golden eagles in the vicinity of the PIZ by agitating or bothering nesting eagles. For example, activities may need to be performed during the breeding season for several reasons, including in response to emergencies, meeting compliance deadlines for inspections and required corrective maintenance, or to address safety concerns. It is also possible that nesting eagles may potentially be stressed by activities occurring near a previously unknown nesting location. In these cases, SDG&E activities within 1 mile of nesting golden eagles would have the potential to disturb nesting eagles as defined under BGEPA.

4.1.1.1 Methodology to Quantify Potential Nest Disturbance

A potential nest disturbance for the purposes of implementation, tracking, mitigation, and reporting is defined herein as the incursion into a standard buffer that has the potential to disturb nesting eagles. SDG&E employed a multi-step methodology to calculate potential nest disturbance impacts over the eagle permit term. First, SDG&E assigned the

⁵ An *in-use nest* is defined as a "golden eagle nest characterized by the presence of one of more eggs, dependent young, or adult eagles on the nest in the past 10 days during the breeding season" (50 C.F.R. § 22.3) and "breeding begins... with the start of courtship..." (*Programmatic Environmental Impact Statement for the Eagle Rule Revision*, United States Department of the Interior, Fish and Wildlife Service, December 2016).

above-described EAAs to golden eagle nesting territories within the ECP Area. Each golden eagle nesting territory was then assigned a numerical score based on potential occupancy and proximity to SDG&E activities. These two scores were then multiplied together to provide an overall *disturbance factor*. Next, these disturbance factor scores were used to estimate the number of times each golden eagle nesting territory could experience disturbance with the potential to result in a decrease in productivity, or nest abandonment.

The analysis of the amount of disturbance anticipated at golden eagle breeding locations within the ECP Area over the 30-year eagle permit term began with assigning EAAs to known golden eagle nesting territories in the ECP Area. EAAs were assigned to golden eagle nesting territories based on a review of known nest site data for purposes of evaluating disturbance. Each golden eagle nesting territory consisted of one or more EAAs. Golden eagle nesting territories were included in the analysis only if they contained at least one potentially in-use nest after the year 2000. When multiple EAAs were attributed to the same golden eagle nesting territory, the 1-mile radius polygons comprising those EAAs were merged to create a single polygon for the golden eagle nesting territory, including all areas within 1 mile of alternate nest sites. This polygon was used to determine where SDG&E activities may overlap within 1 mile of a nest within a golden eagle nesting territory. Golden eagle nesting territories were not intended to represent the entire nesting territory of a golden eagle. In total, 44 golden eagle nesting territories comprising 164 EAAs within the ECP Area were evaluated.

Each golden eagle nesting territory was then evaluated and scored based on two factors: an occupancy factor and a proximity factor. For the occupancy factor, each nesting territory was evaluated based on its potential for occupancy by golden eagles, and then assigned a score from 0 (not viable/extirpated) to 3 (recently in-use). The potential for occupancy was based on the amount of time elapsed since the last documented use, based on information presented by Kochert and Steenhof (2012), Millsap et al. (2015), and Slater et al. (2017). Scores were assigned as follows:

- 0 = not viable – extirpated
- 1 = last in-use greater than 20 years ago
- 2 = last in-use 5 to 20 years ago
- 3 = last in-use 0 to 5 years ago

Proximity factor scores were assigned based on the amount of SDG&E electric infrastructure within the EAAs in each golden eagle nesting territory. First, each territory was assigned a percentile score (0.0 to 1.0) for the following three categories of facility types: non-linear features quantified in acres of area (e.g., substations), number of structures (e.g., overhead [OH] structures), and miles of linear features (e.g., OH and underground [UG] distribution lines). For each territory, the percentile score for each category was calculated by dividing the value for that territory (e.g., number of acres, number of structures, or number of linear miles), by the value of the territory with the greatest value for the same category. If the territory with the most structures had 50 structures, it was assigned a percentile score of 1.0, while another territory with 25 structures would have been assigned a percentile score of 0.5 (25/50).

Second, for each nesting territory, a single composite score representing the number of facilities within the golden eagle nesting territory was generated, which accounted for all three types of infrastructure within that nesting territory, relative to others in the analysis. This was done by calculating the average percentile score for each territory from the values associated with the three categories above. Territories were then sorted according to average percentile scores ranging from 0.0 to 1.0. Proximity factor scores were generally assigned based on the values shown in Table 1. The proximity factor score for each golden eagle nesting territory was assumed to correlate with the potential that an SDG&E activity may occur within an EAA. The assigned proximity factor scores from 0 (no SDG&E facilities within 1 mile of nests⁶) to 3 (most SDG&E facilities within 1 mile of nests) are shown in Table 1.

Table 1. Proximity of SDG&E Facilities within 1 Mile of Golden Eagle Nests

Average Percentile Score	Proximity Factor Score	Number of Facilities
0.00	0	none
> 0.00 to < 0.06	1	low
0.06 to < 0.10	2	moderate
≥ 0.10	3	high

Finally, the occupancy and proximity factor scores for each golden eagle nesting territory were multiplied together to yield an overall *disturbance factor* ranging from 0 to 9. For example, a nesting territory with an occupancy factor score of 3 and proximity factor score of 3 was assigned a disturbance factor score of 9.

4.1.1.2 Estimated Number of Potential Nest Disturbances

Disturbance scores for the 44 golden eagle nesting territories are as follows: three nesting territories scored from 7 to 9; seven nesting territories scored from 4 to 6; 13 nesting territories scored from 1 to 3; and 21 nesting territories scored 0. These disturbance factor scores were then used to estimate the number of times each golden eagle nesting territory could experience potential nesting disturbance that could result in take by “disturb[ing]” eagles as “disturb” is defined in regulations. These results outline the potential number of areas that could be disturbed to derive a number for the nest disturbance estimate. During implementation, only on the ground observations can determine what actions or activities lead to agitation and bothering, potentially resulting in take.

This process was based on an assessment of the frequency at which work typically occurs at different types of facilities and the level of disturbance associated with that work. The analysis also accounted for the fact that work could be focused outside of the eagle breeding season where possible. Based on all of these factors, disturbances from activities defined in Section 5.4.2 were estimated for each golden eagle nesting territory. The three golden eagle nesting territories scoring 7 to 9 are anticipated to experience

⁶ Evaluation of each golden eagle nesting territory included both in-use and alternate nests.

three disturbances; the seven golden eagle nesting territories scoring 4 to 6 are anticipated to experience two disturbances; the 13 golden eagle nesting territories with a disturbance score of 1 to 3 are anticipated to experience one disturbance; and the 21 golden eagle nesting territories with a disturbance factor of 0 would experience zero disturbances over the length of the eagle permit term. This translates to an estimated 36 instances of disturbance take over the 30-year eagle permit term, or six instances every 5-year period.

These estimates only account for golden eagle nesting territories and nest sites currently known in the ECP Area. It is likely that eagles already nest or will nest undetected in areas where SDG&E works during the breeding season. To account for unknown nest locations that could be detected in the future, the estimate was doubled to provide additional contingency. Therefore, a total of 72 incidents of disturbance take over the 30-year eagle permit term, or 12 incidents per 5 years, has been factored into the golden eagle nest disturbance estimate.

For the purposes of estimating nest disturbances and commensurate mitigation, each nest disturbance is assumed to result in a decrease in productivity or nest abandonment. On the ground monitoring as described in Section 6.1 will determine whether a nest disturbance resulted in a successful or unsuccessful outcome (i.e., decrease in productivity or nest abandonment). The outcomes will determine whether disturbance is counted against the eagle take permit or not.

4.1.2 Fatality

Direct fatality of golden eagles may occur due to electrocution on, or collision with, SDG&E facilities. This ECP models the risk and potential for electrocutions to occur as outlined below; collisions are not modeled to derive a take estimate. Incidental take of golden eagles via collisions is acknowledged as part of this ECP and a qualitative estimate is included below to account for that incidental take.

4.1.2.1 *Electrocution*

Electric outage data are recognized to be a coarse predictor of eagle electrocutions where (1) an outage is reported and (2) a carcass of an eagle is found at the site of the outage incident. APLIC Guidance (APLIC 2018) notes that 50% of eagle electrocutions result in power outages. Separate studies conducted by Dwyer and Mannan (2007) and Kemper et al. (2013) suggest that 10% or less of raptor electrocutions resulted in power outages in Tucson, Arizona, and Alberta, Canada, respectively. These studies suggest that it is reasonable to conclude that 10% to 50% of eagle electrocutions result in outages.

From 1996 through 2019, two golden eagle fatalities caused by direct interaction with SDG&E facilities were identified based on outage data reports tracked by SDG&E. Based on the more conservative estimate of 10% (Kemper et al. 2013), the two documented fatalities that caused outages at SDG&E facilities represent 10% of total fatalities from 1996 through 2019. Thus, it is not unreasonable to conclude 20 eagle fatalities potentially

occurred during the 23-year period from 1996 through 2019. This would translate to a rate of approximately 0.87 golden eagle electrocutions per year over 23 years (i.e., 20 golden eagles / 23 years = 0.87 golden eagles per year). Per the APLIC Guidance scenario of 50% of fatalities correlating to outages, four eagle fatalities potentially occurred over 23 years (equating to 0.17 golden eagles per year) (Table 2).

Based on the analysis of fatality data from the 23 years presented above, SDG&E estimates up to 26 golden eagle electrocution fatalities could occur within the next 30 years of this ECP (i.e., 0.87 golden eagle fatalities per year x 30 years = 26 fatalities) (Table 2).

Table 2. Estimated Golden Eagle Electrocution Fatality during the Eagle Permit Term

Historical (1996-2019) Reported Fatalities Causing Power Outages	Fatalities Correlated with Power Outages	Potential Number of Historical Fatalities (estimate)	Estimated Annual Fatality Rate	30-Year Eagle Permit Term Total Predicted Fatalities
2	0.5 ¹	4	0.17	5.2
2	0.1 ²	20	0.87	26.1

¹ APLIC Guidance (APLIC 2018) estimated that 50% of eagle electrocutions are correlated with power outages.

² Kemper et al. (2013) estimated that 10% or less of raptor electrocutions are correlated with power outages.

4.1.2.2 Collision

Incidental take of golden eagles due to collisions with SDG&E facilities may occur over the course of this ECP. Unlike the analysis of the correlation between electric outages and eagle fatalities, however, there are no well-accepted predictors for estimating eagle fatalities associated with collisions. Accordingly, while collision risks to migratory birds associated with utility infrastructure are well documented, estimating a precise number for the purposes of estimating take is elusive. However, because collisions with conductors, fiber optic cables, and other less visible wires may occur, this ECP assesses that risk qualitatively.

In general, eagle fatalities from collision with transmission or distribution lines is less common than electrocution (APLIC 2018). Accordingly, this ECP qualitatively estimated that collision fatalities will be approximately 50% of the anticipated electrocution mortalities for golden eagles. Therefore, it was assumed up to 13 golden eagle collision fatalities could occur within the next 30 years of this ECP.

4.1.3 Nest Removal

Golden eagles within the ECP Area almost exclusively nest on cliffs and have not historically nested on SDG&E facilities. Therefore, it is highly unlikely that an alternate eagle nest would need to be removed. Nonetheless, it is possible that removing such nests could be required as part of future wildfire hardening programs where alternate or

in-use nests could be located in hazard trees that are within proximity to utility infrastructure. A hazard tree is one with structural weakness that poses a direct safety risk to infrastructure (e.g., dead or dying trees, dead parts of live trees, or unstable live trees [due to structural defects or other factors] that are within striking distance of overhead or aboveground electric transmission and distribution lines). It is also possible that a nest will need to be trimmed instead of fully removed to ensure no contact occurs between nest substrate and electrical wire. In the case of any nest removal or trimming, unless there is an emergency involving human health and safety, the removal or trimming would occur after breeding or nesting is complete, whichever happens first. Nest removal and nest trimming would be conducted outside of the breeding season to the extent practicable.

As part of this comprehensive approach to developing this ECP, SDG&E is also requesting approval to remove or trim six alternate and six in-use golden eagle nests to address safety concerns at some point over the 30-year eagle permit term.

4.2 BALD EAGLE

4.2.1 Potential Nest Disturbance

USFWS Regional Guidance (USFWS 2017b) recommends that most human activity be avoided within 660 feet of in-use bald eagle nests; helicopter and fixed-wing aircraft activity be avoided within 1,000 feet of in-use nests; and human foot-traffic be avoided within 330 feet of in-use bald eagle nests.

As described in Section 5, SDG&E will implement numerous eagle impact avoidance and minimization measures, including operating outside the eagle breeding season. In general, SDG&E's implementation of these measures avoids impacts to nesting eagles to the maximum extent practicable. Nonetheless, in certain limited circumstances, SDG&E activities may affect bald eagles that are in the vicinity of the PIZ by agitating or bothering nesting eagles. For example, SDG&E may need to schedule and perform certain activities during the breeding season (i.e., within the above-noted buffers of an in-use bald eagle nest) for several reasons, including in response to emergencies, meeting compliance deadlines for inspections and required corrective maintenance, or to address safety concerns. It is also possible that eagles may nest in locations not yet identified and potentially be exposed to work disturbance. In these cases, SDG&E activities within 660 feet of in-use nests would have the potential to disturb nesting bald eagles.

4.2.1.1 Methodology to Quantify Potential Nest Disturbance

A potential nest disturbance for the purposes of implementation, tracking, mitigation, and reporting is defined as the incursion into a standard buffer that has the potential to disturb nesting eagles. SDG&E employed a multi-step methodology to calculate potential nest disturbance impacts over the term of this ECP. Additionally, nest buffers that have been reduced with input from USFWS do not result in incursions. First, SDG&E assigned the above-described EAAs to bald eagle nesting territories within the ECP Area. As with the

approach for golden eagles, each bald eagle nesting territory was then assigned a numerical score based on potential occupancy and proximity to SDG&E activities. These two scores were then multiplied together to provide an overall “*disturbance factor*.” Next, these disturbance factor scores were used to estimate the number of times each bald eagle nesting territory could experience disturbance with the potential to result in eagle injury, a decrease in its productivity, or nest abandonment.

More specifically, analysis of the amount of disturbance anticipated at bald eagle nesting territories within the ECP Area over the eagle permit term began with assigning EAAs to known nesting territories in the ECP Area. Each bald eagle nesting territory included one EAA, each with a 1,000-foot radius polygon. This polygon was used to determine where SDG&E activities may overlap within 1,000 feet of a nest within a bald eagle nesting territory. In total, four bald eagle nesting territories within the ECP Area were evaluated.

Each bald eagle nesting territory was then evaluated and scored based on two factors: an occupancy factor and a proximity factor. For the occupancy factor, each bald eagle nesting territory was evaluated based on its potential for the bald eagle nesting territory to be occupied by bald eagles, and then assigned a score from 0 (not viable/extirpated) to 3 (recently in-use). As with golden eagles, the potential for occupancy was based on the amount of time elapsed since the last documented use, based on information presented by Kochert and Steenhof (2012), Millsap et al. (2015), and Slater et al. (2017). Scores were assigned as follows:

- 0 = not viable – extirpated
- 1 = last in-use greater than 20 years ago
- 2 = last in-use 5 to 20 years ago
- 3 = last in-use 0 to 5 years ago

Proximity factor scores were assigned based on the amount of SDG&E electric infrastructure within the EAAs in each bald eagle nesting territory. First, each territory was assigned a percentile score (0.0 to 1.0) for the following three categories of facility types: non-linear features quantified in acres of area (e.g., substations), number of structures (e.g., OH structures), and miles of linear features (e.g., OH and UG distribution lines). For each territory, the percentile score for each category was calculated by dividing the value for that territory (e.g., number of acres, number of structures, or number of linear miles), by the value of the territory with the greatest value for the same category. If the territory with the most structures had 50 structures, it was assigned a percentile score of 1.0, while another territory with 25 structures would have been assigned a percentile score of 0.5 (25/50).

Second, for each bald eagle nesting territory, a single composite score representing the number of facilities within the bald eagle nesting territory was generated, which accounted for all three types of infrastructure within that bald eagle nesting territory, relative to other nesting territories in the analysis. This was done by calculating the average percentile score for each territory from the values associated with the three categories above. Territories were then sorted according to average percentile scores ranging from 0.0 to

1.0. Proximity factor scores were generally assigned based on the values shown in Table 3. The proximity factor score for each bald eagle nesting territory was assumed to correlate with the potential that an SDG&E activity may occur within an EAA. The assigned proximity factor scores from 0 (no SDG&E facilities within 1,000 feet of nests⁷) to 3 (most SDG&E facilities within 1,000 feet of nests) are shown in Table 3.

Table 3. Proximity of SDG&E Facilities within 1,000 Feet of Bald Eagle Nests

Average Percentile Score	Proximity Factor Score	Number of Facilities
0.00	0	none
> 0.00 to < 0.06	1	low
0.06 to < 0.10	2	moderate
≥ 0.10	3	high

Finally, the occupancy and proximity factor scores for each bald eagle nesting territory were multiplied together to yield an overall *disturbance factor* ranging from 0 to 9. For example, a bald eagle nesting territory with an occupancy factor score of 3 and proximity factor score of 3 was assigned a disturbance factor score of 9.

4.2.1.2 Estimated Number of Potential Nest Disturbances

Disturbance scores for the four bald eagle nesting territories are as follows: two nesting territories scored 9; one nesting territory scored 3; and one nesting territory scored 0. These disturbance factor scores were used to estimate the number of times each bald eagle nesting territory is expected to experience disturbance with the potential to result in a decrease in its productivity or nest abandonment.

This process was based on an assessment of the frequency at which work typically occurs at different types of features and the level of disturbance associated with that work. The analysis also accounted for the fact that work could be focused outside of the eagle breeding season, where possible. Based on all these factors, the two bald eagle nesting territories scoring 9 are anticipated to experience three disturbances; the one bald eagle nesting territory scoring 3 is anticipated to experience one disturbance; and the one bald eagle nesting territory with a disturbance factor of 0 would experience zero disturbances over the length of the eagle permit term (i.e., 30 years). This translates to an estimated seven instances of disturbance take over the 30-year eagle permit term, or an average of 1.2 instances every 5-year period.

These estimates only account for bald eagle nesting territories and nest sites currently known in the ECP Area. It is anticipated the population in San Diego County is likely to continue to increase. To account for the possibility of unanticipated impacts and ensure requested take levels are not exceeded during the permit period, the quantified estimate was tripled to provide additional contingency to the quantified estimate. Therefore, a total

⁷ Evaluation of each bald eagle nesting territory included both in-use and alternate nests.

of 21 incidents of disturbance take over the 30-year eagle permit term, or 3.5 total incidents per 5 years, has been factored into the bald eagle nest disturbance estimate.

For the purposes of estimating nest disturbances and commensurate mitigation, each nest disturbance is assumed to result in a decrease in productivity or nest abandonment. On the ground monitoring as described in Section 6.1 will determine whether a nest disturbance resulted in a successful or unsuccessful outcome (i.e., decrease in productivity or nest abandonment). The outcomes will determine whether disturbance is counted against the eagle take permit or not.

4.2.2 Fatality

Direct fatality of bald eagles may occur due to electrocution on, or collision with, SDG&E facilities. This ECP models the risk and potential for electrocutions to occur as outlined below; collisions are not modeled to derive a take estimate. Incidental take of bald eagles via collisions is acknowledged as part of this ECP and a qualitative estimate is included below to account for that incidental take.

4.2.2.1 *Electrocution*

To estimate the incidental take of bald eagles by way of electrocution risk, APLIC Guidance (APLIC 2018) notes that 50% of eagle electrocutions result in power outages, while separate studies conducted by Dwyer and Mannan (2007) and Kemper et al. (2013) suggest that 10% or less of raptor electrocutions resulted in power outages in and Tucson, Arizona and Alberta, Canada, respectively. Electric outage data are a coarse predictor of eagle electrocutions where (1) an outage is reported and (2) a carcass of an eagle is found at the site of the outage incident.

From 1996 through 2019, one bald eagle fatality occurred from electrocution that was positively correlated with an electric power outage tracked by SDG&E. Based on the above fatality rates, it is not unreasonable to conclude that 10% to 50% of eagle electrocutions result in outages. Following the findings of Kemper et al. (2013), it is reasonable to assume 10 bald eagle fatalities potentially occurred during the 23-year period from 1996 through 2019, with one actual fatality representing 10% of correlated outages, and the other nine representing 90% going undetected and not resulting in outages. This would translate to a rate of approximately 0.44 golden eagle electrocutions per year over 23 years (i.e., 10 bald eagles / 23 years = 0.44). Using the APLIC Guidance (APLIC 2018) scenario of 50% fatalities correlated to outages, two eagle fatalities potentially occurred over 23 years (equating to 0.09 fatalities/year) (Table 4).

Table 4. Estimated Bald Eagle Electrocution Fatality during the Eagle Permit Term

Historical (1996-2019) Reported Fatalities Causing Power Outages	Fatalities Correlated with Power Outages	Potential Number of Historical Fatalities (estimate)	Estimated Annual Fatality Rate	30-Year Eagle Permit Term Total Predicted Fatalities
1	0.5 ¹	2	0.09	2.6
1	0.1 ²	10	0.44	13.0

¹ APLIC Guidance (APLIC 2018) estimated that 50% of eagle electrocutions result in power outages.

² Kemper et al. (2013) estimated that 10% or less of raptor electrocutions resulted in power outages.

The estimate of 10 bald eagle fatalities from 1996 through 2019 likely overestimates actual fatality during this period, given the historically small size of the wintering and breeding bald eagle population in the ECP Area and the small number of bald eagles taken in the past. Nonetheless, it is not an unreasonable estimate given that bald eagle breeding numbers have begun to increase within the ECP Area in recent years and could continue to increase through the end of the eagle permit term. More bald eagles in the region may result in an increased number of interactions with utility facilities. However, as stated for golden eagles, future risk of electrocution is expected to decline due to SDG&E's focus on rebuilding SDG&E's existing facilities, particularly electric distribution circuits where most direct fatality occurs in rural and backcountry areas.

Based on the analysis of fatality data from the 23 years presented above, SDG&E estimates up to 13 bald eagle electrocution fatalities could occur within the next 30 years of this ECP (i.e., 0.44 bald eagle fatalities per year x 30 years = 13 bald eagle fatalities) (Table 4).

4.2.2.2 Collision

Incidental take of bald eagles arising from injuries or fatalities due to collisions with SDG&E facilities is also sought under the preparation of this ECP. Unlike the analysis undertaken for estimating incidental take associated with electrocutions, an analysis of incidental take regarding collisions is impractical and less empirical to develop. However, as collisions with conductors, fiber optic cables, and other less visible wires can and do happen, SDG&E is requesting incidental take authorization when collisions do occur and when an eagle carcass is recovered. In general, eagle fatalities from collision with transmission or distribution lines is less common than electrocution (APLIC 2018). For this assessment, collision fatalities were qualitatively estimated to be approximately 50% of the anticipated electrocution mortalities for bald eagles. Therefore, it was assumed up to six bald eagle collision fatalities could occur within the next 30 years of this ECP.

4.2.3 Nest Removal

As part of this comprehensive approach to developing this ECP, SDG&E is also requesting approval to remove two alternate and two in-use bald eagle nests at some point over the 30-year eagle permit term. Bald eagles within the ECP Area have not

historically built nests on SDG&E facilities. It is highly unlikely that an alternate or in-use eagle nest would need to be removed. Nonetheless, authorization to remove such nests could be required as part of future wildfire hardening programs if an alternate or in-use nest were located in a hazard tree as defined above in Section 4.1.3, or where old infrastructure is replaced with more durable and fire-resilient infrastructure. It is also possible that a nest will need to be trimmed instead of fully removed to ensure no contact occurs between nest substrate and electrical wire. In the case of any nest removal or trimming, unless there is an emergency involving human health and safety, the removal or trimming would occur after breeding or nesting is complete, whichever happens first. Nest removal and nest trimming would be conducted outside of the breeding season to the extent practicable. The authorization to remove or trim an alternate or in-use nest under an emergency or urgent compliance deadline can be expedited if it is contemplated in this ECP and authorized in the incidental take permit.

4.3 SUMMARY OF ESTIMATED IMPACTS

This ECP addresses impacts from four types of take for bald and golden eagles, including three forms of incidental take (nest disturbance, electrocutions, and fatalities), and separately, nest removal, which is purposeful and not incidental. In Sections 4.1 and 4.2 above, quantitative estimates of the expected amount of take due to nest disturbance and electrocutions were generated for golden eagles and bald eagles, respectively, based on existing data. While those estimates are considered realistic, additional contingency was added to the quantitative take estimates to account for eagle take associated with collisions that cannot be estimated and to account for future detections of nest in proximity to activities.

A summary of all incidental take associated with estimated nest disturbance, electrocutions, collisions, and nest removals (as presented in the Section 4.1 and Section 4.2 analyses) is provided below in Table 5 and represents the total amount of take estimated under this ECP.

Over the course of the permit period, eagle fatalities are expected to continuously decline each year as existing facilities are rebuilt to avian safe design standards and as new facilities are built using those same standards, particularly in rural and backcountry areas. As described in Section 5.1, since 2005, SDG&E has retrofitted thousands of poles, including retrofitting facilities with avian protection equipment, reconfiguring the structure of the pole to increase conductor spacing or other adjustments to reduce potential eagle fatality, and/or replacing/rebuilding the existing pole according to APLIC Guidance to minimize potential impacts to eagles.

Table 5. Estimated Incidental Take to Golden and Bald Eagle

Form of Take	Quantitative Projections		Qualitative Projections (including contingency)		Total	
	Per 5 Years	30-Year Eagle Permit Term	Per 5 Years	30-Year Eagle Permit Term	Per 5 Years	30-Year Eagle Permit Term
<i>Golden Eagle</i>						
Nest Disturbance	6	36	6	36	12	72
Electrocution	4.3	26	0	0	4.3	26
Collision	0	0	2.1	13	2.1	13
Nest Removals ¹	0	0	2	12	2	12
<i>Bald Eagle</i>						
Nest Disturbance	1.1	7	2.3	14	3.5	21
Electrocution	2.1	13	0	0	2.1	13
Collision	0	0	1	6	1	6
Nest Removals ²	0	0	0.6	4	0.6	4

¹ Up to six alternate and six in-use golden eagle nests to be removed.

² Up to two alternate and two in-use bald eagle nests to be removed.

5.0 AVOIDANCE AND MINIMIZATION (STAGE 4)

This section describes the measures that will be implemented during the eagle permit term to avoid and minimize impacts on golden and bald eagles to the extent practicable. To mitigate impacts, utility pole retrofitting will be applied as described herein along with the associated effectiveness monitoring of retrofitted poles. An adaptive management approach to the implementation of eagle conservation actions is also discussed along with reporting procedures.

5.1 AVIAN PROTECTION PROGRAM

In 2005, SDG&E instituted an Avian Protection Program (APP) to reduce the potential for direct mortality of birds by electrocution or collision with electric distribution and transmission lines and poles. In addition to what are termed reactive pole retrofits, which are completed after a bird electrocution, proactive pole retrofits are undertaken by SDG&E in high-priority areas (identified through the APP) where eagles and raptors have a high potential for direct mortality as a result of coming in contact with facilities. As such, proactive pole retrofits can be directed at facilities that pose a higher risk of electrocution to birds.

As a member of APLIC, SDG&E's proactive program to reduce direct mortality by electrocution or collision includes designing new or replacement poles using APLIC recommendations and guidelines to provide appropriate separation between conductors, system neutral, and ground hardware (i.e., long-term mitigation for 30 years) as well as providing equipment covers to eliminate points of electrical contact (i.e., short-term mitigation for 10 years). From 2016 through 2019, SDG&E proactively retrofitted approximately 4,100 poles (annual average of approximately 1,023 poles) within the service area to reduce or eliminate electrocution risk to birds. Retrofitting of poles also reduces the potential for bird-caused wildfire ignitions (i.e., nesting materials on a pole can ignite or spark, resulting in a nest that can create a fire and fall to the ground, potentially resulting in a wildfire).

In 2020, SDG&E began a pilot program to replace traditional wire conductors with insulated or "covered" conductor to mitigate the risk of wildfires. Although the use of covered conductor was developed for wildfire mitigation, it has the added benefit of eliminating the potential for electrocutions of large birds such as eagles and other raptors so long as the wires remain insulated.⁸ SDG&E replaced 2 miles (approximately 36 poles) of conductor in 2020 with covered conductor along a distribution line in the Ramona grasslands, and plans to install 20 more miles of covered conductor in high fire threat areas in 2021. Future target areas for covered conductor replacement are scheduled for rural and backcountry areas that overlap with eagle habitat in SDG&E's service area. The

⁸ Tree wire is a type of insulated phase conductor (i.e., covered conductor) used on distribution lines to provide protection from momentary contact with tree branches, which would otherwise cause an electric arc. The insulation is sufficient to protect birds from collision-electrocutions, which are caused by phase-to-phase contact when large birds, such as eagles, brush phase conductors while flying between them (APLIC 2012).

use of covered conductor in these areas is expected to continue to increase in future years, benefiting eagle populations as well as other raptor species. As part of SDG&E's adaptive management, the use of covered conductor could serve as long-term retrofit mitigation with approval from USFWS.

5.2 OPERATIONAL PROTOCOLS

As part of its existing environmental compliance requirements for its Subregional Plan and its HCP Amendment, SDG&E implements Operational Protocols to avoid and minimize impacts in natural areas that support habitat for sensitive species. These include general measures for working in areas of sensitive habitat along with specific recommendations for sensitive species. Many of these general and specific measures are prescribed when working close to or within EAAs where eagle nests have been documented and may reduce disturbance to courting and nesting eagles. Operational Protocols are required of all SDG&E employees and contractors. The following Operational Protocols are implemented within sensitive habitat areas and potentially reduce the risk of eagle impacts.

5.2.1 General Behavior for All Field Personnel

1. When environmentally sensitive areas/limits have been established, employees and contract workers shall strictly limit their activities, vehicles, equipment, and construction materials to avoid impacts beyond the delineated limits.
2. Vehicles must be kept on access roads. A 15 miles-per-hour speed limit shall be observed on dirt access roads to allow species to disperse. Vehicles must be turned around in established or designated areas only.
3. No wildlife, including rattlesnakes, may be harmed, except to protect life and limb.
4. Firearms shall be prohibited on the ROW except for those used by security personnel.
5. Feeding of wildlife is not allowed.
6. SDG&E personnel are not allowed to bring pets on the ROW in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive domestic animal diseases to native wildlife populations.
7. Parking or driving underneath oak trees is not allowed in order to protect root structures except in established traffic areas.
8. Plant or wildlife species may not be collected for pets or any other reason.
9. Littering is not allowed. SDG&E personnel shall not deposit or leave any food or waste on the ROW or adjacent property.
10. Wildfires shall be prevented or minimized by exercising care when driving and by not parking vehicles where catalytic converters can ignite dry

vegetation. SDG&E vehicles shall carry all required fire tools such as water backpack pumps, shovels, and/or fire extinguishers while operating in the field in accordance with SDG&E's Wildland Fire Prevention & Fire Safety Plan. The use of shields, protective mats, or other fire prevention methods shall be used during grinding and welding to prevent or minimize the potential for fire. Smoking may only occur in designated smoking areas or in a 10-foot clearing void of all grass or other vegetation in accordance with SDG&E's Wildland Fire Prevention & Fire Safety Plan or as discussed in the most current internal fire prevention standard and practices.

Field crews shall refer environmental issues, including wildlife relocation, dead or sick wildlife, hazardous waste, or questions about avoiding environmental impacts, to the qualified Biologist. Qualified Biologists or experts in wildlife handling may need to be brought in by the qualified Biologist for assistance with wildlife relocations.

5.2.2 Training

11. All SDG&E personnel and contractors working within the project area shall participate in SDG&E's employee training program, which includes annual training, project-specific training, and as-needed training. Section 6.3.1 of the HCP Amendment further defines education and training. As it relates to eagles, project-specific trainings are those trainings developed that are specific to the Covered Activity and environmental setting where the work is occurring. Training would include discussions on eagle awareness/biology as well as reporting procedure in the event there is an eagle incident or discovery of an eagle mortality. Training shall also be provided for staff on an as-needed basis throughout the implementation of the HCP Amendment. As-needed training could address implementation, Operational Protocols, Species Specific Protocols, methods for standardizing field work, and other topics
12. Designated SDG&E staff shall conduct selected reviews of SDG&E operations.

5.3 NO-DISTURBANCE NEST BUFFERS

During the bald and golden eagle breeding season (December 1 through July 31), SDG&E will establish the following no-disturbance nest buffers, as recommended by USFWS Regional Guidance (USFWS 2017a, 2017b), around in-use eagle nests detected within an EAA:

- Bald eagle recommended nest buffers: 1,000 feet for helicopters, aircraft, and UASs; 660 feet for vehicles and equipment; 330 feet for foot traffic; ½ mile for blasting and other loud, intermittent noises.

- Golden eagle recommended nest buffer: 1 mile for all activities; 2 miles for blasting and other loud, non-regular noise.

SDG&E will limit disturbance to in-use nest areas from O&M activities associated with electric distribution and transmission facilities as follows. SDG&E will use Table 6 during implementation of this ECP to guide decisions on implementing the recommended no-disturbance buffers and reducing them as appropriate based on site-specific conditions. Deviations from the USFWS recommended buffers will consider the category of the activity (as defined in Section 5.4) and whether the activity within a buffer is (1) visible or within the line of sight of an in-use eagle nest and (2) whether similar activities or disturbances are already occurring within the eagle nest buffer. The approach summarized in Table 6 will promote consistent prescription of avoidance and minimization measures. Buffers would only be reduced if needed to allow work to continue and, in that event, will be reduced only as much as necessary to allow the work. SDG&E may consult with USFWS for technical advice as needed.

Table 6. Eagle No-Disturbance Buffer Assessment Matrix

Recommended Bald Eagle No-Disturbance Buffer¹		
	If there is no similar activity or disturbance within 660 feet of the nest	If there is similar activity closer than 660 feet from the nest
If the activity will be visible from the nest	660 feet	660 feet, or as close as other existing and tolerated activities of similar disturbance
If the activity will not be visible from the nest (i.e., no line of sight due to a significant land barrier such as a mountain or canyon wall)	330 feet	330 feet, or as close as other existing tolerated activities of similar disturbance
Recommended Golden Eagle No-Disturbance Buffer¹		
	If there is no similar activity or disturbance within 1 mile to the nest	If there is similar activity closer than 1 mile from the nest
If the activity will be visible from the nest	1 mile	Less than 1 mile, or as close as other existing tolerated activities of similar disturbance
If the activity will not be visible from the nest (i.e., no line of sight due to a significant land barrier such as a mountain or canyon wall)	Less than 1 mile ²	Less than 1 mile, or as close as other existing tolerated activities of similar disturbance ²

¹ Buffers based on recommendations by USFWS Regional Guidance (USFWS 2017a, 2017b). Similar activities are those where the nature and magnitude of impacts to eagles are similar or comparable to existing activities. See Section 5.4 for detail on no-disturbance buffers associated with routine tree trimming activities.

² Buffers would only be reduced as much as necessary to allow the work to continue.

Activities performed in closer proximity to an in-use nest than the USFWS recommended buffer may have the potential to cause nest disturbance depending on the intensity and duration of the work. Some activities, including multiple pole replacements, reconductoring, and access road maintenance, have a duration and intensity of disturbance (i.e., noise, vibrations, activity caused by crews and vehicles) that could disturb eagles, while others, including visual inspections, may have no to negligible risk of causing eagle nest disturbance and take.

5.4 ACTIVITIES WITHIN NEST BUFFERS

There may be situations when SDG&E will be required to work within the no-disturbance buffers described in Section 5.3. SDG&E may implement avoidance and minimization measures when activities within a no-disturbance buffer could disturb nesting eagles. To determine when such measures are warranted, SDG&E's standard activities (discussed in Section 2) were grouped into categories based on the intensity and duration of the activity and the anticipated effects, such as noise and visual disturbances from increasing numbers of personnel on a work site. These activity categories will be reevaluated at each 5-year permit review and renewal.

5.4.1 Category 1 Activities

Category 1 Activities are low-intensity activities of short duration (typically, <1 to 2 hours, rarely 3 hours). Given their short duration and minimally disruptive nature, Category 1 Activities, have no to low risk of causing eagle nest disturbance and take. Thus, these activities occur year-round to ensure safe and reliable operation of the electric system and maintain regulatory compliance deadlines.

All vehicles remain on public roads or existing access roads for Category 1 activities. See Section 5.2.1 (Operational Protocols, General Behavior of All Field Personnel), no. 2. Crews access facilities off public roads or existing access roads in natural areas on foot. To avoid and minimize impacts from Category 1 Activities, they are planned outside the breeding season whenever feasible. Construction and utility staff are also given annual training on Operational Protocols and Best Management Practices (BMPs) to avoid and minimize impacts to eagles. Standard BMPs include procedures for drone and helicopter pilots to abort operations if inspections are distressing to eagles (and other raptors).

- Visual inspections and patrols, including walking on foot and using light vehicles (<1 hour in duration)
 - No ground disturbance
 - No equipment aside from light vehicles, which remain on public roads or existing access roads
- Insulator washing from vehicles (<2 hours in duration)
 - No ground disturbance

- Ground level washing (away from nests in cliffs/trees)
- Minimal equipment; water truck with high pressure hose on public roads or existing access roads
- Use of UASs/drones and helicopters for inspections or insulator washing (<1 hour in duration)
 - No ground disturbance
 - Pre-project planning, follow Operational Protocols, which include:
 - Contractors/pilots review EAAs in SDG&E system
 - For any flight within EAA, inspection routed to Environmental Services
 - Environmental Services professionals review flight path and determine avoidance buffers that may be required at time of flight.
 - If avoidance is not possible, flights may be rescheduled outside eagle breeding season if appropriate.
- Routine vegetation management activities, including pole brushing of fire areas (i.e., typically involves clearing a 10-foot radius around a pole), and wood pole inspections/pole test (typically, 1 to 2 hours in duration)
 - Small crews of two personnel and minimal equipment: light vehicles on public roads or existing access roads, hand and/or handheld power tools
- Minor repair, replacement, and removal of pole equipment for corrective maintenance (typically, <1 to 2 hours in duration)
 - No ground disturbance
 - Minimal equipment: light vehicles/bucket trucks, hand and/or handheld power tools

To ensure that cumulative impacts to breeding eagles remain insignificant, the below activities are considered Category 1 only where they are: (i) conducted from public roads; or (ii) not accessible from a public road but are less than two hours in total duration and occur no more than three times within an EAA during a single breeding season (*infra* Section 5.4.2). Duration means the entire length of the event, including work on different days. For example, if tree trimming occurred 1 hour per day for 5 consecutive days within an EAA, the total duration would be 5 hours and the tree trimming would constitute a Category 2 Activity.

- Routine tree trimming activities that include routine pruning and hazard tree removal.
 - No ground disturbance

- This work avoids trees where an eagle is nesting. This would only be a potential issue with bald eagles as golden eagles within the ECP Area almost exclusively nest on cliffs.
- Routine tree trimming activities are considered Category 1 only where they meet the two criteria above and the work locations are greater than ½-mile away from an in-use nest⁹. If routine tree trimming activities occur within ½-mile of an in-use nest, the tree trimming would constitute a Category 2 Activity.

In general, because Category 1 activities are equivalent to or differ minimally from ambient conditions and are of short duration, human presence outside a vehicle is the primary source of concern for temporarily bothering eagles. The brief, low-intensity activities that compose Category 1 Activities are not expected to impact eagles materially more than ambient conditions. Because these activities occur year-round, are equivalent to or differ minimally from ambient conditions, and require only minutes or a few hours of physical presence, Category 1 Activities are exempt from disturbance buffers in Section 5.3 and follow-up monitoring described in Section 6.1.

5.4.2 Category 2 and Category 3 Activities

Though slightly longer than Category 1 Activities, Category 2 Activities are also of relatively short duration, often taking less than a day to a few days to complete. They are of low to moderate intensity and have a moderate potential of causing eagle nest disturbance and take. These activities will follow the prescribed buffers in Table 6 and are scheduled outside of the eagle breeding season to the maximum extent practicable. Category 2 Activities include:

- Repair, replacement, and removal of direct-bury poles
- Pole inseting
- Replacement and removal of anchors and stub poles
- Wildfire fuels modification and management
- Geotechnical testing and remediation
- Routine tree pruning activities and/or hazard tree removal between ½-mile and one mile from an in-use nest that are not accessible by public roads and require greater than 2 hours to complete
- Routine tree pruning activities and/or hazard tree removal within ½-mile of an in-use nest

Category 3 Activities are of longer duration, often taking weeks to months, and/or have a higher intensity than Category 1 or 2 Activities. They include:

⁹ The ½-mile buffer for routine tree trimming activities will be from the center point of the EAA. A pre-activity survey will be required to determine the status of the nest if work is to be conducted within ½-mile of the center of the EAA, which would constitute a Category 2 Activity if the nest was determined to be in-use.

- New construction
- Foundation/tower repairs, replacements, and removals
- Replacement/removal of conductor
- Preparing staging and work areas
- Access road repair and maintenance
- Fiber optic lines and telecommunications repairs, replacements
- Helicopter-assisted pole/tower maintenance

Category 2 and Category 3 Activities will follow the prescribed buffers in Table 6 and will be scheduled outside of the eagle breeding season to the maximum extent practicable. However, these activities may occur within the prescribed buffers during the eagle breeding season, if necessary, for example, to respond to an emergency, meet compliance obligations, or other requirements. In that event, the below process will be followed:

1. SDG&E will assess whether the activity is within an EAA.
 - a. If it is not within an EAA, no minimization measures will apply, and Category 2 or Category 3 Activities may proceed.
 - b. If it is within an EAA, SDG&E will assess whether any nests are present within the EAA.
2. After assessment, and if an in-use nest¹⁰ is found within the EAA, the appropriate buffer will be established. See Section 5.3, Table 6 of this ECP.
3. If the proposed activity will occur within the established buffer, SDG&E will determine the outcome of the nest.
4. If a nest is not in-use for any reason (e.g., successfully fledged or failed), no minimization measures will apply, and the Category 2 or Category 3 Activity may proceed. No monitoring will be required to determine nest outcome as detailed in Section 6.1.
 - a. Should a nest become in-use while a Covered Activity is ongoing, SDG&E will proceed with the Activity and implement the next step.
5. If a nest is in use, SDG&E may choose to proceed with the Activity and may choose to have a qualified Biologist observe any in-use eagle nests from a vantage point that minimizes disturbance of the nest (including using a blind, scope, or binoculars, as needed). The qualified Biologist may recommend changes to activities to lessen any agitation (i.e., reducing noise, foot traffic) and may recommend stopping work as appropriate (if the eagles show high levels of distress). Section 6.1 provides criteria for determining disturbance take based on nest outcome.

¹⁰ As noted in the Glossary of Defined Terms and Section 4.1.1, an *in-use nest* is defined as a “golden eagle nest characterized by the presence of one or more eggs, dependent young, or adult eagles on the nest in the past 10 days during the breeding season” (50 C.F.R. § 22.3) and “breeding begins... with the start of courtship...” (*Programmatic Environmental Impact Statement for the Eagle Rule Revision*, United States Department of the Interior, Fish and Wildlife Service, December 2016).

6.0 MITIGATION AND MONITORING (STAGE 5)

This section describes the criteria for determining disturbance take in the event Category 2 or Category 3 Activities occur within the no-disturbance buffer and the mitigation to be implemented by SDG&E to offset impacts to golden and bald eagles during the eagle permit term that cannot be practicably avoided. Effectiveness monitoring for this mitigation is also described. Mitigation and monitoring effectiveness will be discussed with USFWS at each 5-year permit review and renewal.

6.1 CRITERIA FOR DETERMINING DISTURBANCE TAKE BASED ON NEST OUTCOME

Category 2 and Category 3 Activities that occur within the no-disturbance buffer of an in-use eagle nest during the breeding season will require SDG&E to determine the outcome of a nest (i.e., fledged young or failure) for the breeding season of the given year when the activity occurred. SDG&E may choose to assume nest failure (take) or conduct post-construction/incursion monitoring to determine the outcome of the nest.

If a nest fails or is assumed to have failed, that will constitute take of a nest and mitigation will be required.¹¹ If multiple Category 2 and Category 3 Activities occur within the same no-disturbance buffer of an in-use eagle nest during the breeding season, fledglings may be at risk of fledging early. Additionally, fledglings may use an in-use nest during the post-fledging period, particularly if they fledge early and return to the nest. Given these and other considerations, SDG&E will assess nest outcome differently depending on when the incursion occurs. If an incursion occurs before nestlings reach 7 weeks of age and no subsequent work occurs within the same no-disturbance buffer, the nest will be considered successful if nestlings at least 8 weeks old are observed in the nest, or if fledglings are subsequently observed near the nest. If an incursion occurs after the nestlings have reached 7 weeks of age and the young are still in the nest, the nest will be considered successful if young are observed in the nest or fledglings are observed near the nest at least 1 week after the incursion.

Specifically, the criteria for determining take based on nest outcome are as follows:

1. If SDG&E does not conduct monitoring, SDG&E may assume that a nest has failed, in which case, the incursion will constitute take and mitigation will be required as detailed in Section 6.2.
2. If periodic monitoring of the nest shows that the outcome of the nest is successful (as defined above), no take associated with nest disturbance occurred and no mitigation will be required.
3. If periodic monitoring of the nest shows that the outcome of the nest is unsuccessful, regardless of the potential reasons for the nest becoming

¹¹ SDG&E will not incur take for nest failure if it is demonstrably caused by someone else.

unsuccessful, the incursion will constitute take and mitigation for nest disturbance is required as detailed in Section 6.2.¹¹

4. If there are no available monitoring data from other parties, or monitoring cannot or does not determine the outcome of the nest (i.e., successful or unsuccessful), the incursion will constitute take and mitigation will be required as detailed in Section 6.2.

6.2 MITIGATION

6.2.1 Golden Eagle

Mitigation to offset impacts to golden eagles will be accomplished by retrofitting utility poles to avoid future loss through electrocution. USFWS Resource Equivalency Analysis (REA) worksheets were used to calculate the number of short-term or long-term retrofits required to offset estimated impacts. All calculations in this section assume a mitigation ratio of 1.2:1, per the ECP Guidance (USFWS 2013), and are in accordance with the 2016 Eagle Rule (USFWS 2016a, 2016b) (also see Section 6.3). Short-term retrofits (i.e., plastic covers) provide 10 years of avoided eagle loss, while long-term retrofits (reframing) provide up to 30 years of avoided loss.

6.2.1.1 Nest Disturbance

The USFWS REA worksheet for nest disturbance¹² was used to calculate the number of pole retrofits required to offset the 72 instances of nest disturbance (see Section 4.1.1). Per the results of the analysis, SDG&E would provide 24 short-term or 11 long-term retrofits per instance of nest disturbance, or a total of 1,692 short-term or 738 long-term retrofits over the 30-year eagle permit term Table 7.

In accordance with the adaptive management approach to mitigation outlined in Section 6.2, SDG&E will accomplish short-term or long-term retrofits in 5-year blocks. For the first 5 years of the 30-year eagle permit term, SDG&E will mitigate for nest disturbance by performing 282 short-term or 123 long-term retrofits (or an appropriate combination of the two, as determined through REA) (Table 7). Mitigation for nest disturbance for subsequent 5-year periods will be reevaluated based on the amount of nest disturbance that was recorded during the prior 5-year period(s). Additional information on determining appropriate mitigation for years 5–30 is provided in Section 7.2 below.

¹² The REA used herein was the USFWS-developed Excel worksheet for eagle nest disturbance described at <https://www.fws.gov/birds/management/managed-species/eagle-management.php> (last visited August 12, 2020) and downloadable at [https://www.fws.gov/migratorybirds/pdf/management/goeanest disturbrea.xlsx](https://www.fws.gov/migratorybirds/pdf/management/goeanest%20disturbrea.xlsx) (last visited August 12, 2020). This REA worksheet assumes the mitigation is completed before the anticipated take and does not allow for calculations to determine other timing scenarios. As such, the analysis was performed to calculate the number of retrofits required to offset one instance of disturbance within a single breeding season (23.55 short-term or 10.25 long-term pole retrofits, rounded up to the nearest whole numbers), which was then extrapolated to estimate the mitigation required to offset the total predicted take over 30 years.

6.2.1.2 Fatality

The USFWS REA worksheet for eagle fatality¹³ was used to calculate the mitigation required to offset the 39 instances of eagle fatality estimated to occur, including 26 fatalities from electrocution and 13 from collision (Section 4.1.2). The fatality REA worksheet allows for mitigation to be evaluated in 5-year blocks. Therefore, the amount of mitigation required to offset the expected take within the first 5 years of the eagle permit term (39 eagles divided by six 5-year periods; or approximately seven eagles) was calculated. Per the results of the analysis SDG&E would need to perform 234 short-term or 102 long-term retrofits to offset the estimated take of seven eagles during the first 5 years of the eagle permit term. Summaries of all mitigation, as well as mitigation to be completed in the first 5-year period, are included in Table 7 and Table 8, respectively.

Table 7. Summary of Estimated Mitigation for Golden Eagles Over 30-Year Permit Period¹

Form of Take	30-Year Estimated Take	Mitigation Ratio Multiplier	Short-Term Retrofits		Long-Term Retrofits	
			Per Instance of Take	30-Year Eagle Permit Term	Per Instance of Take	30-Year Eagle Permit Term
Nest Disturbance	72	1.2	23.50	1692	10.25	738
Electrocution	26	1.2	35.79	931	15.58	406
Collision	13	1.2	35.79	466	15.58	203
Nest Removal	12	1.2	NA	NA	NA	NA

NA = not applicable

¹ Mitigation for nest disturbance will stay ahead of forecasted impact estimates and will typically be completed within the first year of each 5-year permit period. Mitigation for collisions will be completed throughout each 5-year period and will be based on actual fatalities.

¹³ The REA used herein was the USFWS-developed Excel worksheet described at <https://www.fws.gov/birds/management/managed-species/eagle-management.php> (last visited July 9, 2020) and downloadable at <https://www.fws.gov/migratorybirds/pdf/management/goeamortalityrea.xlsx> (last visited July 9, 2020).

**Table 8. Potential Retrofit Schedule for
Golden Eagle Mitigation over 30-Year Permit Period**

Form of Take	Type of Mitigation ¹	5-Year ECP Period					
		1-5	6-10	11-15	16-20	21-25	26-30
Nest	Short-Term	282	Variable	Variable	Variable	Variable	Variable
Disturbance ²	Long-Term	123	Variable	Variable	Variable	Variable	Variable
Electrocution ³	Short-Term	156	155	155	155	155	155
	Long-Term	68	68	68	68	68	66
Collision ⁴	Short-Term	Variable	Variable	Variable	Variable	Variable	Variable
	Long-Term	Variable	Variable	Variable	Variable	Variable	Variable
Nest Removal ⁵	Monitoring	NA	NA	NA	NA	NA	NA

NA = not applicable

¹ Mitigation for nest disturbance, electrocution, and collision includes short-term or long-term mitigation but not both per Section 6.2.1.

² Mitigation for nest disturbance for the first 5 years will follow *Table 7. Summary of Estimated Mitigation for Bald and Golden Eagles Over 30-year Permit Period*. Prior to each subsequent 5-year ECP period, SDG&E will determine the required mitigation to offset actual nest disturbance recorded for the previous 5-year period.

³ Mitigation for electrocutions for the 30-year eagle permit term will follow *Table 7. Summary of Estimated Mitigation for Bald and Golden Eagles Over 30-year Permit Period*. The analysis of fatalities associated with electrocutions for golden eagles is provided in Section 4.1.2.1.

⁴ SDG&E will determine the required mitigation to offset the actual number of eagle collisions that occur. SDG&E will provide mitigation to local eagle conservation efforts at the same value as being proposed at 0.2:1 of short-term retrofits. The Per Instance of Take multiplier will be used from *Table 7. Summary of Estimated Mitigation for Bald and Golden Eagles Over 30-year Permit Period* to determine the appropriate amount of required mitigation.

⁵ Mitigation for nest removal requires monitoring for up to 2 years to determine impacts to eagle nesting territories.

6.2.2 Bald Eagle

Mitigation in the form of short-term or long-term retrofits as well as compensatory mitigation for impacts to bald eagles is required when all authorized and permitted take exceeds the annual allotment for the flyway. The ECP Area is within the Pacific Flyway South EMU, which has a bald eagle annual take allotment of 15 (USFWS 2016a).

As of 2020, the authorized take in the Pacific Flyway South EMU is 2.85 out of the 15 allotted eagles per year (USFWS 2020). The estimated bald eagle take associated with SDG&E activities (fewer than two individuals per year; Section 4.3) will not increase annual take above this threshold. Because SDG&E's estimated take of bald eagles is extremely small and will not exceed the annual allotment for this EMU (USFWS 2016a, 2016b; 81 Fed. Reg. 91,494), mitigation is not required. In the event of direct fatality of a bald eagle caused by contact with SDG&E facilities, SDG&E will conduct reactive pole retrofitting at the incident pole where the take occurred to ensure no further electrocutions could occur on the pole in question.

6.2.3 Eagle Nest Removal

Mitigation for removal of an alternate nest will be accomplished through follow-up monitoring to determine if an eagle nesting territory was lost because of the nest removal. Monitoring will be conducted as needed for up to 2 years to determine nesting territory occupancy. The process for determining take will be as outlined in Section 6.1. The results of the monitoring will be discussed in consultation with USFWS regarding the reproductive consequences of the nest removal. SDG&E in consultation with USFWS would develop mitigation that is consistent with the requirements outlined in USFWS nest removal regulations (50 C.F.R. § 22.27). This mitigation may include compensatory mitigation funding to San Diego eagle conservation; the equivalent value, in dollars, representing up to 0.2:1 of the typical unit cost of a single, short-term retrofit may be proposed in lieu of installing short-term retrofits to some poles by directly supporting San Diego golden eagle conservation (see Section 6.3). Note that the permit for nest removal will need to be renewed at 5-year intervals and will be timed to coincide with the 5-year permit review.

6.3 GOLDEN EAGLE COMPENSATORY MITIGATION

In coordination with USFWS, SDG&E may contribute compensatory mitigation to San Diego golden eagle conservation by reducing the overall number of short-term retrofits and redirecting a portion of the unit costs of those retrofits to local eagle conservation efforts. All retrofits in the previous sections assume a mitigation ratio of 1.2:1. Of this 1.2:1, up to 0.2:1 of the typical unit cost of a single, short-term retrofit may be proposed in lieu of installing some short-term retrofits by directly supporting San Diego golden eagle conservation.

Compensatory mitigation will be determined by SDG&E, and will typically involve determination of the unit cost to install a single short-term retrofit (i.e., a plastic cover) followed by multiplication of 0.167 (i.e., 0.2 mitigation ratio is 16.7% of the total; $0.2/1.2 = 0.167$). For example, if the unit cost to install a short-term retrofit totaled \$1,000.00 and if SDG&E elected to contribute compensatory mitigation to local eagle conservation, then SDG&E could allocate \$167.00 to local eagle conservation. Compensatory mitigation would be determined over 5-year blocks of the eagle permit term and would be reevaluated after each 5-year period.

6.4 MITIGATION EFFECTIVENESS MONITORING

A monitoring program will be implemented to verify short-term or long-term retrofit installation. Prior to each renewal period, 20% of all retrofitted poles in the preceding 5 years will be evaluated by a third-party to verify installation of the retrofitting. Reframed poles will not be checked beyond their initial installation year because reframed poles are in a permanent configuration. The third-party will identify any remedial actions and SDG&E will remediate retrofitting, as necessary.

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7.0 REPORTING

7.1 INCIDENT REPORTING

In the event of a direct fatality of a golden or bald eagle caused by contact with SDG&E's facilities, SDG&E will take the following actions:

- Notify USFWS within 48 hours or 2 business days of the incident.
- Schedule the incident pole for short-term or long-term retrofitting as soon as feasible, consistent with other company priorities.

In addition, SDG&E will coordinate with USFWS to notify the appropriate Native American Tribes (i.e., federally recognized tribes pursuant to Executive Order 13175 and the National Historic Preservation Act) after a direct fatality of a bald or golden eagle on trust lands (meaning land held in trust by the United States or otherwise reserved for Indian tribes and individual Indians and is managed by the Bureau of Indian Affairs for their benefit) has been reported. SDG&E will send eagle remains to the CDFW Wildlife Investigations Laboratory or to the USFWS National Eagle Repository as directed by USFWS.

7.2 NEST REMOVAL AUTHORIZATION

Nest removal authorizations will be valid for 3 years at a time. SDG&E will need to renew the nest removal permit on a regular basis as part of compliance with this ECP. Every 3 years, SDG&E will provide USFWS with a summary of nest removal activities so that USFWS may evaluate the data and issue a new permit.

7.3 5-YEAR REPORTING FOR PERMIT EVALUATION

Consistent with the 2016 Eagle Rule, the permit will be evaluated every 5 years. SDG&E will prepare annual reports for each of the first 5 years of permit implementation culminating with a 5-year report to facilitate the 5-year review. For each of these 5-year reviews, SDG&E will evaluate the previous 5 years of ECP data and provide USFWS a report by the end of the second quarter. Each report will include the following:

- Take associated with nest disturbance that occurred in the reporting period, to include the following:
 - Summary of disturbance events.
 - Summary of surveys used to determine if take occurred.
- Golden and bald eagle take from electrocutions and collisions that occurred in the reporting period.
- Summary of completed mitigation in the reporting period.
- Results of the third-party monitoring in the reporting period.

At the time of evaluation, mitigation for the subsequent 5-year periods will be calculated based on the mitigation requirements in this ECP. SDG&E presently has no obligation to retrofit its facilities because of birds. For the first 5-year period, SDG&E will mitigate for all estimated take associated with nest disturbance in the first 2 years by performing 282 short-term or 123 long-term retrofits. For each year thereafter, SDGE will stay ahead of its mitigation obligations related to nest disturbance by retrofitting the requisite number of poles to mitigate for any actual take by nest disturbance.

Mitigation for golden eagles (Tables 7 and 8) is typically achieved when covered activities such as pole replacements, reconductoring, or electric system hardening projects involve the replacement of facilities without avian safe protection with new poles or equipment that are avian safe. SDG&E can track the number of short-term retrofits to support a credit accounting system that can be later used to debit mitigation requirements required under the ECP. Reactive pole retrofits as part of SDG&E's APP, undertaken in response to a raptor or eagle fatality, will not count toward mitigation requirements, but will be completed to address incident poles where an eagle take has occurred.

In addition to short-term and long-term retrofits required by this ECP, SDG&E will continue to make its electric system avian safe for all raptors over time through implementation of an APP (currently in development to support a Migratory Bird Special Purpose - Utility Permit [SPUT] permit, C.F.R. § 21.27). Proactive and reactive pole retrofits under the APP are designed to benefit all raptors and eagles. If SDG&E retrofits more poles or installs more coverings than is required to mitigate for actual take—and thereby remains ahead of its permitted take authorization for a 5-year period—no additional mitigation will be required. Retrofits done in excess of recorded and reported eagle take will serve as credits that can be used from 1 year to the next, or from one 5-year period to the next.

8.0 ADAPTIVE MANAGEMENT

An adaptive management strategy that incorporates and adjusts mitigation to actual versus estimated take, the development of new technologies, and new ecological information is a key component of conserving eagles. Adaptive management is used to review and adjust decision-making processes as permit management outcomes or changes in eagle populations are better understood.

This ECP anticipates the use of adaptive management during the permit term as a result of changes in eagle population dynamics associated with increased wildfires, climate change (i.e., habitats lost, expanded, or contracted), or other unknown changed circumstances. Under 50 C.F.R. § 22.26(c)(7)(ii), adaptive management should specify circumstances under which modifications to avoidance, minimization, mitigation measures or monitoring protocols will be required, which may include, but are not limited to, take levels, location of take, and changes in eagle use of the activity area.

If eagle take approaches or is on track to exceed the amount authorized within a given time frame, SDG&E will consult with USFWS to discuss what responses should occur or what management action is required to ensure take remains within the permitted levels. Proposed management actions may include, but are not limited to the following:

- Install additional short-term and long-term retrofits.
- Update anti-perching and anti-nesting devices for retrofits as new/more advanced technology becomes available.
- Evaluate and propose additional measures to address eagle collisions, including bird flight diverters.
- Reevaluate of SDG&E activity categories and potential nest disturbances.
- Provide or institute additional awareness training to SDG&E employees and contractors.

During each 5-year evaluation with USFWS, SDG&E will also review suggested APLIC practices relative to any trends in take occurrences associated with SDG&E facilities and reevaluate nest buffer distances relative to nest outcome data from monitoring associated with nest buffer intrusions. Proposed management actions for new data and technology may include, but are not limited to the following:

- Installation of covered conductor to serve as long-term mitigation in lieu of short-term or long-term retrofits if available data support the reduction of electrocutions because of covered conductor use.
- Nest buffer reductions based on data collection of 10 or more nest incursions where nest disturbance and take did not occur.

SDG&E will evaluate changes to regulations implementing BGEPA and may update the ECP to remain consistent with operative regulations as needed. Such changes to the

ECP will constitute an administrative change under Section 6.5.1.1 of the HCP Amendment.

SDG&E will work with USFWS before implementing any adaptive management strategies that would affect or benefit the local eagle populations in southern California.

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Peninsular Bighorn Sheep Evaluation

APPENDIX C

**PENINSULAR BIGHORN SHEEP EVALUATION
FOR THE
SDG&E HABITAT CONSERVATION PLAN AMENDMENT**

Prepared by:

San Diego Gas & Electric Company
Environmental Services

August 2023

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ATTACHMENTS

- Attachment A: Existing USFWS-Approved Avoidance and Minimization Measures For Sunrise Powerlink
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1.0 INTRODUCTION

San Diego Gas & Electric Company (SDG&E) is applying to the U.S. Fish & Wildlife Service (USFWS) for an amended incidental take permit under the Endangered Species Act (ESA). With that application, SDG&E has included the required conservation plan, titled Habitat Conservation Plan Amendment (HCP Amendment), which amends SDG&E's existing 1995 Subregional Natural Community Conservation Plan and Habitat Conservation Plan (Subregional Plan). As relevant here, the HCP Amendment extends the Plan Area to be contiguous with SDG&E's entire service area and adds the ESA-listed peninsular bighorn sheep (PBS) (*Ovis canadensis nelson*) as a Covered Species.

This evaluation supports SDG&E's application for an amended incidental take permit under ESA Section 10(a)(1)(B) and provides relevant information about designated critical habitat and essential habitat in the HCP Amendment Plan Area. In addition, it evaluates potential effects of SDG&E's Covered Activities on the conservation and recovery of PBS and its habitat. As discussed herein, despite broad areas of critical habitat and essential habitat available to PBS in a portion of SDG&E's service area, only 14 female sheep have ever been recorded adjacent to SDG&E's Facilities, and electric lines in predicted lambing areas total less than 2 miles. Also, there has been no documented take of PBS from Covered Activities. Moreover, SDG&E will implement a host of Operational Protocols informed by USFWS-approved measures prescribed in prior documents (i.e., Sunrise Biological Opinion [USFWS 2010]) to ensure SDG&E avoids and minimizes human disturbance near lambing areas during the lambing season.

Given SDG&E's Subregional Plan and HCP Amendment, along with SDG&E's commitment to implement Covered Activities in accordance with the Operational Protocols prescribed therein, and other considerations discussed below, this evaluation concludes that SDG&E's Covered Activities will not reduce the numbers, reproduction, or distribution of PBS in the Plan Area or rangewide; impair the function of critical habitat; or negatively affect the species' survival or recovery.

2.0 BACKGROUND

2.1 LISTING STATUS, DISTRIBUTION, AND THREATS

The ESA defines "species" as including any subspecies of fish or wildlife or plants, and any Distinct Population Segment (DPS) of any species of vertebrate wildlife. USFWS listed the Peninsular Ranges population segment of desert bighorn sheep in southern California as an endangered DPS of the species *Ovis canadensis* in 1998 (USFWS 1998, p. 13134). The listed DPS inhabits the Peninsular Ranges in southern California from the San Jacinto Mountains south to the United States-Mexico International Border. The Peninsular Ranges population of PBS occupies moderate to steep slopes from approximately 100 to 1,400 meters in elevation, with use of alluvial fans and washes, and valley floors depending on environmental conditions and dispersal requirements. This population of the subspecies

exhibits a metapopulation structure and requires habitat necessary to accommodate movements of males (rams), and more rarely females (ewes), between ewe groups (subpopulations) (DeForge et al. 1997; Jorgensen and Turner 1975; USFWS 2000).

PBS predominantly use mountainous habitat with 20 to 60 percent (%) slopes (USFWS 2009). Areas of gentle terrain, such as valley floors, are important linkages between adjacent mountainous regions, thereby providing PBS temporary access to resources (e.g., forage, water, lambing habitat) in neighboring areas, and allowing gene flow to occur between subpopulations (Krausman and Leopold 1986; Schwartz et al. 1986; Bleich et al. 1990; Bleich et al. 1996). Suitable habitat for PBS exists in the far eastern portion of the Plan Area, mainly on eastern slopes of the San Jacinto Mountains, in steep, rocky terrain supporting little vegetation.

Since its listing, all subpopulations of PBS within the Plan Area have significantly increased in size.¹ Annual recruitment and survivorship of lambs varies from year to year and between subpopulations. PBS are relatively long-lived animals that can reproduce from 2 to 16 years of age. Periods of above-average recruitment could compensate for periods of low recruitment. However, if adult survival is impacted within a subpopulation, the subpopulation's numbers could be reduced enough to endanger its continued existence.

Threats to PBS as outlined in the most recent 5-year status review by USFWS (USFWS 2011) include:

- Habitat fragmentation, degradation, and loss causing PBS to be restricted to smaller areas and inhibiting movement between subpopulations;
- Development, including urban development, mining, and renewable energy projects;
- Off-highway vehicle activity, trails, and other outdoor recreational activities;
- Fire suppression, which may lead to areas of dense vegetation, which PBS avoid;
- Frequent repeated wildfires causing native shrubs to be replaced by less suitable forage such as nonnative grasses;
- Habitat modification due to invasive nonnative plants such as tamarisk (*Tamarix* spp.), Saharan mustard (*Brassica tournefortii*), and fountain grass (*Pennisetum setaceum*);
- Disease;
- Predation; and
- Drought and climate change.

¹ Only the San Jacinto Mountains subpopulation, which is outside of the Plan Area, has not increased.

According to USFWS's 5-year review, the behavioral response of PBS to human activity is highly variable and dependent upon many factors, including (1) the type of activity, (2) an animal's previous experience with humans, (3) size or composition of the PBS group, (4) location of the PBS relative to elevation of the activity, (5) distance to escape terrain, and (6) distance to the activity.

During the lambing season (January 1 through June 30), ewes seek isolated sites (mountain slopes 60% or greater) to give birth; young lambs stay close to this terrain while feeding on lower-gradient slopes (USFWS 2009). Ewes give birth to and raise lambs in steep (greater than or equal to 20% slope), rocky areas, which provide protection from predation. Ewes with lambs typically are more sensitive to disturbance, as are animals approached from higher elevations. PBS also may be more sensitive to disturbance during the spring and fall, corresponding with lambing and rutting seasons. Accordingly, the Recovery Plan (USFWS 2000) states that it is important to avoid and minimize human disturbance near lambing areas during the lambing season,² and suggests that seasonal restrictions during this period "minimize impacts to bighorn sheep at a critical stage of their life cycle."

Figure 1 shows PBS occurrences, designated PBS critical habitat, and PBS essential habitat within the Plan Area.

2.2 CRITICAL HABITAT

USFWS designated approximately 376,938 acres of critical habitat consisting of three units in San Diego, Riverside, and Imperial Counties on April 14, 2009 (USFWS 2009; 74 Federal Register 17288). Within the Plan Area, there is approximately 261,489 acres of PBS critical habitat (Unit 2b and Unit 3) (Figure 1). Approximately 661 acres (or <0.25%) of critical habitat in the Plan Area overlaps the Probable Impact Zone (PIZ), the area around existing SDG&E Facilities where future impacts are reasonably likely to occur (see HCP Amendment Section 4.1.3.2; Figures 2 through 15).

2.3 ESSENTIAL HABITAT

USFWS defined PBS essential habitat as *"those areas that provide bighorn sheep with the various physical and biological resources (e.g., space, food, water, cover) potentially needed for: (1) individual/population growth and movement, and (2) normal behavior with protection from disturbance"* (USFWS 2000).

The majority of PBS essential habitat overlaps PBS critical habitat. Essential habitat also extends beyond critical habitat boundaries and includes areas that provide the physical and biological resources PBS require but which do not meet the definition of critical habitat

² The Recovery Plan defines "lambing habitat" as "compris[ing] those areas used for breeding, sheltering, and nurturing of lambs up to the time of weaning, including those areas occupied by ewes 1 month before giving birth." Lambing areas have not been previously mapped or delineated.

(USFWS 2000, 2009). Essential habitat includes areas USFWS concluded were needed to facilitate recovery, while critical habitat identifies specific areas that are essential for the species' conservation.

USFWS created the boundary of essential habitat by (i) mapping areas of 20% slope or greater, and because PBS are known to wander beyond areas of 20% slopes (USFWS 2009) and (ii) buffering those areas by 0.5 mile (USFWS 2000) to account for other areas of use. For purposes of this report, essential habitat is synonymous with suitable PBS habitat.

Essential habitat totals 782,541 acres. Within the Plan Area, there is approximately 429,424 acres of essential habitat (Figure 1). Approximately 996 acres (or <0.23%) of essential habitat overlaps the PIZ associated with existing SDG&E Facilities.

2.4 CONSULTATION HISTORY AND PREVIOUSLY APPROVED PLANS

SDG&E considered the following documents in preparing this evaluation:

- USFWS's Biological Opinion issued to the Bureau of Land Management for the Sunrise Powerlink Project (FWS 08B0423-11F0047, Imperial and San Diego Counties, November 10, 2010) (Biological Opinion).
- Peninsular Bighorn Sheep Construction Monitoring Plan, SDG&E, Sunrise Powerlink Project, Imperial and San Diego Counties, California, prepared by Arthur Davenport, August 23, 2010 (Monitoring Plan).
- Sunrise Powerlink – Request for Adjustments to Mitigation Measure B-7c and Species-Specific Conservation Measure 16 (SS-CM-16) to Ensure that Avoidance and Minimization Measures can be Implemented in Concert with Operations and Maintenance Activities (2013 Memo Request).

The Biological Opinion (USFWS 2010) includes conservation measures to protect PBS. In combination with an implementation plan (SDG&E 2013) and the Monitoring Plan (Davenport 2010), the suite of measures from these documents provides the basis for avoidance and minimization measures in this evaluation. The measures from these three documents are summarized in Attachment A.

3.0 IMPACTS ANALYSIS

Aerial and ground Covered Activities may affect PBS. The sudden appearance of a helicopter or drone may startle PBS and cause an accidental fall or, if close to roads, cause them to move out onto roadways where a collision with a vehicle may occur. Ground crews and equipment working in PBS habitat may produce indirect impacts in the form of noise, light, or human presence. PBS may also move into work areas and/or get struck by vehicles.

PBS use lambing areas from January through June for birthing and rearing of lambs. Project activities occurring in or near lambing areas pose a significant risk during the lamb season, which could cause PBS ewes to move during a time that increases the chance that PBS will be injured, be subjected to increased predation risk, or cause them to move out onto roadways where collisions can occur. Newborn lambs are also at risk as they need time to gain strength and balance and are at risk of experiencing falls if forced to move when too young. In addition, if a newborn lamb is forced to move too soon, the lamb may experience increased predation risk. Ewes also leave their lambs in the shady protection of boulders and, if forced to move from these shaded locations, lambs may suffer heat stress as well as increased predation risk.

Water availability is critical to PBS especially during the summer months. Activities near water sources may temporarily preclude PBS use of the water source. Construction of permanent Facilities with associated operations and maintenance (O&M) may permanently preclude or diminish PBS use of the water source, which would be detrimental especially to PBS during hotter portions of the year.

To evaluate potential effects of SDG&E's Covered Activities on PBS and its habitat, SDG&E undertook three separate analyses using three methodologies. Each method and its results are described in turn below.

3.1 ANALYSIS NO. 1 – HABITAT IMPACT ASSESSMENT

3.1.1 METHODOLOGY

As discussed in the HCP Amendment, SDG&E analyzed nearly three decades of historical impact data that detailed acres of habitat impacted under the Subregional Plan. This data showed that, on average, Covered Activities caused approximately 11.54 acres of total annual impacts (permanent and temporary combined) in the Subregional Plan Area. SDG&E assumed the rate of future impacts would be similar with historical averages throughout the HCP Amendment Plan Area. SDG&E then overlaid the PIZ on PBS critical habitat and essential habitat, as opposed to modeled habitat, to quantify the percentage of the undeveloped portion of PIZ supporting critical/essential habitat and multiplied that amount by 11.54 acres (i.e., applied the same methodology as that used in the HCP Amendment) to calculate potential impacts to essential habitat and critical habitat in the HCP Amendment Plan Area. To be conservative and account for any unanticipated impacts that may not be included, SDG&E added a 15% buffer to the anticipated annual impacts. The results are discussed below.

3.1.2 RESULTS

CRITICAL HABITAT

Approximate annual acreage of anticipated permanent and temporary direct impacts to PBS critical habitat resulting from Covered Activities is as follows:

- Approximately 0.17 acre (or approximately 7,405 square feet) of permanent impacts (Table 1); and
- Approximately 0.10 acre (or approximately 4,356 square feet) of temporary impacts (Table 1).

Wildfire Fuels Management is not expected to occur in areas of PBS critical habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur. Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to PBS critical habitat in the Plan Area:

- Approximately 5.18 acres (or <0.01%) of permanent impacts (Table 1); and
- Approximately 3.02 acres (or <0.01%) of temporary impacts (Table 1).

ESSENTIAL HABITAT

Approximate annual acreage of anticipated permanent and temporary direct impacts to PBS essential habitat resulting from Covered Activities is as follows:

- Approximately 0.25 acre (or approximately 10,890 square feet) of permanent impacts (Table 1); and
- Approximately 0.15 acre (or approximately 6,354 square feet) of temporary impacts (Table 1).

Wildfire Fuels Management is not expected to occur in areas of PBS essential habitat; therefore, impacts to this species resulting from Wildfire Fuels Management will not occur. Over the remaining duration of the permit, implementation of the HCP Amendment is expected to result in the following impacts to PBS essential habitat in the Plan Area:

- Approximately 6.30 acres (or <0.01%) of permanent impacts (Table 1); and
- Approximately 4.40 acres (or <0.01%) of temporary impacts (Table 1).

Table 1. Anticipated Permanent and Temporary PBS Critical Habitat and Essential Habitat Impacts (acres)

		Critical Habitat	Essential Habitat
Total Designated Habitat		376,938	782,541
Plan Area		261,489	429,424
PIZ		661	966
Undeveloped PIZ²		633.06	923.04
Percentage of Undeveloped PIZ with Critical/Essential Habitat³		1.30%	1.90%
Permanent Impacts¹	Annual Impacts⁴	0.17	0.25
	Total O&M and New Construction Impacts over through 2050⁵	5.18	7.55
	O&M Impacts through 2050⁶	4.32	6.30
	New Construction Impacts through 2050⁶	0.86	1.25
	Percentage of Total Designated Critical Habitat Impacted through 2050⁷	<0.01%	<0.01%
Temporary Impacts¹	Annual Impacts⁸	0.10	0.15
	Impacts through 2050⁵	3.02	4.40
	Percentage of Total Designated Critical Habitat Impacted through 2050⁷	<0.01%	<0.01%
Total Impacts⁹		8.20	11.96

¹ Note that anticipated impacts have been calculated to provide an approximation of the potential impacts. Actual impacts would be assessed, avoided, and minimized through the existing Pre-activity Survey Report [PSR] process. Note that all numbers were rounded after calculations were completed.

² Critical/essential habitat with agriculture and developed areas removed per the process described in HCP Amendment Section 4.1.3.

³ The portion of the PIZ with undeveloped habitat totals 48,665 acres. The percentage represents critical/essential habitat within the undeveloped PIZ divided by 48,665 acres.

⁴ Based on SDG&E historical impact trends under the Subregional Plan for the period of 1996 through 2018, an average of approximately 11.54 acres of total impacts is expected on an annual basis with implementation of Operations and Maintenance (O&M) and New Construction. The average annual total impacts (11.54 acres) was multiplied by the percentage of PIZ supporting critical/essential habitat for a given species to estimate the permanent impacts on critical/essential habitat on an annual basis. This total was increased by 15% to accommodate unanticipated impacts.

⁵ Annual average multiplied by 30 years.

⁶ Based on historical data, New Construction was assumed to represent 16.6% of the total O&M and New Construction impact estimate. O&M represents the difference between the total impacts and New Construction impacts.

⁷ Total impacts over 30 years divided by all designated Critical Habitat.

⁸ Based on SDG&E historical impact trends under the Subregional Plan for the period of 1996 through 2018, an average of approximately 6.73 acres of temporary impacts is expected on an annual basis with implementation of O&M and New Construction. The average annual temporary impacts (6.73 acres) was multiplied by the percentage of PIZ supporting critical/essential habitat for a given species to estimate the temporary impacts on critical/essential habitat on an annual basis. This total was increased by 15% to accommodate unanticipated impacts.

⁹ Total permanent and temporary impacts. Note that the majority of critical habitat coincides with essential habitat; therefore, impacts to critical and essential habitat should not be summed together.

SUMMARY

While small amounts of habitat impacts are estimated to occur over the remaining permit term, impacts to actual PBS are unlikely. Notably, unlike the typical steep and rocky areas that provide suitable habitat for all life stages of PBS (USFWS 2009), most of SDG&E's Facilities in the eastern portion of the Plan Area are in flat to gently sloping areas adjacent to existing roadways (see brown-colored areas in figures for Analysis No. 2). As noted above, there has been no take documented from Covered Activities, nor does SDG&E anticipate that Covered Activities are likely to take PBS, as defined by the ESA and its implementing regulations. This conclusion is further supported by the analyses below.

3.2 ANALYSIS NO. 2 – LAMBING AREA PREDICTIVE ANALYSIS BASED ON GEOGRAPHIC INFORMATION SYSTEM ANALYSIS OF PBS OCCURRENCE DATA

3.2.1 METHODOLOGY

As noted above, USFWS has concluded that it is important to avoid and minimize human disturbance near lambing areas during the lambing season. To help meet this important objective, SDG&E requested and received geographic information system (GIS) data from the California Department of Fish & Wildlife (CDFW) of point locations (i.e., occurrence data or “records”) for known PBS individuals, which it used to predict lambing areas. These occurrence locations were derived from various sources (e.g., air telemetry, global positioning system [GPS] collars, etc.) and cover a range of dates from 1940 to 2020. However, only the records after 2000 contained information on the sex and identification (ID) number of individual animals. These two attributes give USFWS and SDG&E the ability to follow an individual animal and predict lambing areas.

For this lambing area predictive analysis, SDG&E used records for known female individuals. CDFW's database included 84,706 records that represent at least 385 individual sheep. Of these, 15 are males and 126 are female, and 244 records have a unique sheep ID number but have no sex recorded.

Because ewes cluster and form nursery groups with other females in rugged areas of high elevation and steep slopes, SDG&E evaluated where known female sheep were clustering during the lambing season to predict lambing areas. For purposes of this analysis, SDG&E used location data from January through April, per recommendations from USFWS, which represent the peak months that ewes are giving birth.

As defined by Esri ArcGIS, *the Kernel Density tool calculates the density of features in a neighborhood around those features*. SDG&E used the kernel density tool in ArcGIS to use point locations to produce a raster dataset with density values for each raster grid cell. The resulting raster contained a value for predicted density for each cell in the dataset.

Before performing the analyses, SDG&E undertook a small amount of data cleanup to assign the correct sheep sex to certain records with “Unknown” for the sex category. SDG&E updated data where a Sheep ID that identified as “Unknown” sex had other records that recorded the sex of the animal. For these, SDG&E updated the records to Female or Male. An example follows:

Field:		Selection:		Highlighted:			
OBJECTID	Shape	Sheep	Sex	Month	Year	Date	Time
121302	Point	301	Unknown	10	2013	20131031	
168173	Point	301	Female	10	2013	20131031	21:21:17
168174	Point	301	Female	10	2013	20131031	23:22:44

Once all corrections were made, SDG&E queried the approximately 60-year dataset using two criteria relevant to lambing areas. Specifically, SDG&E generated a subset of point locations for all datapoints that were:

- Female and
- Captured from January through April.

This subset resulted in a dataset of 312,070 discrete location point captures ranging in years from 2010 to 2020 and representing a total of 124 females.

Using this subset, SDG&E performed a kernel density analysis in ArcGIS. The kernel density tool generated a raster grid dataset wherein each cell has a density value. This dataset of density values, ranging from low density to high density, was classified to produce density contours where each contour represents a range of density values. Each contour was then assigned a category number (0 to 9).

Because the purpose of the density analysis was to find areas of high-density occupation, SDG&E evaluated contours that represented high-density values (categories 4 to 9) in the analysis. Categories 0 to 3 represented areas where the density of ewes was too low to accurately represent lambing areas. SDG&E used the density contours, representing the density categories 4 to 9, to perform further analyses, such as mileage of electric distribution and transmission lines through predicted lambing areas as well as number of individuals within a 500-foot corridor of the area represented as the PIZ. The areas with higher-density values (represented in Figures 2 through 2-4 as a gradient of colors from dark navy (highest density) to aqua) were those with the highest concentration of female sheep occurrences during the January through April portion of the lambing season.

Once the areas of highest-density concentrations were generated, SDG&E used the County of San Diego slope GIS dataset, from the San Diego Association of Governments (SANDAG) regional data warehouse, to perform a slope analysis to determine areas that

were greater than or equal to 20% slope (i.e., lambing areas) (SanGIS/SANDAG 2021). The addition of slope as a variable to the GIS analysis further refined the areas within which sheep would concentrate for lambing. The County of San Diego slope GIS dataset included four classifications of slopes: slopes <15%, slopes 15% to 25%, slopes 25% to 50%, and slopes 50% or greater. To ensure the analysis included all areas of at least 20% slope, this exercise defined the predicted lambing areas as the areas of highest-density concentrations of females (January through April) within slopes $\geq 15\%$.

SDG&E then calculated the number of miles of SDG&E electric distribution and transmission lines within the predicted lambing areas. A 500-foot corridor, centered on the PIZ in lambing areas, was used to identify (1) the number of individual sheep recorded within the defined corridor over the last 60 years and (2) the number of female individuals recorded adjacent to electric infrastructure during the months of January through April between from years 2010 through 2020.

3.2.2 RESULTS

The GIS analysis yielded a clear overview of predicted lambing areas and showed where those areas intersected SDG&E Facilities. In short, the overlap was minimal: there are no electric transmission lines in predicted lambing areas and approximately 2.2 miles of electric distribution lines in predicted lambing areas.³ In all, 12 total female sheep were recorded in these predicted lambing areas near electric distribution lines.⁴ See Table 2 (showing results of the records analysis, individual sheep, and female sheep).

Table 2. Analysis of Peninsular Bighorn Sheep Records within Predicted Lambing Areas

Area Analyzed	Number of Records ¹ (All Sheep)	Number of Individuals ²	Number of Records (Females, January through April)	Number of Individual Female Sheep ³
Distribution Line 500-foot corridor	1,214	13	246	12
Transmission Line 500-foot corridor	0	0	0	0
Totals	1,214	13	246	12

¹ All 984,796 records were analyzed to determine the total number of sheep records within the areas analyzed.

² The number of individuals is out of 385 individual sheep from over 60 years. These records are of individuals with a unique sheep identification number.

³ The number of individual females over 10 years from January through April.

³ Distribution lines are lines designed to operate under 50 kilovolts, which bring electricity from substations to neighborhoods.

⁴ As noted above, the subset of data for female sheep locations from January through April timeframe included the years from 2010 through 2020.

The results of this analysis are shown in Figures 2 through 2-4, which depict the entire SDG&E service area where PBS occur and specific close-ups where predicted lambing areas are near Facilities. Each area where Facilities are located near predicted lambing areas includes the following three-map series: (1) all point locations for PBS; (2) all PBS point locations overlaying predicted lambing areas (as demonstrated by density contours); and (3) predicted lambing areas.

3.3 ANALYSIS NO. 3 – QUALITATIVE REVIEW OF SPECIES PRESENCE IN THE PLAN AREA AND PIZ

3.3.1 METHODOLOGY

In addition to the GIS analysis of PBS occurrence data, SDG&E also manually reviewed the locations of all PBS records and compared them against critical habitat, essential habitat, and the PIZ. SDG&E used this approach to further evaluate the potential for interactions between PBS that migrate within their range and SDG&E's infrastructure in the desert. SDG&E Facilities in this area consist of overhead and underground electric lines predominately along or near existing roads that serve rural residences.

SDG&E considered seven desert regions to evaluate the potential for interactions between migrating sheep and electric infrastructure. Figures 3-1 through 3-7 document PBS occurrences, critical habitat, essential habitat, and slopes within the PIZ for these areas as follows:

- Northern end of Borrego Springs (Figure 3-1)
- East of Borrego Springs (Figure 3-2)
- Borrego Palm Canyon Campground Area (Figure 3-3)
- Southern end of Borrego Springs (Figure 3-4)
- South of Borrego Springs near State Route (SR) 78 (SR-78) (Figure 3-5)
- Along Great Southern Overland Stage Route (Figure 3-6)
- Northeast of Jacumba Hot Springs (Figure 3-7)

3.3.2 RESULTS

The results of this qualitative analysis align with the findings of the GIS analysis. Occurrence data for PBS have been collected for over 60 years; during that time, very few individuals have ever actually been recorded within the PIZ. Of the 984,706 records in the database, only 245 PBS occurrence datapoints were recorded in the PIZ (or 0.02% of the total). Of these occurrence datapoints, 96% were collected from 16 individual ewes over 6 years (2014 through 2020). The full analysis of all regions is in Attachment B.

3.4 SPECIES-SPECIFIC PROTOCOLS FOR INCLUSION IN THE HCP AMENDMENT

SDG&E developed the following Species-Specific Protocols as avoidance and minimization measures for PBS that will apply to Covered Activities.

96. Peninsular Bighorn Sheep (*Ovis canadensis nelsoni*)

- a. Impacts from Covered Activities where there are known/historical PBS occurrences and/or to designated critical habitat and essential habitat with physical and biological features (PBFs) for PBS (collectively referred to as PBS-Habitat), shall be avoided through project design considerations, to the extent feasible. PBS-Habitat shall be updated annually as new PBS sightings are documented. A 1-kilometer radius (or approximately 0.6 mile) circle shall be placed around each new PBS sighting and included in PBS-Habitat. USFWS shall be responsible for providing the updated information to SDG&E by December 1 of each year, for use the following year. PBFs and essential habitat include:
 - i. Moderate to steep, open slopes (20 to 60%) and canyons, with canopy cover of 30% or less (below 4,600 feet elevation in Peninsular Ranges) that provide space for sheltering, predator detection, rearing of young, foraging and watering, mating, and movement within and between ewe groups;
 - ii. Presence of a variety of forage plants, indicated by the presence of shrubs (e.g., *Ambrosia* spp., *Caesalpinia* spp., *Hyptis* spp., *Sphaeralcea* spp., *Simmondsia* spp.), that provide a primary food source year-round; grasses (e.g., *Aristida* spp., *Bromus* spp.) and cacti (e.g., *Opuntia* spp.) that provide a source of forage in the fall; and forbs (e.g., *Plantago* spp., *Ditaxis* spp.) that provide a source of forage in the spring;
 - iii. Steep, rugged, slopes (60% slope or greater) (below 4,600 feet elevation in Peninsular Ranges) that provide secluded space for lambing and terrain for predator evasion;
 - iv. Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation, and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resource areas (e.g., foraging areas and escape terrain;
 - v. Intermittent and permanent water sources that are available during extended dry periods and provide relatively nutritious plants and drinking water; and
 - vi. Areas that provide PBS with the various physical and biological resources (e.g., space, food, water, cover) potentially needed for (1) individual/population growth and movement, and (2) normal behavior with protection from disturbance.

- b. PBS-Habitat will be considered occupied habitat. Permanent impacts to PBS Mapped Areas that cannot be avoided shall be mitigated in kind at a 2:1 ratio, or through other alternatives discussed in Section 5.5.3 of the HCP Amendment agreed to by USFWS. This mitigation would need to be approved prior to Covered Activities occurring within PBS-Habitat.
- c. When work shall occur within PBS-Habitat, timing of Covered Activities shall be evaluated to ensure avoidance and minimization of impacts of PBS. When Operational Protocols cannot be implemented to avoid and minimize impacts to PBS, a qualified Biologist shall provide additional recommendations to avoid and minimize impacts to PBS. Recommendations shall be included in the pre-activity survey report (PSR) for USFWS review. Measures that may be implemented include, but are not limited to, the following:
 - i. A Biologist shall be present during construction, as needed, in order to minimize impacts to and avoid take of PBS.
 - ii. A Biologist shall lead a worker environmental awareness training for crews and conduct a survey of the work area prior to the beginning of work each day, as needed, to ensure no PBS are in the project area.
 - iii. Covered Activities (including the use of helicopters and unmanned aerial vehicles) will occur outside of known PBS lambing areas detailed in Section 3.2.2 during the lambing season (January 1 through June 30), and outside of PBS perennial water sources during period of greatest water need (May 1 through September 30) to the maximum extent practicable. Except for emergencies, Covered Activities within lambing areas during the lambing season or near perennial water sources during period of greatest water need will be reviewed and approved by USFWS.
 - iv. If PBS are observed in the work area of any Covered Activity throughout the year, maintain a 1,500-foot buffer between the work area and any observed PBS for helicopter-based crews and a 500-foot buffer for ground crews. If PBS enter a work area, SDG&E shall halt work until the individuals have left the work area. When a Covered Activity is located outside lambing areas, occurring outside the lambing season, or located away from perennial water sources during period of greatest water need, a Biologist may also flush PBS individuals out of an active work area by slowly walking toward the PBS until they move out of the work area.
 - v. Pilots will conduct all low-altitude flight activity near the centerline of the electric line Rights-of-Way (ROW) to the maximum extent practicable for pilot and crew safety.

- vi. Flights will be conducted at a consistent elevation and speed appropriate to the Covered Activity to the maximum extent practicable for pilot and crew safety.
 - vii. Helicopters shall follow regular flight corridors coinciding with the ROW to the maximum extent possible and avoid low-flying “short-cuts” or sight-seeing trips away from the project site.
 - viii. Helicopters, ground activities, facility placement, and other key resource areas identified by a biologist shall keep a minimum of 0.6 mile from PBS perennial water sources to the maximum extent practicable.
- d. No direct injury or killing of PBS is anticipated or authorized.
 - e. For new projects, impacts to PBS and PBS-Habitat would only be covered through the Minor Amendment process as discussed in Section 6.5.1.2 of the HCP Amendment, including acquiring Mitigation Credits as discussed in Section 5.5.

4.0 CONCLUSIONS

As discussed in the HCP Amendment, SDG&E’s infrastructure is now largely in place, so future impacts in the Plan Area are anticipated to be mainly associated with O&M of its existing system. These impacts would typically occur gradually and in small amounts across existing linear corridors on or near existing Facilities throughout SDG&E’s service area over decades. New Construction, although less likely than in past decades, is restricted under the HCP Amendment to ensure impacts are avoided or minimized to the maximum extent practicable.

Suitable habitat for PBS occurs in the far eastern portion of the Plan Area, where Covered Activities will largely be focused on O&M of existing Facilities. Based on approximately 60 years of occurrence data, only 12 female sheep have ever been recorded adjacent to SDG&E’s Facilities. There is also no evidence of any documented take of PBS from Covered Activities, nor is any lethal take of PBS from Covered Activities anticipated. Fewer than 2 miles of electric lines are in predicted lambing areas and estimated PBS habitat impacts are minimal. SDG&E will implement a host of general and species-specific Operational Protocols informed by USFWS-approved measures to ensure SDG&E minimizes potential impacts and avoids take of PBS. Covered Activities undertaken pursuant to the HCP Amendment and in accordance with the above-described measures are not expected to impair PBS essential behavioral patterns, including breeding, feeding, or sheltering; impair function of designated critical habitat; or have a negative effect on the species’ survival or recovery.

5.0 REFERENCES

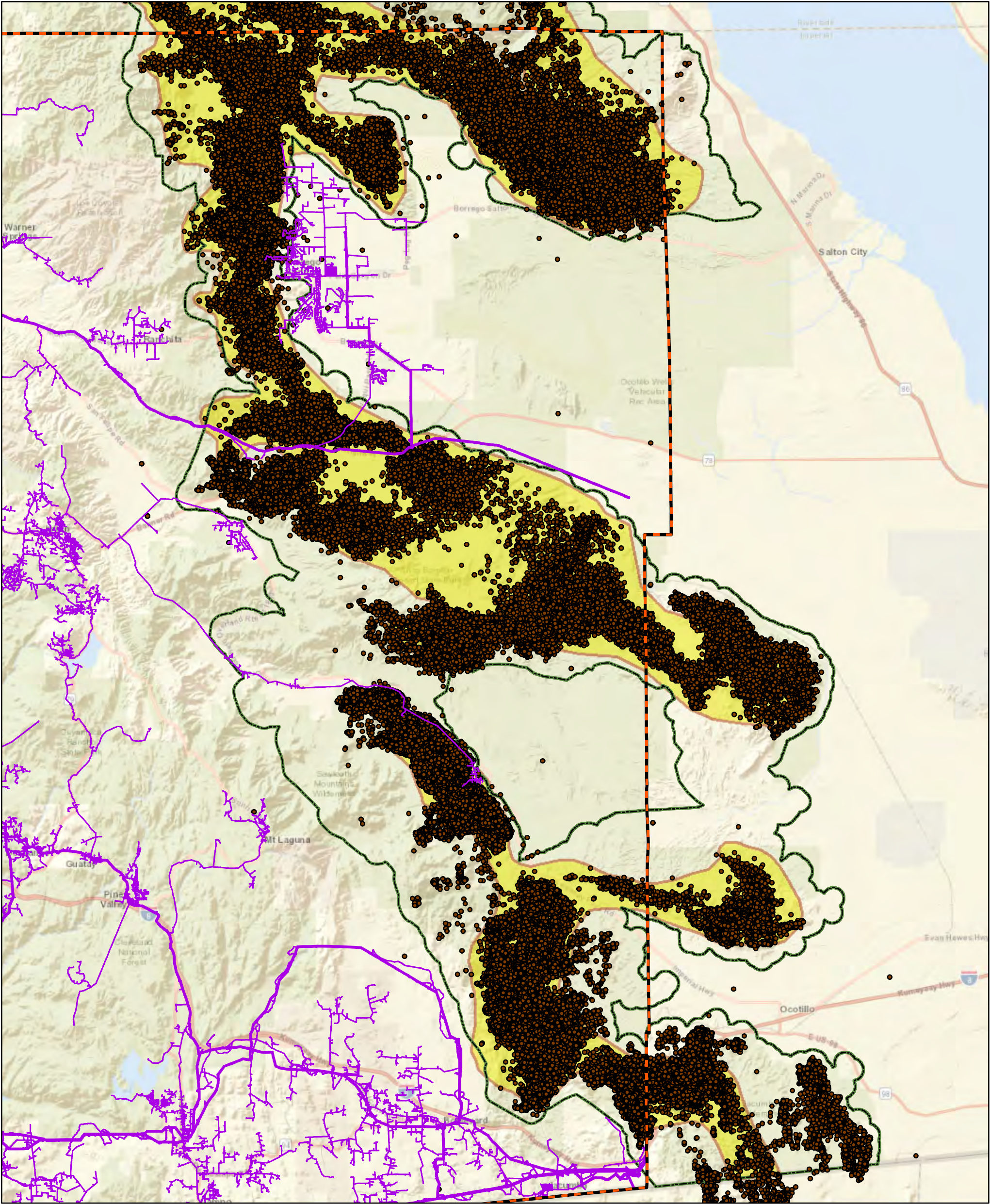
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FIGURES



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- All Sheep Locations



SDG&E PIZ



SDGE Service Area



PBS Critical Habitat



PBS Essential Habitat

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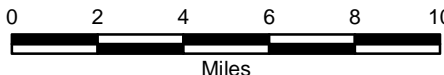
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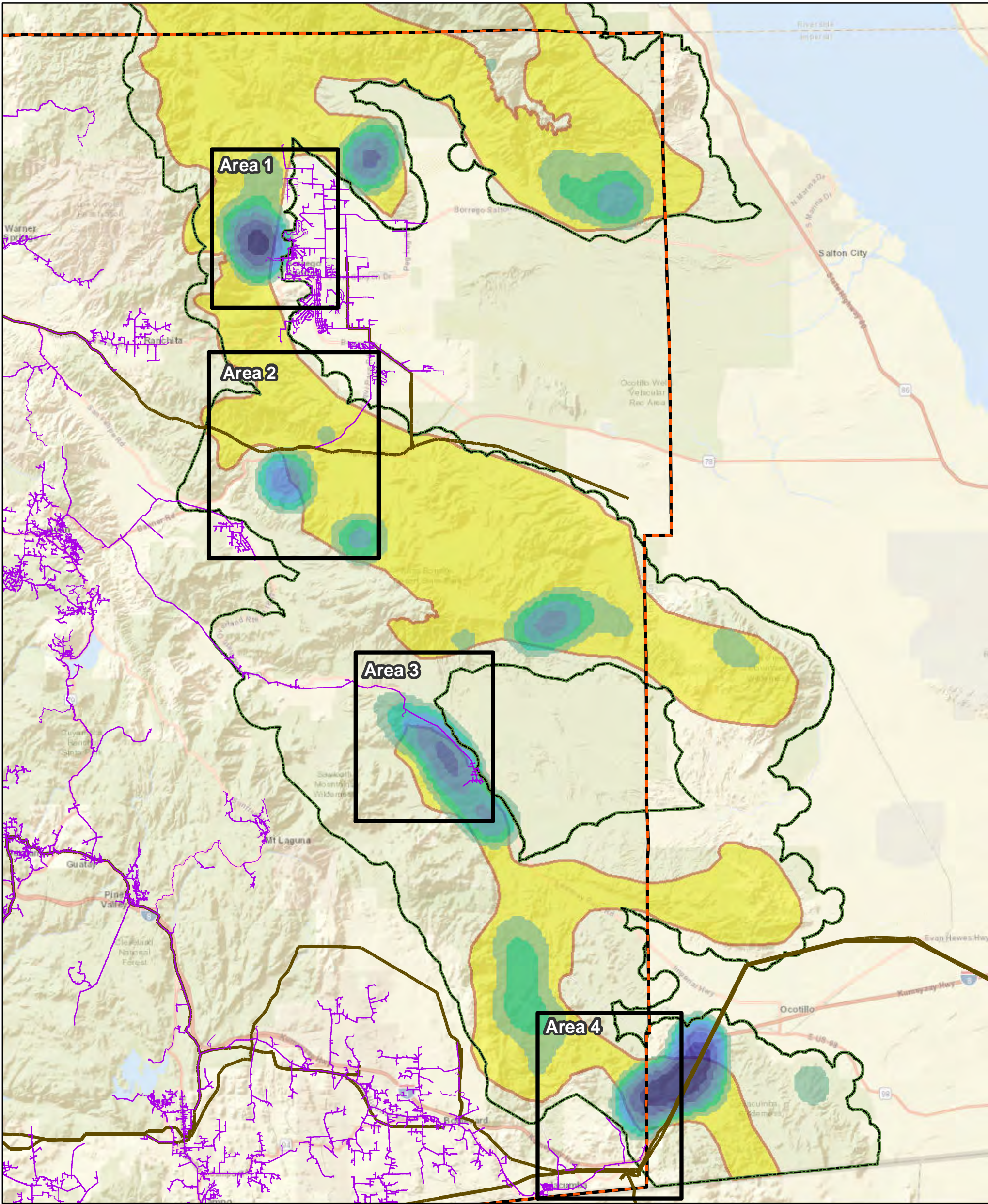
PBS Location Data with SDG&E PIZ

Figure 1



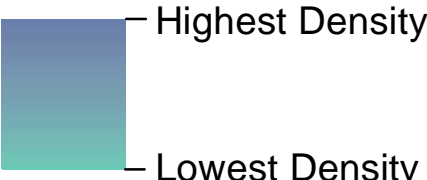
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**Density of Female Sheep
Locations Jan-Apr 2010-2020**



- Distribution Lines
- Transmission Lines
- PBS Essential Habitat
- PBS Critical Habitat
- SDGE Service Area

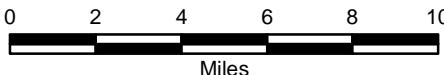
**Overview: PBS Location Data
Kernel Density Analysis Results
with SDG&E Infrastructure**

Figure 2

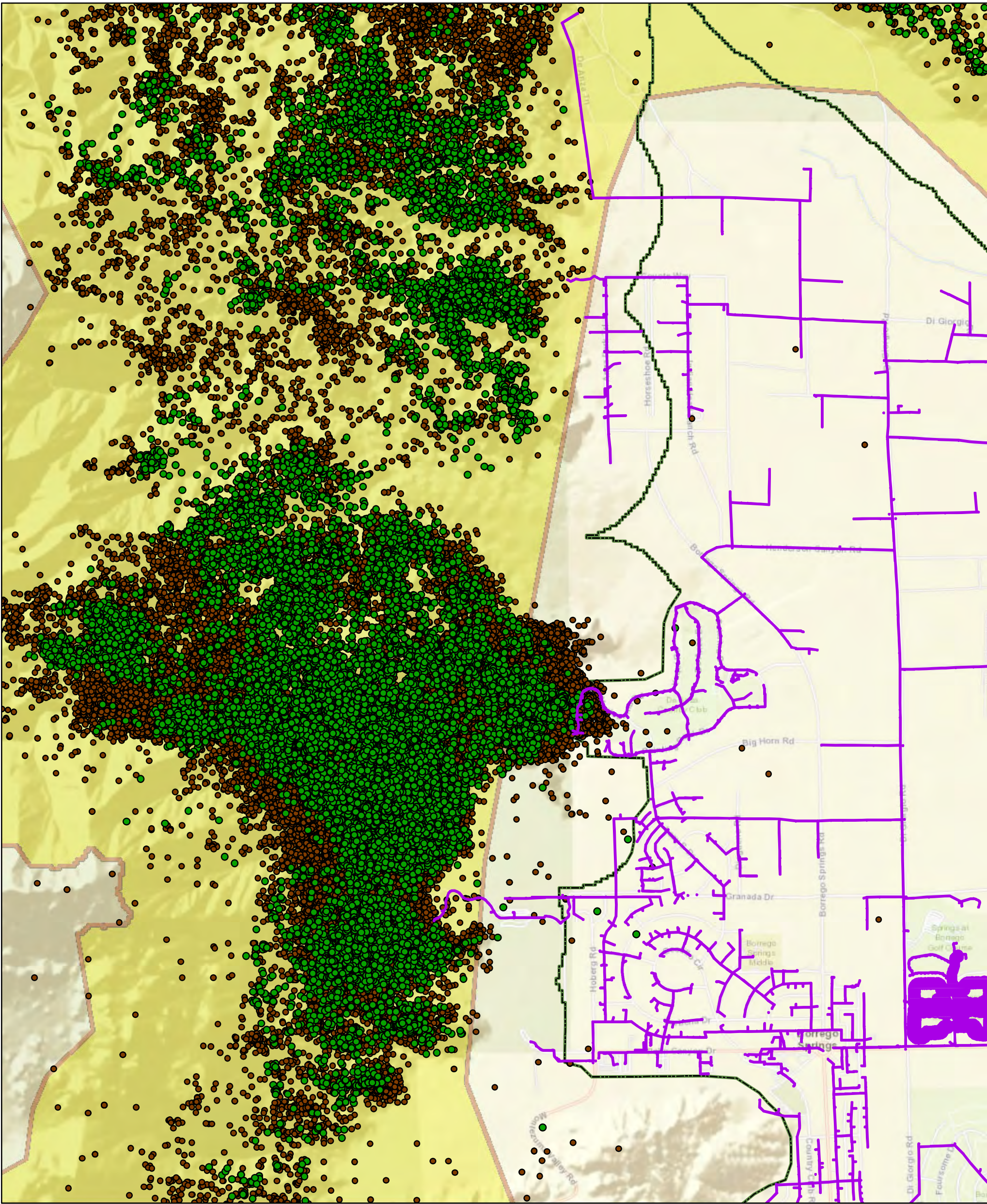
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Area 1: PBS Location Data
and SDG&E PIZ

Figure 2-1

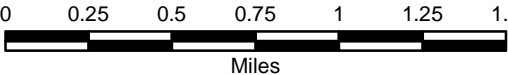
- SDG&E PIZ
- PBS Essential Habitat
- PBS Critical Habitat
- Female Sheep Locations
Jan-Apr 2010-2020
- All Sheep Locations

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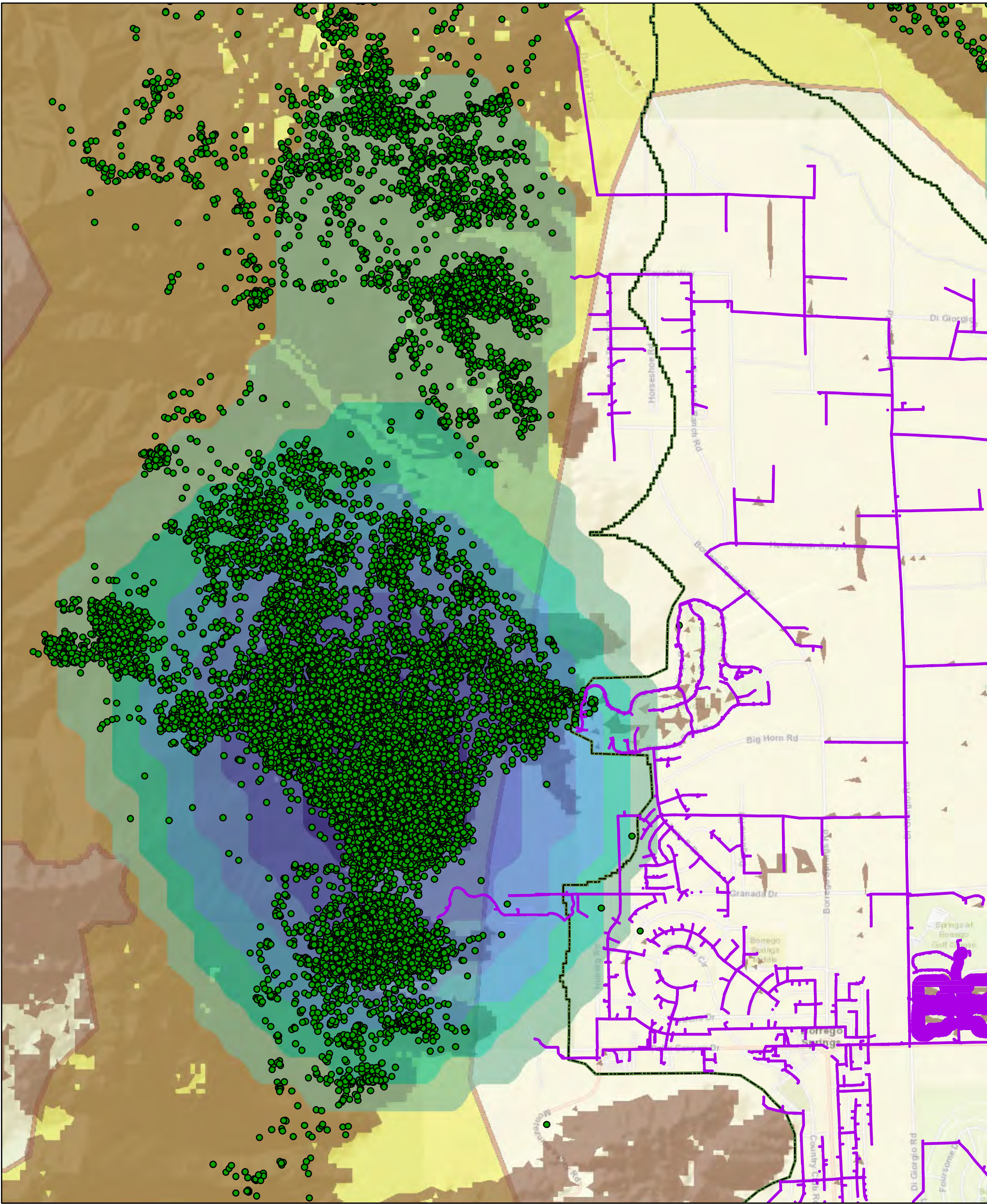


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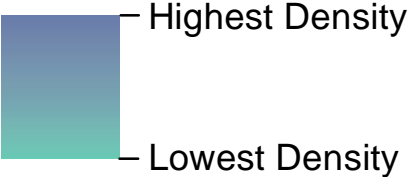
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**Density of Female Sheep
Locations Jan-Apr 2010-2020**



- Female Sheep between Jan-Apr 2010-2020
- SDG&E PIZ
- Slope \Rightarrow 15%
- PBS Critical Habitat
- PBS Essential Habitat

**Area 1: PBS Location Data
Kernel Density/Slope Analysis
Results with SDG&E PIZ**

Figure 2-1

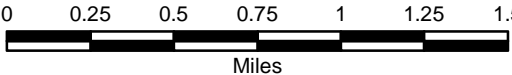
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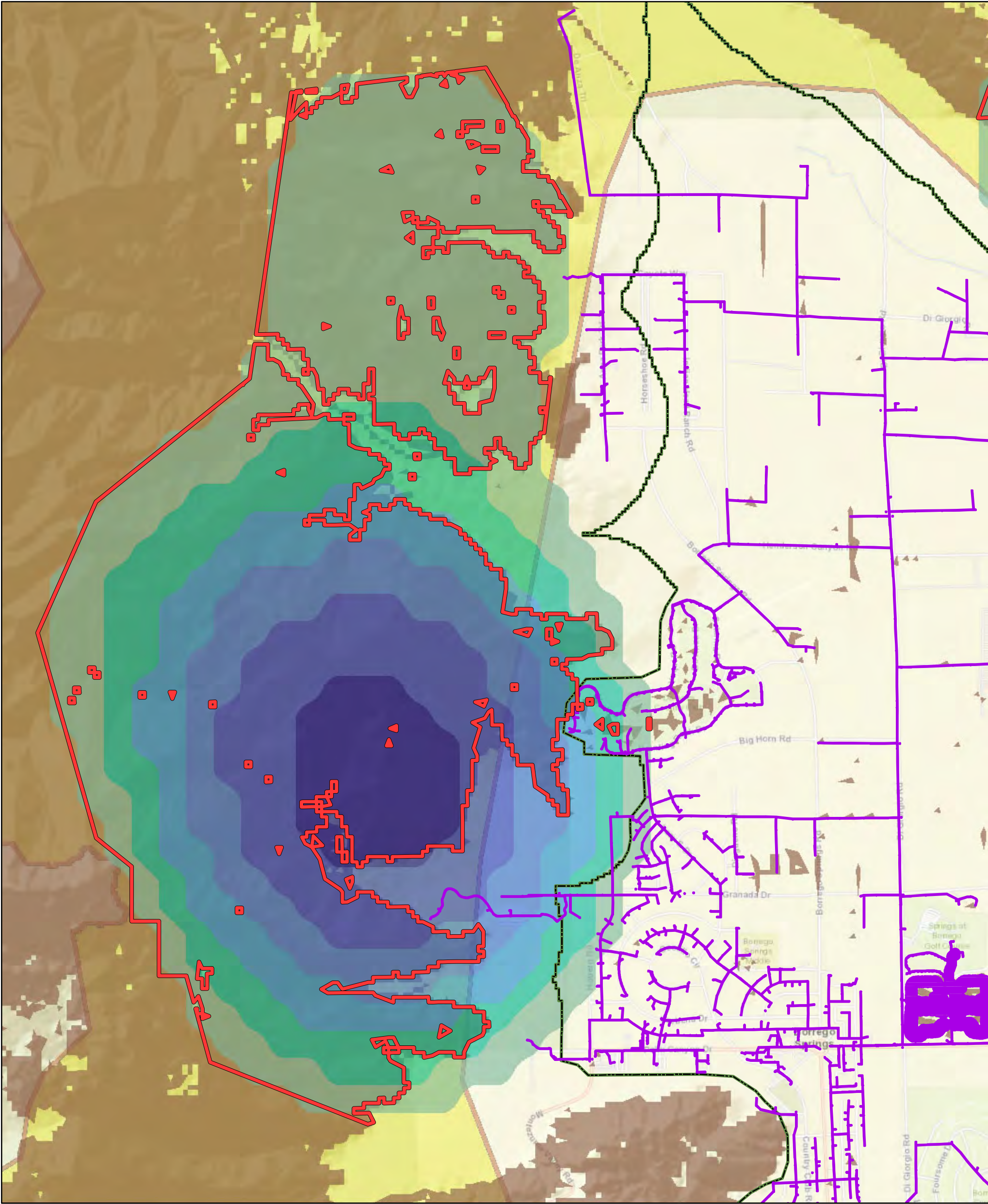


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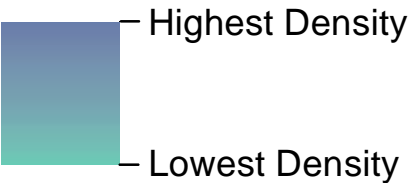
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**Density of Female Sheep
Locations Jan-Apr 2010-2020**



- Potential Lambing Areas
- SDG&E PIZ
- Slope $\geq 15\%$
- PBS Critical Habitat
- PBS Essential Habitat

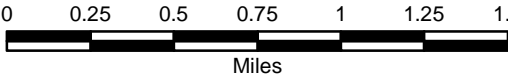
**Area 1: PBS Location Data
Potential Lambing Areas
with SDG&E PIZ**

Figure 2-1

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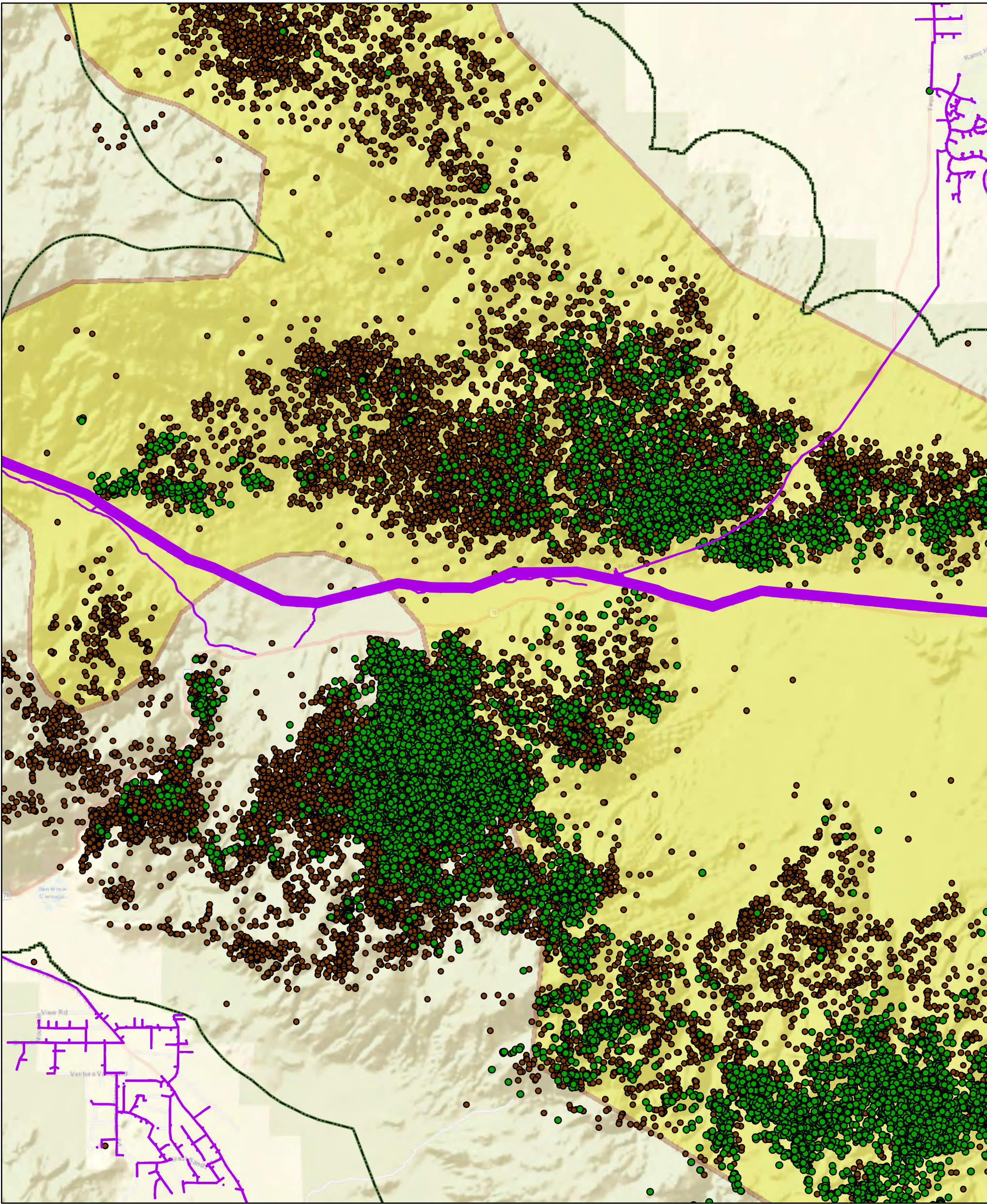
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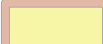


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Area 2: PBS Location Data and SDG&E PIZ

Figure 2-2

Page 1

-  SDG&E PIZ
-  PBS Critical Habitat
-  PBS Essential Habitat
-  Female Sheep Locations Jan-Apr 2010-2020
-  All Sheep Locations

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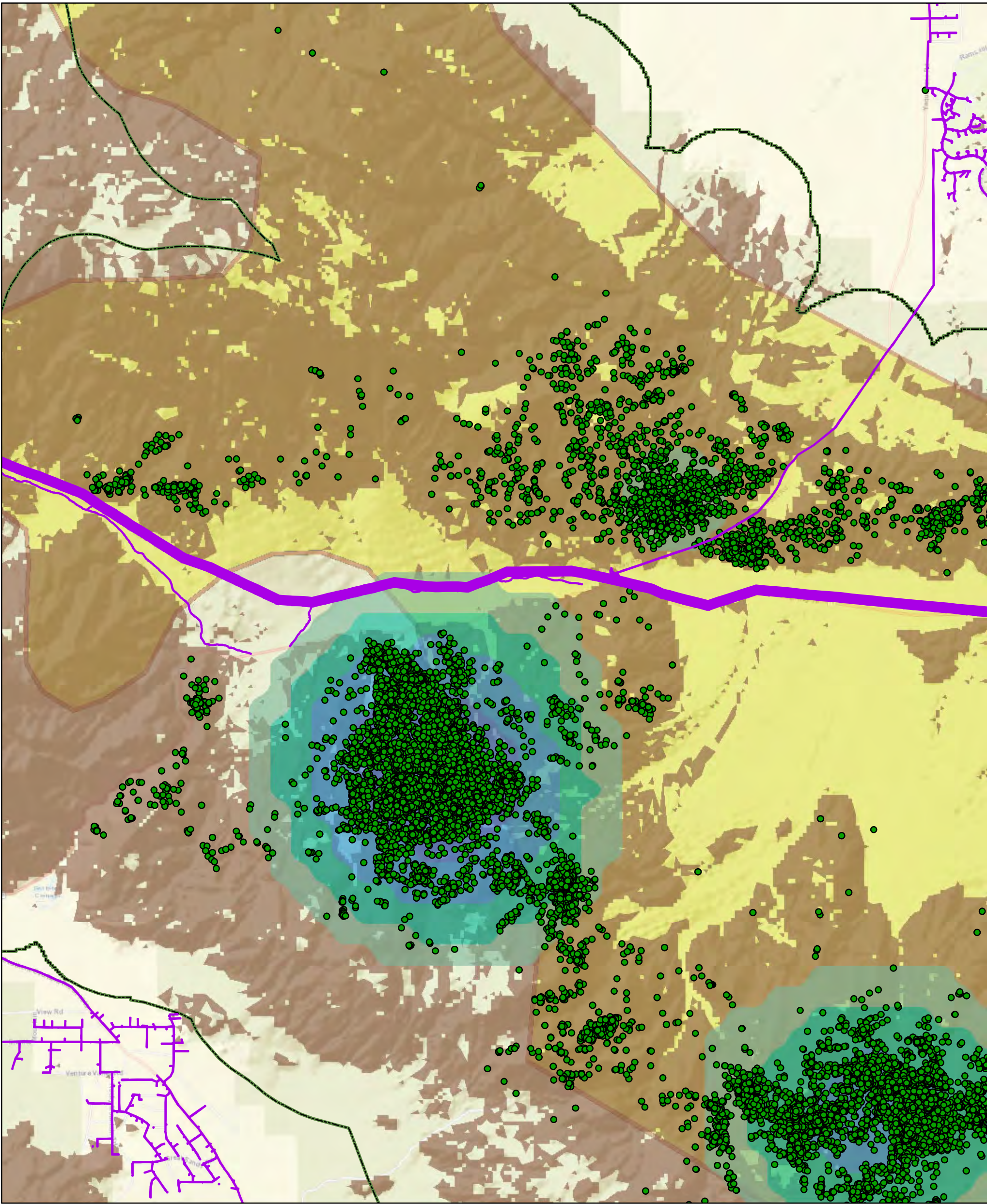


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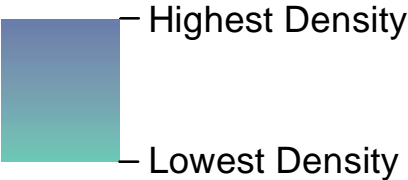
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**Density of Female Sheep
Locations Jan-Apr 2010-2020**



Female Sheep between
Jan-Apr 2010-2020

SDG&E PIZ

Slope $\geq 15\%$

PBS Critical Habitat

PBS Essential Habitat

**Area 2: PBS Location Data
Kernel Density/Slope Analysis
Results with SDG&E PIZ**

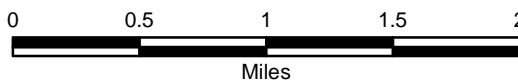
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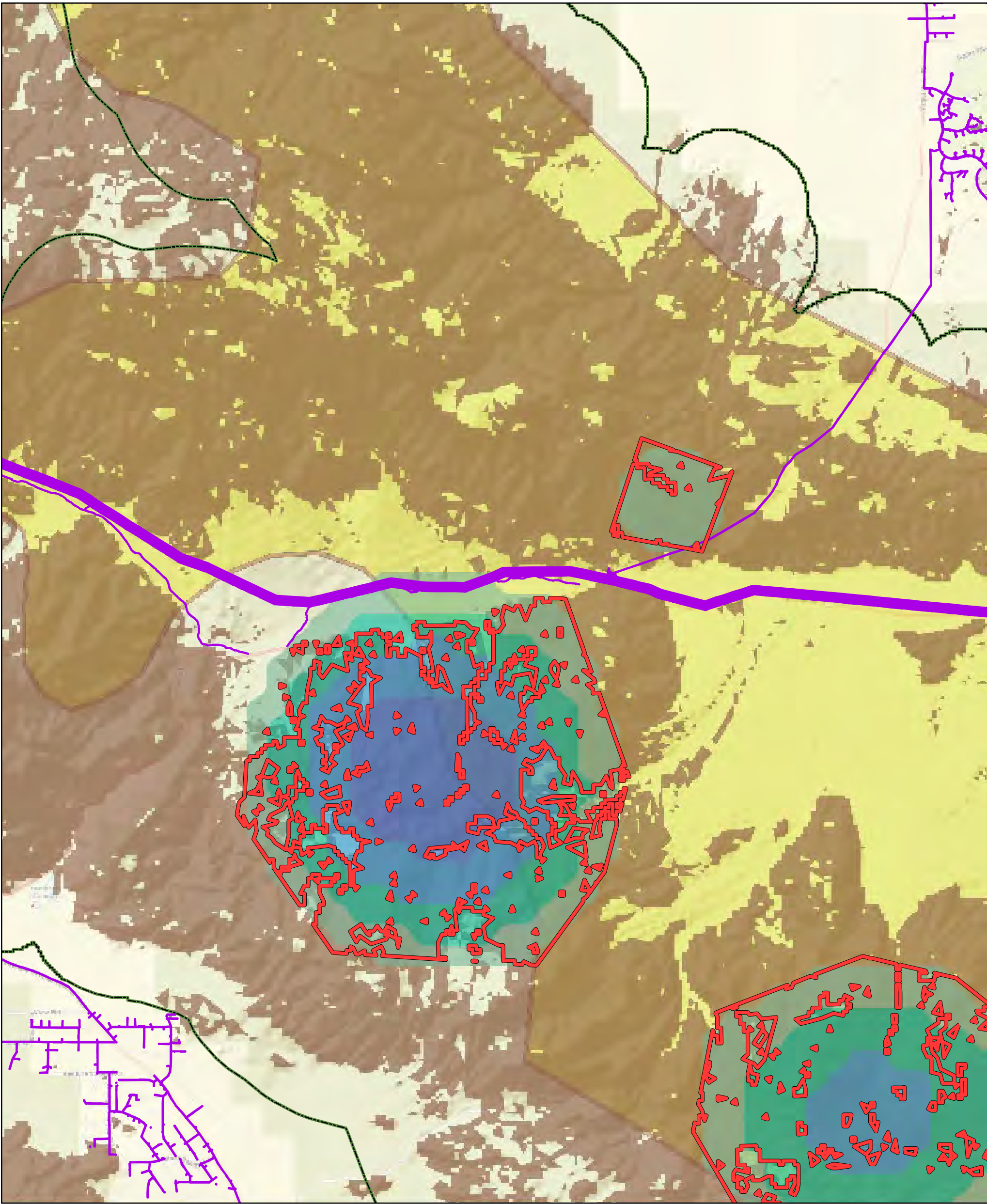


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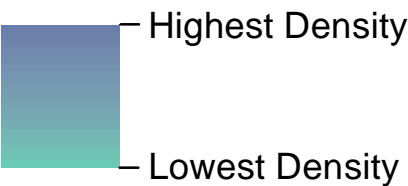
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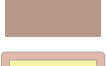






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**Density of Female Sheep
Locations Jan-Apr 2010-2020**



-  Predicted Lambing Areas
-  SDG&E PIZ
-  Slope \Rightarrow 15%
-  PBS Critical Habitat
-  PBS Essential Habitat

**Area 2: PBS Location Data
Predicted Lambing Areas
with SDG&E PIZ**

Figure 2-2

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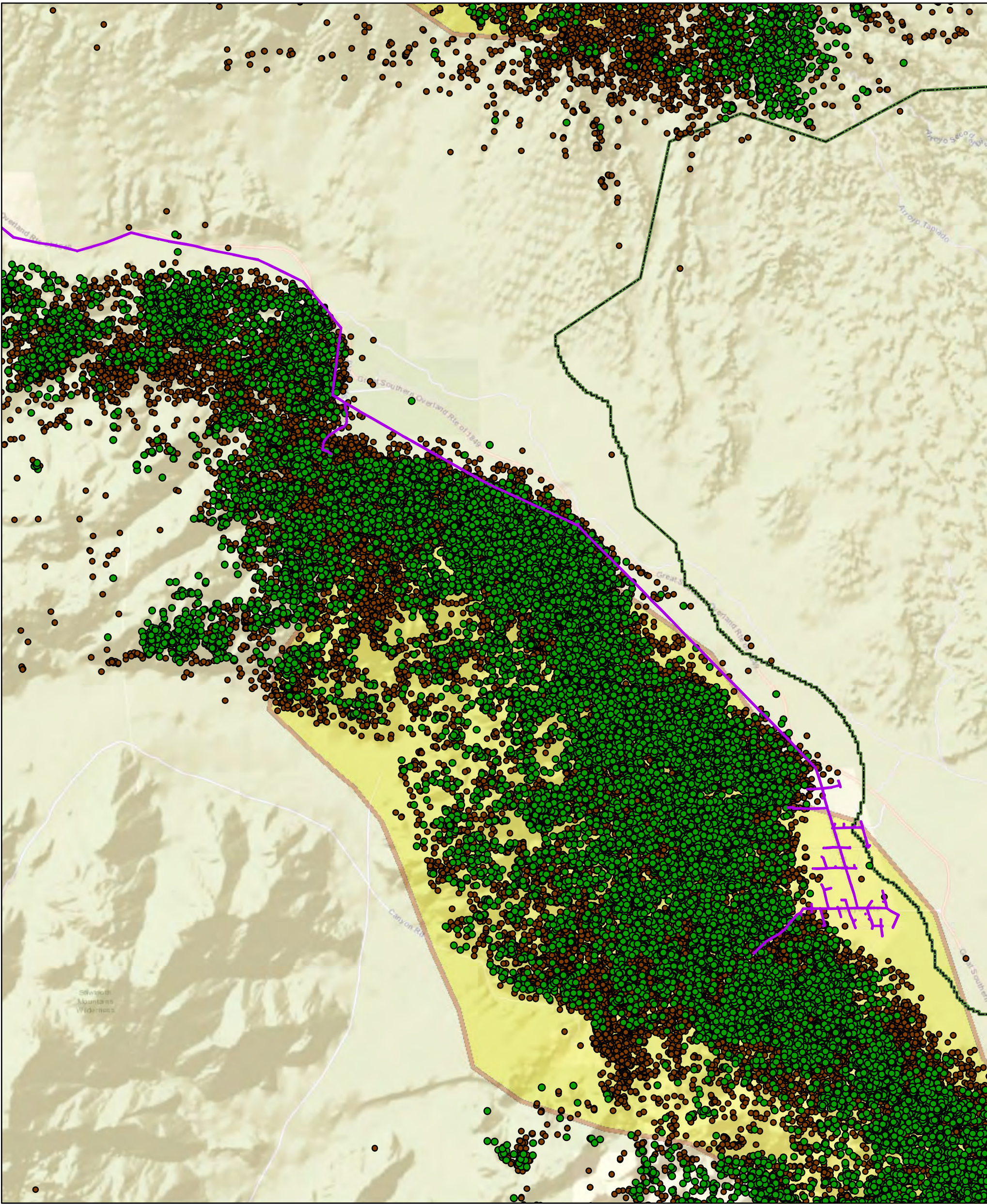


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Area 3: PBS Location Data and SDG&E PIZ

Figure 2-3

- SDG&E PIZ

PBS Critical Habitat

PBS Essential Habitat
- Female Sheep Locations
Jan-Apr 2010-2020

All Sheep Locations

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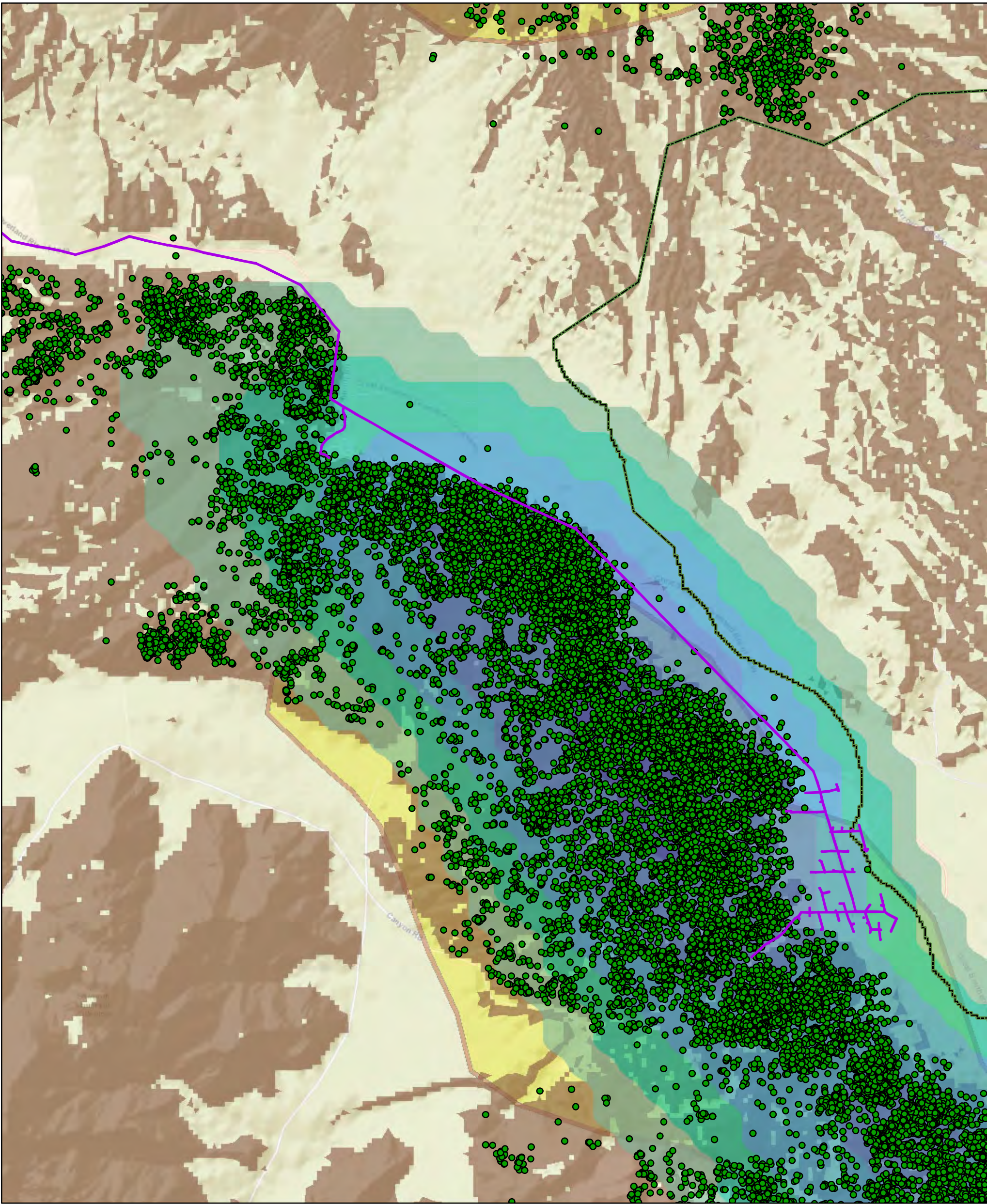
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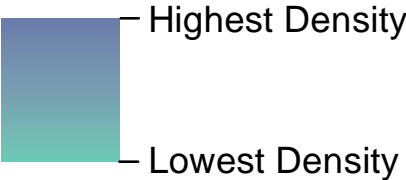
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Density of Female Sheep
Locations Jan-Apr 2010-2020



Female Sheep between
Jan-Apr 2010-2020

- SDG&E PIZ
- Slope \Rightarrow 15%
- PBS Critical Habitat
- PBS Essential Habitat

Area 3: PBS Location Data
Kernel Density/Slope Analysis
Results with SDG&E PIZ

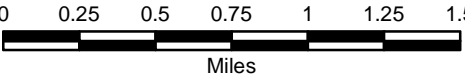
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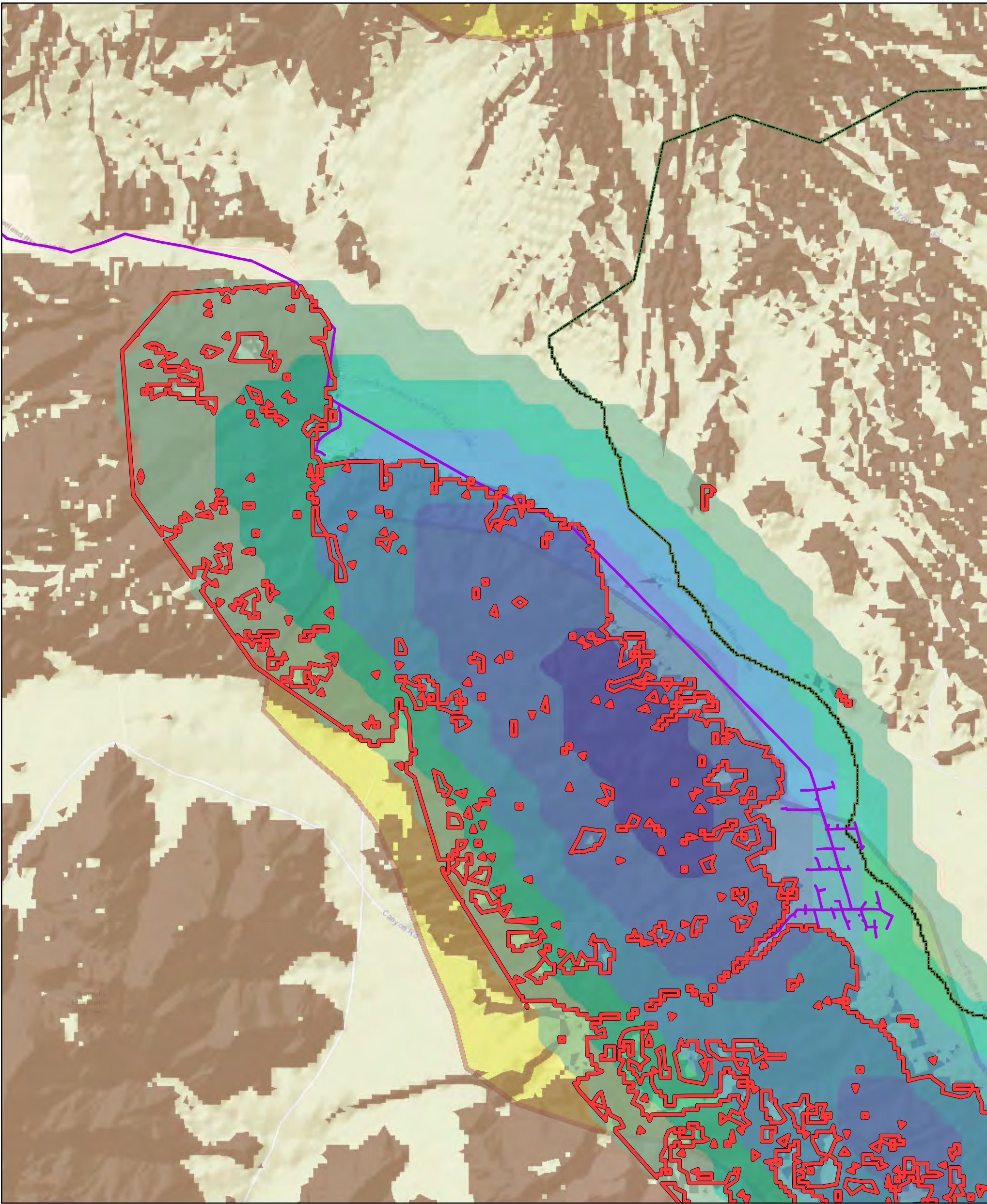


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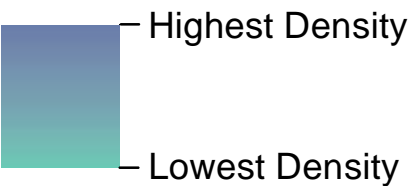
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**Density of Female Sheep
Locations Jan-Apr 2010-2020**



- Predicted Lambing Areas
- SDG&E PIZ
- Slope $\geq 15\%$
- PBS Critical Habitat
- PBS Essential Habitat

**Area 3: PBS Location Data
Predicted Lambing Areas
with SDG&E PIZ**

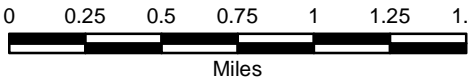
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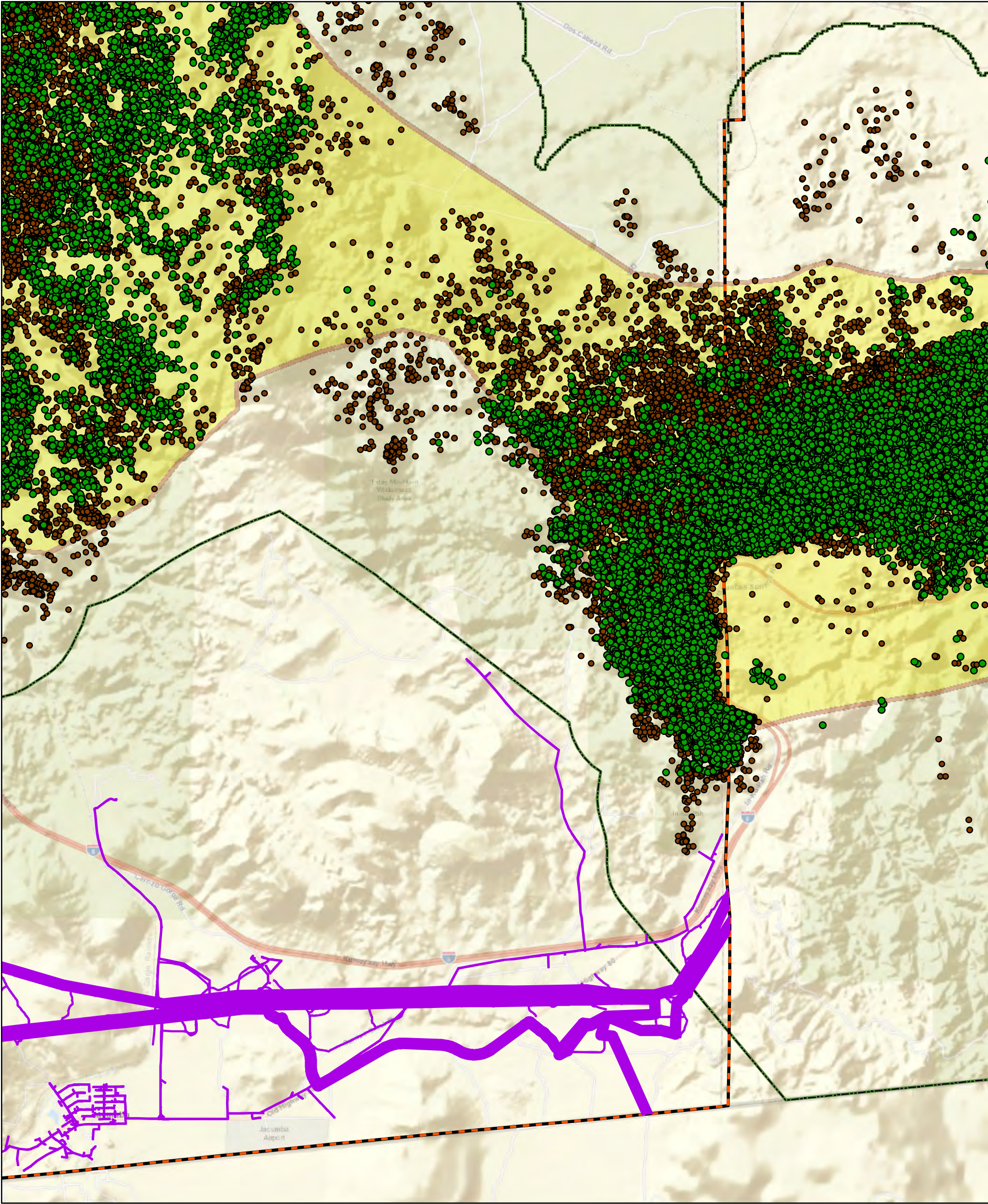


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Area 4: PBS Location Data and SDG&E PIZ

Figure 2-4

Page 1

-  SDG&E PIZ
-  PBS Essential Habitat
-  PBS Critical Habitat
-  Female Sheep Locations Jan-Apr 2010-2020
-  All Sheep Locations

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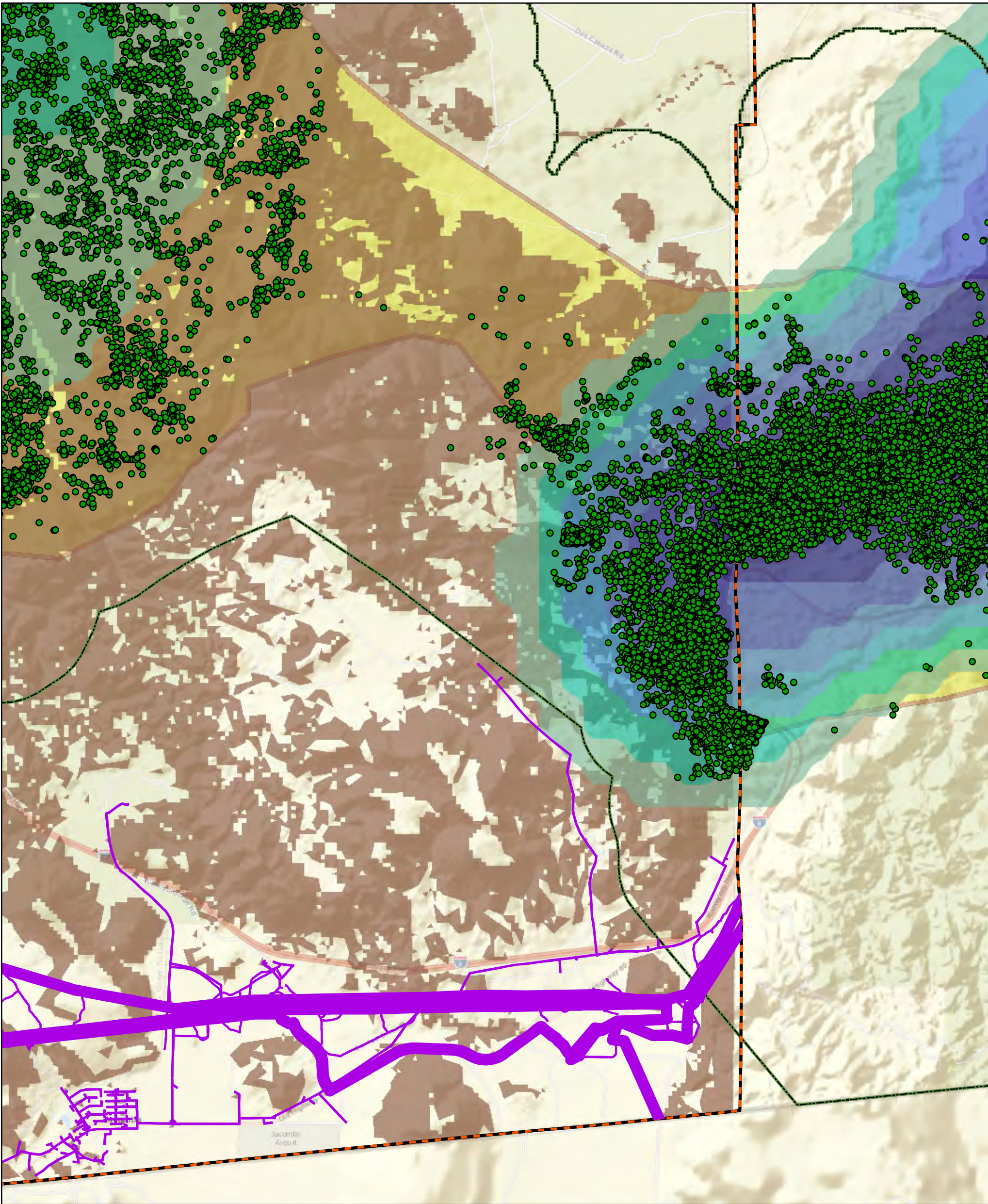


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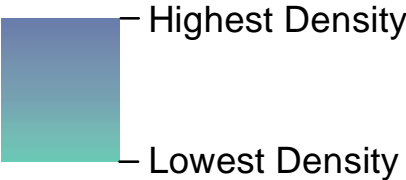
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Density of Female Sheep
Locations Jan-Apr 2010-2020



Female Sheep between
Jan-Apr 2010-2020

- SDG&E PIZ
- Slope \Rightarrow 15%
- PBS Critical Habitat
- PBS Essential Habitat

Area 4: PBS Location Data
Kernel Density/Slope Analysis
Results with SDG&E PIZ

Figure 2-4

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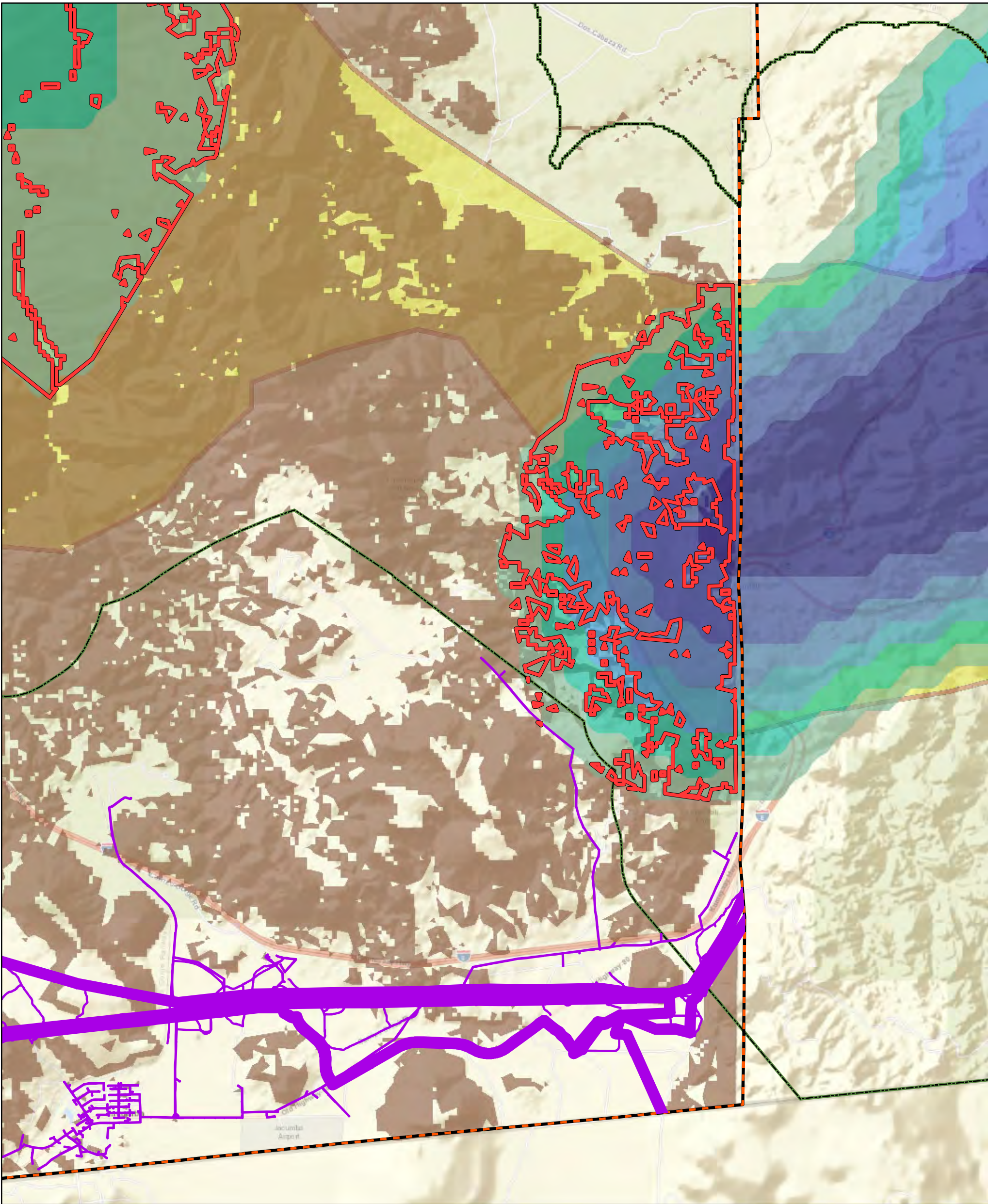


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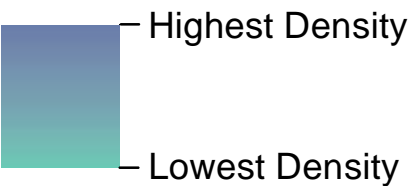
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Density of Female Sheep
Locations Jan-Apr 2010-2020



- Potential Lambing Areas
- SDG&E PIZ
- Slope =>15%
- PBS Critical Habitat
- PBS Essential Habitat

Area 4: PBS Location Data
Potential Lambing Areas
with SDG&E PIZ

Figure 2-4

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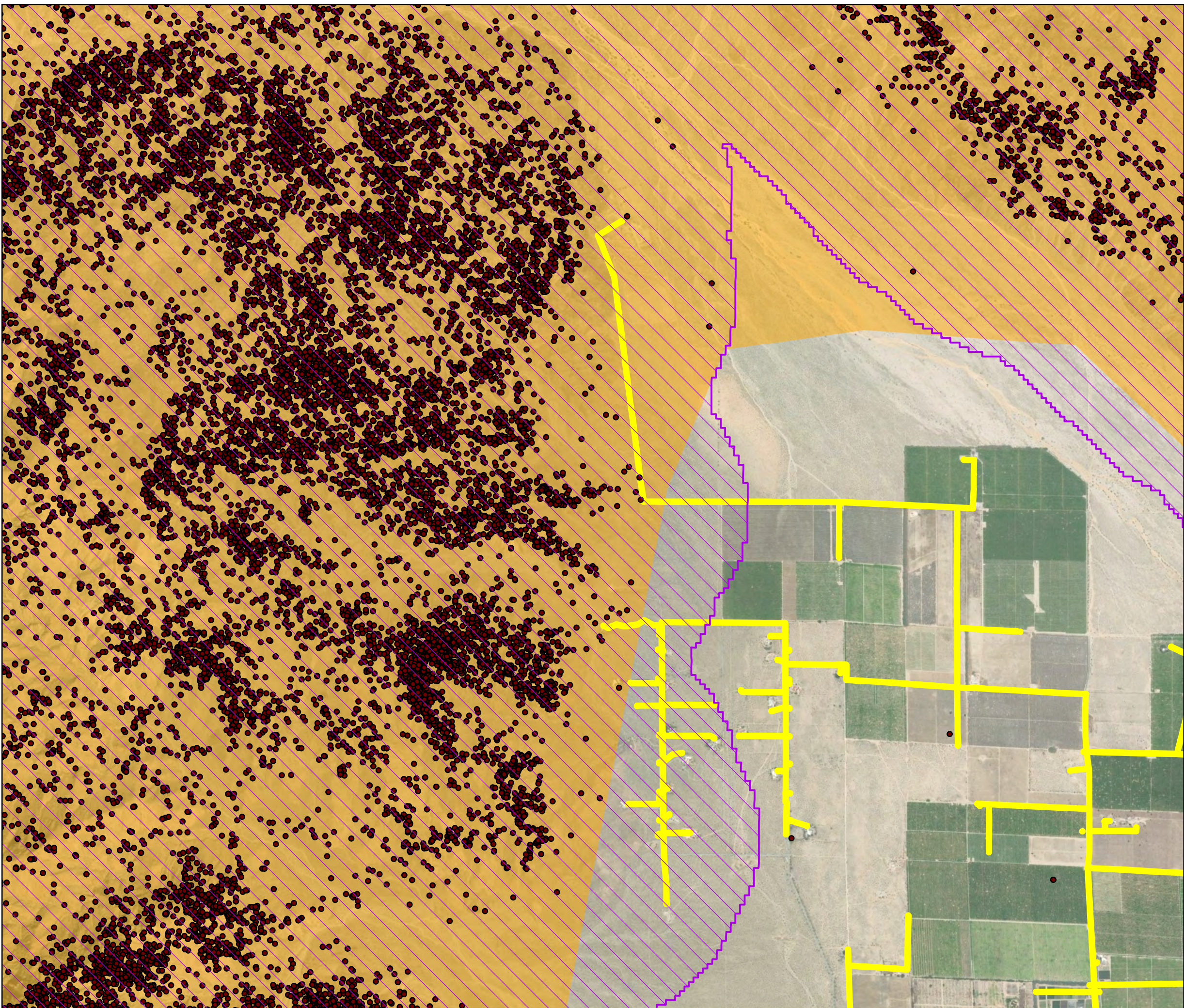


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Northern End of Borrego Springs
Figure 3-1



- Legend**
- SDG&E Service Area
 - Probable Impact Zone
 - USFWS Dataset - Peninsular Bighorn Sheep Observations
 - USFWS - Critical Habitat Peninsular Bighorn Sheep
 - Peninsular Bighorn Sheep Essential Habitat

0 1,000 2,000 4,000 Feet



Data Date: 03/13/2020 Version Date: 8/1/2023



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Sources: SDGE, USFWS, Esri Requested By: T. Ware Created By: P.Augello

East of Borrego Springs
Figure 3-2

Legend

- SDG&E Service Area
- Probable Impact Zone
- USFWS Dataset - Peninsular Bighorn Sheep Observations
- USFWS - Critical Habitat Peninsular Bighorn Sheep
- Peninsular Bighorn Sheep Essential Habitat

0 1,000 2,000 4,000 Feet



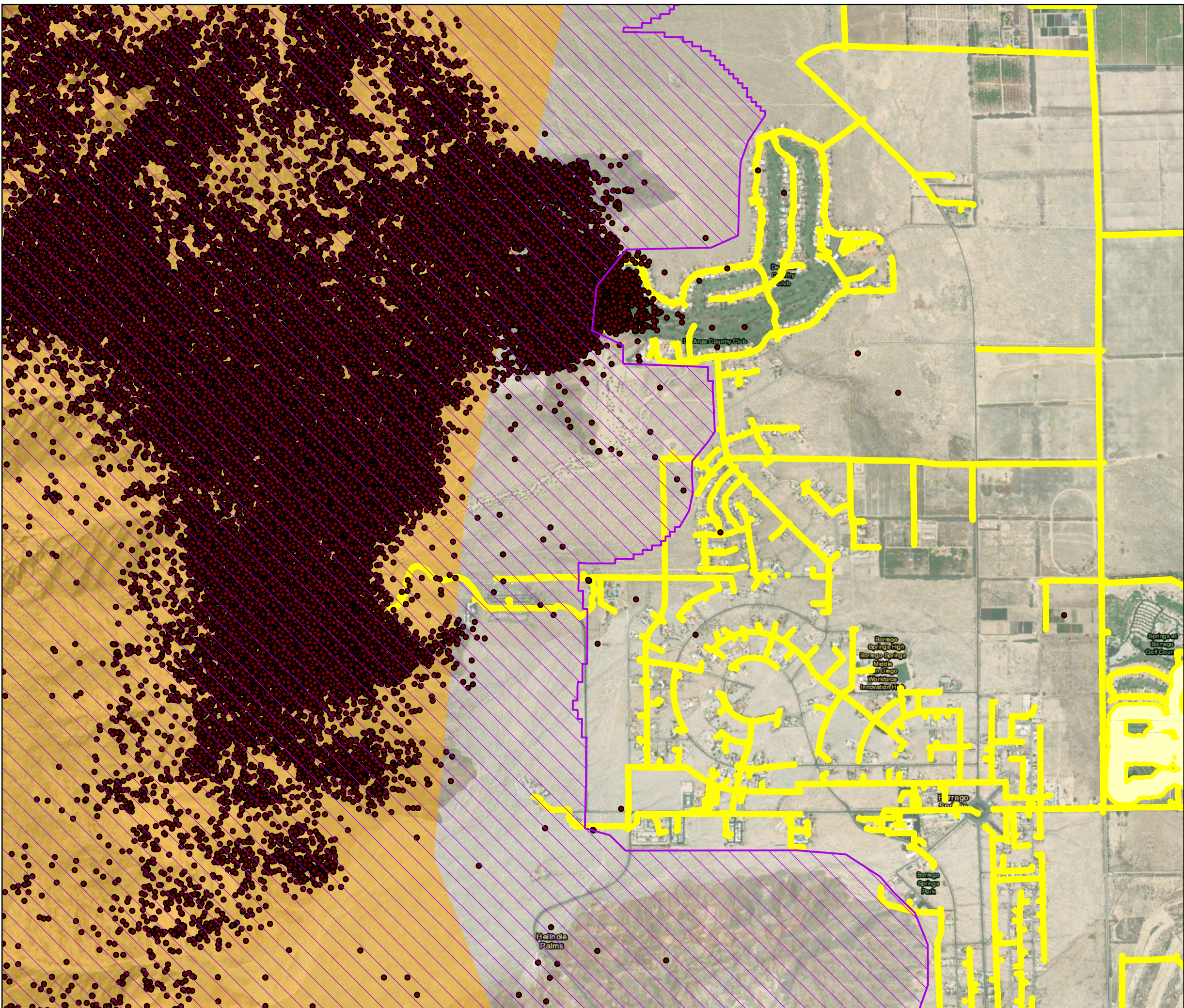
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Sources: SDGE, USFWS, Esri Requested By: T. Ware Created By: P.Augello

Near Borrego Palm Canyon Campground
Figure 3-3



- Legend**
- SDG&E Service Area
 - Probable Impact Zone
 - USFWS Dataset - Peninsular Bighorn Sheep Observations
 - USFWS - Critical Habitat Peninsular Bighorn Sheep
 - Peninsular Bighorn Sheep Essential Habitat

0 1,000 2,000 4,000 Feet



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Southern End of Borrego Springs
Figure 3-4

- Legend**
- SDG&E Service Area
 - Probable Impact Zone
 - USFWS Dataset - Peninsular Bighorn Sheep Observations
 - USFWS - Critical Habitat Peninsular Bighorn Sheep
 - Peninsular Bighorn Sheep Essential Habitat

0 1,000 2,000 4,000 Feet



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Sources: SDGE, USFWS, Esri Requested By: T. Ware Created By: P.Augello

South of Borrego Springs along SR-78
Figure 3-5

Legend

- SDG&E Service Area
- Probable Impact Zone
- USFWS Dataset - Peninsular Bighorn Sheep Observations
- USFWS - Critical Habitat Peninsular Bighorn Sheep
- Peninsular Bighorn Sheep Essential Habitat

0 3,000 6,000 12,000 Feet



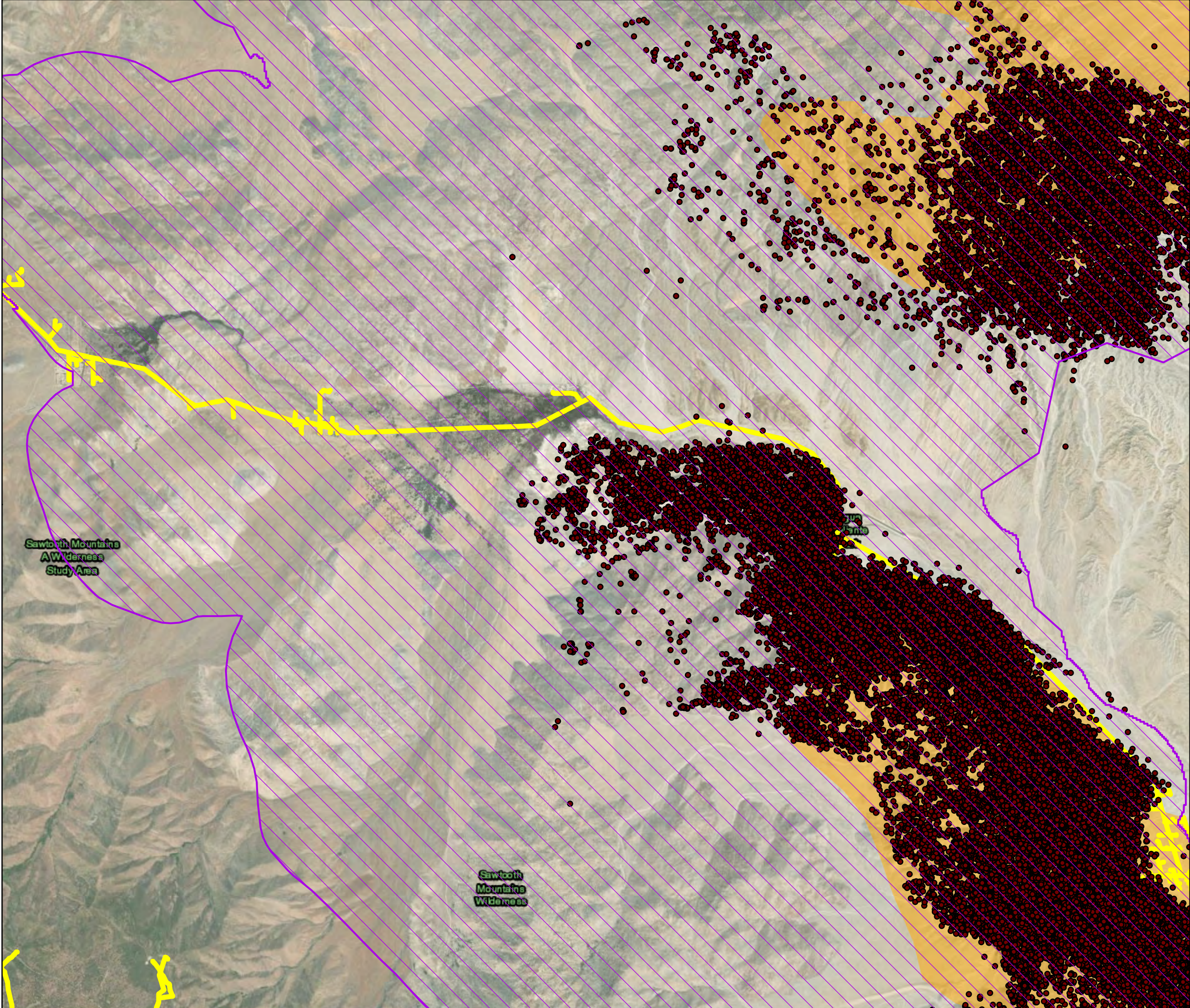
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Sources: SDGE, USFWS, Esri Requested By: T. Ware Created By: P.Augello

Along Great Southern Overland Stage Route
Figure 3-6



- Legend**
- SDG&E Service Area
 - Probable Impact Zone
 - USFWS Dataset - Peninsular Bighorn Sheep Observations
 - USFWS - Critical Habitat Peninsular Bighorn Sheep
 - Peninsular Bighorn Sheep Essential Habitat

0 2,500 5,000 10,000 Feet



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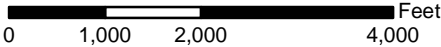


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Northeast of Jacumba Hot Springs
Figure 3-7

Legend

- SDG&E Service Area
- Probable Impact Zone
- USFWS Dataset - Peninsular Bighorn Sheep Observations
- USFWS - Critical Habitat Peninsular Bighorn Sheep
- Peninsular Bighorn Sheep Essential Habitat



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ATTACHMENT A

**EXISTING USFWS-APPROVED AVOIDANCE AND
MINIMIZATION MEASURES FOR SUNRISE POWERLINK**

**ATTACHMENT A
EXISTING USFWS-APPROVED AVOIDANCE AND
MINIMIZATION MEASURES FOR SUNRISE POWERLINK**

The Biological Opinion requires the following measures for activities related to the Sunrise Powerlink, which informed SDG&E's Species-Specific Protocols for the HCP Amendment:

- SS-CM-16:

Construction activities and O&M activities (including the use of helicopters) in suitable PBS habitat will be prohibited during the lambing season (January 1 through June 30). Construction activities may occur from July 1 through December 31 so long as the provisions and recommendations of the Peninsular Bighorn Sheep Construction Monitoring Plan are adhered to (Appendix 5).

Suitable PBS habitat will be defined as the area delineated as essential in the PBS recovery plan (USFWS 2000).

Exceptions to SS-CM-16 may be approved by the Wildlife Agencies.

- SS-CM-18:

A Project Biologist(s) will be retained by SDG&E to collect data on PBS movements in the area during the construction phase, supervise and train assisting biologists, and work with representatives of SDG&E to lessen the impacts of project construction on PBS.

The Project Biologist(s) and SDG&E will adhere to the provisions and recommendations of the PBS Monitoring Plan.

In general, helicopters will follow regular flight corridors coinciding with the ROW to the maximum extent possible and avoid low-flying "short-cuts" or sight-seeing trips away from the project site.

Helicopters will avoid flying within 0.6 miles (1.0 kilometers) of PBS water sources.

Helicopter landing areas, vehicle parking sites, and fly yards will be sited at least 0.6 miles (1 kilometers) from PBS water sources and other key resource areas identified by the Project Biologist.

When PBS are detected within the I-8 Island, construction operations will cease until PBS leave the area and/or the Project Biologist determines work may proceed as outlined in the PBS Monitoring Plan.

- SS-CM-24:

A biological consultant approved by the Wildlife Agencies will be retained by SDG&E to collect data on bighorn sheep movements in the area during the construction phase.

Prior to construction, the biologist shall submit a bighorn sheep monitoring plan that meets the approval of the Wildlife Agencies.

Helicopters shall follow regular flight corridors coinciding with the ROW to the maximum extent possible and avoid low-flying “short-cuts” or sight-seeing trips away from the project site.

Helicopters shall avoid flying within 0.6 miles (1 kilometers) of bighorn sheep water sources.

Helicopter landing areas, vehicle parking sites, and fly yards shall be cited at least 0.6 miles (1 kilometers) from bighorn sheep water sources and other key resource areas identified by the biologist.

When bighorn sheep are detected within the I-8 Island, construction operations shall cease until bighorns leave the area as verified by the biologist.

The following measures are directly from the Peninsular Bighorn Sheep Construction Monitoring Plan that was attached to the Biological Opinion as Appendix 5 (Monitoring Plan):

- The construction window while within suitable habitat for the Peninsular bighorn sheep shall be October 1 through December 31, unless modified by the regulatory agencies. It is important to note that this construction window overlaps with a period when Peninsular bighorn sheep significantly increase their use of habitat within the I-8 Island. To reduce the potential for adverse impacts to Peninsular bighorn sheep, and construction delays, the construction window for the area covered under this plan should be August-October, or until the arrival of winter rains.
- Helicopters shall follow regular flight corridors coinciding with the project right-of-way to the maximum extent possible.
- Helicopters shall maintain a minimum altitude of 1,500 feet (457 meters) above the ground unless landing or flying within a currently cleared flight corridor. It is understood that helicopters with full loads and those being used for inserting and extracting crews and equipment will necessarily have to fly below this minimum altitude. It is also understood that these low elevation flights will be along designated flight corridors that will be monitored for bighorn sheep activity during construction activities. The presence of bighorn sheep within the flight corridor may delay low altitude flight activity or require the rerouting of a particular flight.
- Low flying (altitude less than 1,500 feet [457 meters]), shortcuts, or sight-seeing trips away from the project area shall be avoided.
- Helicopters shall not be used within 0.6 miles (1 kilometers) of bighorn sheep perennial water sources, or inundated ephemeral water sources.
- Helicopter landing areas, vehicle parking sites, and fly yards shall not be located within 0.6 miles (1 kilometers) of bighorn sheep perennial water sources or other key resource areas as identified by the lead bighorn sheep biologist.

- When bighorn sheep are detected close to project activities, construction operations shall cease until the bighorn sheep have moved a sufficient distance away from project activities. For ground based crews, including those involved with drilling and hydraulic rock splitting, that distance shall be 500 feet (152 meters). For helicopter operations, that distance shall be 1,500 feet (457 meters). Alternatively, if the bighorn sheep biologist determines that project activities are unlikely to adversely affect the animals, then project activities can proceed. If not present, the on-site bighorn sheep biologist shall be contacted immediately for guidance on how to proceed at that time.
- To assist in preventing direct and indirect impacts to Peninsular bighorn sheep due to project related activities, a perimeter survey of habitat within and adjacent to the I-8 Island will be completed for this species the day before, and the morning of, planned work activities. The number, age, sex, and location of all Peninsular bighorn sheep observed during this survey will be documented.
- Entry Procedure for I-8 Island⁵

With the lead PBHS Biologist, and at least 48 hours in advance of planned work activity, schedule pre-survey of planned work areas located in areas of restricted entry; indicate location of work areas, sequence of work, and number and type of work crews.

Do not enter restricted areas without prior approval from the on-site PBHS Biologist.

Wait for clearance and guidance from the on-site PBHS Biologist.

If cleared to enter, proceed to project work area along pre-determined route.

The on-site PBHS Biologist may determine it necessary to accompany crew.

If denied entrance from the on-site PBHS Biologist, do not enter restricted area.

If an altered entry approach, or timing of work would allow the completion of the planned tasks, follow recommendations of the on-site PBHS Biologist.

Approval to enter a restricted area is only valid for the day of planned activities.

Repeat entry procedure for each day of planned activities within the restricted areas.

- Entry Procedure (for all flight activity below an altitude of 1,500 feet [457 meters] above the ground)

With the lead PBHS Biologist, and at least 48 hours in advance of planned activity, schedule pre-survey of planned work areas, landing-zones, and low-altitude flight-paths (below 1,500 feet) located in restricted areas.

Do not enter restricted areas without prior approval.

When flights or portions of flights are anticipated to occur below 1,500 feet (457 meters), or within 1,500 feet (457 meters) of adjacent hill sides within the restricted areas, get prior approval from the on-site PBHS Biologist.

Wait for clearance of planned work area(s) and guidance from the on-site PBHS Biologist.

If cleared to enter, proceed to project work area along pre-determined route.

⁵ This entry procedure was specific to the I-8 island area, an area known for consistent PBS use.

Under some circumstances, the on-site PBHS Biologist may determine it necessary to accompany crew.

If denied entrance from the on-site PBHS Biologist, do not enter restricted area, wait for guidance.

If an altered entry approach, or timing of work would allow the completion of the planned tasks, follow recommendations of the on-site PBHS Biologist.

Approval to enter a restricted area is only valid for the day of planned activities.

Repeat entry procedure for each day of planned activities within the restricted areas.

The following measures are directly from the 2013 Memo Request amending Biological Opinion Measure SS-CM-16 (2013 Memo Request):

- Activity will be conducted outside of the PBS lambing season and at the time of least use of the island lambing area by sheep.
- For October work, habitat conditions will be checked during the first week of October by a PBS biologist. If conditions are found to be good for the increased presence of PBS (e.g., the presence of fresh forage, moist conditions, cool temperatures) pre-activity sheep clearance surveys will be conducted in the Mtn. Springs Grade island lambing area (EP269 – EP279) and the inspection activities will be monitored throughout October. If conditions are found to be poor (e.g., no fresh forage, dry conditions), habitat conditions will be checked weekly or as needed until the end of October
- A pre-activity sheep clearance survey will be conducted in the Mtn. Springs Grade island lambing area (EP269 – EP279) and the inspection activity will be monitored
- If sheep are observed during the survey, the inspection activity will be delayed for that area until the sheep have moved a sufficient distance away from project activities:

For helicopter-based crews, that distance is 1,500 feet, and

For ground crews, that distance is 500 feet.

- If no sheep are observed during the survey or sheep are observed outside of the 1,500-foot (helicopter) buffer during the survey, the inspection activity will proceed as planned.
- Pilots will conduct all low-altitude flight activity in close proximity to the centerline of the transmission line ROW.
- Flights will be conducted at a consistent elevation and speed.
- Vehicles will maintain a speed limit of 15 miles per hour on access roads and on the abandoned portion of old Highway 80 within the PBS habitat.

- Pilots and crews will be trained on the history, regulatory status, and general biology of PBS and avoidance measures, such as increasing flight elevation to 1,500 feet above ground level (AGL) if sheep are observed during inspection activities.

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ATTACHMENT B

**ANALYSIS NO. 3 – SPECIES PRESENCE IN THE
PLAN AREA AND PIZ**

ATTACHMENT B

ANALYSIS NO. 3 - SPECIES PRESENCE IN THE PLAN AREA AND PIZ

This attachment describes documented PBS occurrences, critical habitat, essential habitat, and slopes within the PIZ in the following general areas:

- Northern end of Borrego Springs (Figure 3-1)
- East of Borrego Springs (Figure 3-2)
- Borrego Palm Canyon Campground Area (Figure 3-3)
- Southern end of Borrego Springs (Figure 3-4)
- South of Borrego Springs near SR-78 (Figure 3-5)
- Along Great Southern Overland Stage Route (Figure 3-6)
- Northeast of Jacumba Hot Springs (Figure 3-7)

Northern End of Borrego Springs (Figure 3-1)

This area supports low-density residential development with agriculture to the east, and undeveloped land to the west. On the western edge of the PIZ are undeveloped lands at the base of the hills. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	Yes	There is critical habitat on the periphery of the PIZ toward the north and west. Critical habitat occurs on the western side within the PIZ adjacent to Vern Whitaker Horse Camp, along a power line near De Anza Trail (dirt road), within the dirt driveway west of the intersection of Coyote Way and Anza Park Trail, and another small patch of critical habitat within the PIZ adjacent to one of the residences off Anza Park Trail.
Essential habitat	Yes	PIZ is along the periphery of essential habitat.
Slope analysis	Lambing Unlikely	The northern portion of the PIZ in this area is mostly steep land that is at a $\geq 20\%$ slope; however, there has been just one documented PBS occurrence within the PIZ in 30 years. The central and southern portions of the PIZ are mostly on land that is at a $< 20\%$ slope.
Forage habitat	Yes	This area may be used on occasion as forage habitat.

Biological Data Reviewed within the PIZ	Finding	Discussion
PBS occurrences in last 5 years	Yes	There was one occurrence in the PIZ outside of lambing season in November 2016.
PBS occurrence in the last 60 years	Yes	See above.

Evaluation of Figure 3-1 shows most of the PIZ is outside of critical habitat, essential habitat, potential lambing areas, and known PBS occurrences. Furthermore, all but one occurrence is outside of the PIZ.

The PBS documented in the PIZ was recorded outside of lambing season. This occurrence was likely a sheep descending the hills in search of resources. Based on the above, this area may be used on occasion for foraging but has no potential lambing areas within the PIZ.

East of Borrego Springs (Figure 3-2)

The western portion of the PIZ is agriculture. The eastern portion is mostly undeveloped with a few residences. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	No	There is no critical habitat within the PIZ.
Essential habitat	Yes	The PIZ is along the periphery of essential habitat.
Slope analysis	Lambing Unlikely	Although there are steeper areas to the north of the PIZ, almost all the PIZ is on land that is unsuitable for lambing (i.e., <20% slope).
Forage habitat	Yes	This area may be used on occasion as forage habitat.
PBS occurrence in last 5 years	None	There are no PBS occurrences within the PIZ in this area.
PBS occurrence in the last 60 years	None	Across 60 years of data collection, there has been zero documented PBS occurrences within the PIZ in this area. The nearest occurrence was a lone datapoint from 1995, which was approximately 0.25 mile from the PIZ in the hills directly north.

Evaluation of Figure 3-2 shows the PIZ is outside of critical habitat, most of the PIZ is outside of essential habitat and potential lambing areas, and there are no known PBS

occurrences. This area could be used on occasion for foraging, but there are no potential lambing areas within the PIZ.

Borrego Palm Canyon Campground Area (Figure 3-3)

Most of the PIZ is within Borrego Springs and surrounding developed areas. The northern portion of the PIZ is along/within the De Anza Country Club, the central portion is within Borrego Springs and west toward the campground, and the southern portion follows residential developed areas south of Borrego Springs and along the hills to the west. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	No	The PIZ is on the periphery of the critical habitat (Unit 2b).
Essential habitat	Yes	The PIZ is along the periphery of essential habitat.
Slope analysis	Lambing Unlikely	A very small portion of the PIZ area contains lambing habitat (i.e., land that is at a $\geq 20\%$ slope). The areas that do contain lambing habitat are within and adjacent to a campground, hiking trails, or are farther to the south where the complete lack of PBS occurrences suggests the area is not used as forage habitat and contains no potential lambing areas.
Forage habitat	Yes	Portions of the PIZ area may be used on occasion as forage habitat.
PBS occurrence in last 5 years	Yes	Four individual PBS account for 77 occurrences within the PIZ in this area. Most of these datapoints were gathered from August through December. These occurrences and other adjacent occurrences are within residential housing, on paved roads, and scattered throughout the golf course outside of critical habitat and essential habitat. It is possible that PBS are coming down to this area for artificial water sources, given the time of the year they are present.

Biological Data Reviewed within the PIZ	Finding	Discussion
PBS occurrence in the last 60 years	Yes	Four individual PBS account for 126 of the approximately 128 (98%) occurrences within the PIZ in this area. Similar to above, these locations are from late in the year (August through December) and are in developed areas.

Evaluation of Figure 3-3 shows the PIZ is mostly on the periphery of critical habitat, essential habitat, and potential lambing areas. PBS occurrences are sparse and scattered in the eastern portions of this area but become more concentrated toward the west near the steeper mountains. Occurrence data shows large numbers of PBS near the golf course, residential housing, camping areas, and hiking trails. In addition to the PBS occurrences in the PIZ discussed in the table above, the same four individual PBS account for numerous occurrences within 500 feet of the PIZ in this area. PBS in this area have likely become habituated to human disturbance and are likely there to take advantage of water and other resources. After slope analysis and data analysis, it appears this area is used only on occasion as forage habitat.

Southern End of Borrego Springs (Figure 3-4)

The area abuts rural residential development to the north, south, and east, and undeveloped land to the west. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	Yes	The PIZ is along the periphery of critical habitat in southwest Borrego Springs near the intersection of Ironwood Wash Road and Tubb Canyon Road along power lines.
Essential habitat	Yes	The PIZ is along the periphery of essential habitat in southwest Borrego Springs near the intersection of Ironwood Wash Road and Tubb Canyon Road along power lines.
Slope analysis	Lambing Unlikely	None of the PIZ in this area is on land that may be suitable for lambing (i.e., $\geq 20\%$ slope) except for a short segment southwest of Borrego Springs.
Forage habitat	Unlikely	This area is not likely forage habitat.
PBS occurrence in last 5 years	None	There are no PBS occurrences within the PIZ in this area.

Biological Data Reviewed within the PIZ	Finding	Discussion
PBS occurrence within the PIZ in the last 60 years	None	Across 60 years of data collection, there has been no documented PBS occurrences within the PIZ in this area.

Although the PIZ overlaps with critical habitat and essential habitat in this area, evaluation of Figure 3-4 shows the PIZ is on the periphery of potential lambing areas, and there are no known PBS occurrences within the PIZ. There are a few scattered occurrences from the 1990s and early 2000s within 1,000 feet of the PIZ; only one of these is within 500 feet of the PIZ (unknown month in 1997). The northern portion of this figure shows no potential lambing areas and no occurrences and is, therefore, not likely a foraging area. The southwestern portion may be suitable for lambing (i.e., $\geq 20\%$ slope); however, based on the lack of occurrences, especially during the lambing season, the area is not likely to be used as lambing habitat.

South of Borrego Springs near SR-78 (Figure 3-5)

The area is undeveloped mountain region. The PIZ traverses the area south of Borrego Springs along Yaqui Pass Road, Yaqui Wells Road, SR-78 to just east of Old Kane Springs Road, along and south of Grapevine Canyon Road, and along/near Old Borrego Valley Road and farther south near the intersection of SR-78 and Great Southern Overland Stage Route along power lines. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	No	Most of the PIZ traverses critical habitat.
Essential habitat	Yes	Most of the PIZ traverses essential habitat.
Slope analysis	Potential Lambing Habitat	Parts of the PIZ in this area is on land that is at a $\geq 20\%$ slope. There is also potential lambing habitat within the PIZ.
Forage habitat	Yes	Based on the abundance of observations near the PIZ and the steep topography, it is likely that this area near the PIZ is used regularly as forage habitat.

Biological Data Reviewed within the PIZ	Finding	Discussion
PBS occurrence in last 5 years	Yes	There have been no documented occurrences in this location since 2017. Overall, there have been four PBS occurrences—representing two individuals—within the PIZ from 2016 to 2017 in this area along SR-78 and Grapevine Canyon Road. Of these, two occurrences, which represent one individual, were recorded within the PIZ during the lambing season.
PBS occurrence in the last 60 years	Yes	Across 60 years of data there have been only 12 PBS occurrences, representing six individuals, in the PIZ. Of these, six occurrences were recorded within the PIZ during the lambing season.

Evaluation of Figure 3-5 shows the PIZ traverses critical habitat and essential habitat, and potential lambing areas may occur in the mountains south of SR-78 and Grapevine Canyon Road in this area where there are dense concentrations during the lambing season. Yaqui Pass Road also passes through potential lambing areas, given the PBS occurrences in this area during the lambing season. PBS occurrences are less along areas where the PIZ follows developed roadways, as indicated by the data in the table above.

Along Great Southern Overland Stage Route (Figure 3-6)

This area of the PIZ roughly follows Great Southern Overland Stage Route (i.e., County Highway S2) west of Vallecito Stage Station County Park. The PIZ is surrounded mainly by undeveloped land in this area. It passes through a few rural developments, most notably at the southeastern end, along dirt roads in a small, rural residential community west of the Great Southern Overland Stage Route. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	Yes	PIZ is along the periphery of critical habitat.
Essential habitat	Yes	PIZ traverses essential habitat.
Slope analysis	Potential Lambing Habitat	<p>Much of the land immediately adjacent and west of the PIZ beginning southeast of Vallecito Stage Station County Park until Agua Caliente Springs is on land that may be suitable for lambing (i.e., $\geq 20\%$ slope). Portions of the PIZ traverse potential lambing areas.</p> <p>The PIZ west of Vallecito Stage Station County Park is on land that is not suitable for lambing (i.e., $< 20\%$ slope).</p>
Forage habitat	Yes	Within the PIZ and areas nearby are likely used regularly as forage habitat.
PBS occurrence in last 5 years	Yes	<p>From 2016 to 2020, there have been seven individuals, representing 88 PBS occurrences, documented within the PIZ southeast of Vallecito Stage Station County Park toward Agua Caliente Springs. Of these, 14 were recorded within the PIZ during the lambing season.</p> <p>There has been no occurrences within the PIZ west of Vallecito Stage Station County Park or within 500 feet of it.</p>
PBS occurrence in the last 60 years	Yes	Across 60 years of data, occurrences begin in 2014 for the same seven individuals, as noted above. There are 104 occurrences in the PIZ, with 15 being recorded during the lambing season.

Evaluation of Figure 3-6 shows the PIZ is within the periphery of critical habitat and sheep occurrences. The PIZ traverses essential habitat and follows the Great Southern Overland Stage Route (i.e., County Highway S2), adjacent to potential lambing areas. Multiple PBS occurrences have occurred in the PIZ. There are dense concentrations of PBS occurrences immediately west of the PIZ and southeast of Vallecito Stage Station County Park; however, the occurrences seem to stop at the Highway and PIZ. The Highway and PIZ follow a topographically easier route, and the slope analysis shows the Highway and PIZ skirting around slopes greater than ($>$) 20% in some locations. Although PBS has been documented in the PIZ, the occurrences appear to be on the outer edge

from where the sheep congregate, likely due to the road usage and the change in % grade.

Northeast of Jacumba Hot Springs (Figure 3-7)

This area occurs along Interstate Highway 8 northeast of Jacumba Hot Springs and about 1.5 miles north of the United States-Mexico International Border near the southeastern corner of San Diego County where the PIZ overlaps with essential habitat. Other than the highway and other roads, the areas adjacent to the PIZ are undeveloped to the east, west, and south. There is industrial development to the north. Biological data reviewed to determine PBS presence are summarized in the following table.

Biological Data Reviewed within the PIZ	Finding	Discussion
Critical habitat	No	There is no critical habitat within the PIZ.
Essential habitat	Yes	There is essential habitat within the PIZ north and south of Interstate Highway 8.
Slope analysis	Lambing unlikely	Much of the PIZ is on land that may be suitable for lambing (i.e., $\geq 20\%$ slope); however, no observations within 500 feet of the PIZ have been recorded during the lambing season.
Forage habitat		This area may be used as forage habitat on occasion.
PBS occurrence in last 5 years	None	There are no PBS occurrences within the PIZ in this area.
PBS occurrence in the last 60 years	None	Across 60 years of data collection, there has been no documented PBS occurrences within the PIZ in this area.

Evaluation of Figure 3-7 shows the PIZ is outside of critical habitat, and most of the PIZ is outside of essential habitat. Much of the PIZ is on land that may be suitable for lambing (i.e., $>20\%$ slope); however, there are no known PBS occurrences in the PIZ. There have been three PBS occurrences within 500 feet of the northern end of the PIZ in this area, but all are from a 2-day period in August 2018, and all represent the same individual female. This area could be used on occasion as forage habitat.



Species Considered for Coverage

Appendix D – Species Considered for Coverage

Scientific Name	Common Name	Proposed for HCP Amendment Coverage?	ESA Listing Status ¹	CESA Listing Status ¹	Other Listing Status ¹	Rationale for Exclusion form HCP Amendment
Plants						
<i>Abronia villosa</i> var. <i>aurita</i>	chaparral sand-verbena	N	-	-	CRPR 1B.1; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Abutilon abutiloides</i>	shrubby Indian mallow	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint	Y	T	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Acmispon haydonii</i>	pygmy lotus	N	-	-	CRPR 1B.3	Not ESA-listed.
<i>Acmispon prostrates</i>	Nuttall's acmispon	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Adolphia californica</i>	California adolphia	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Agave shawii</i> var. <i>shawii</i>	Shaw's agave	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Allium marvinii</i>	Yucaipa onion	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Ambrosia chenopodiifolia</i>	San Diego bur-sage	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Ambrosia monogyra</i>	singlewhorl burrobrush	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Ambrosia pumila</i>	San Diego ambrosia	Y	E	-	CRPR 1B.1	Included in the HCP Amendment.
<i>Aphanisma blitoides</i>	aphanisma	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Arctostaphylos glandulosa</i> ssp. <i>crassifolia</i>	Del Mar manzanita	Y	E	-	CRPR 1B.1	Included in the HCP Amendment.
<i>Arctostaphylos rainbowensis</i>	rainbow manzanita	N	-	-	CRPR 1B.1; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Astragalus deanei</i>	Dean's milk-vetch	N	-	-	CRPR 1B.1; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Astragalus douglasii</i> var. <i>perstrictus</i>	Jacumba milk-vetch	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Astragalus oocarpus</i>	San Diego milk-vetch	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Arctostaphylos otayensis</i>	Otay manzanita	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Astragalus tener</i> var. <i>titi</i>	coastal dunes milk-vetch	N	E	E	CRPR 1B.1	This species is considered extinct from San Diego County and was last seen in 1938 on the beaches of Silver Strand peninsula.
<i>Atriplex coulteri</i>	Coulter's saltbush	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Atriplex pacifica</i>	south coast saltscale	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Atriplex parishii</i>	Parish brittlescale	N	-	-	CRPR 1B.1; USFS Sensitive	Not ESA-listed.
<i>Ayenia compacta</i>	California ayenia	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Berberis nevinii</i>	Nevin's barberry	N	E	E	CRPR 1B.1	Species range outside of Plan Area. Individual plants occurring in the Plan Area have been propagated ad hoc.
<i>Baccharis vanessae</i>	Encinitas baccharis	Y	T	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Bergerocactus emoryi</i>	golden-spined cereus	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Bloomeria clevelandii</i>	San Diego goldenstar	N	-	-	CRPR 1B.1; BLM Sensitive	Not ESA-listed.
<i>Boechera hirshbergiae</i>	Hirshberg's rockcress	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Brodiaea filifolia</i>	thread-leaved brodiaea	Y	T	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea	N	-	-	CRPR 1B.1; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Brodiaea santarosae</i>	Santa Rosa basalt brodiaea	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.

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<i>Bursera microphylla</i>	little-leaf elephant tree	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Calamagrostis koeleriodes</i>	dense reed grass	N	-	-	-	Since 1995, <i>Calamagrostis densa</i> was determined synonymous with <i>Calamagrostis koelerioides</i> . This species is a common taxa and not rare.
<i>Calliandra eriophylla</i>	pink fairy-duster	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Calochortus dunnii</i>	Dunn's mariposa-lily	N	-	R	CRPR 1B.2; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Calochortus palmeri</i> var. <i>munzii</i>	San Jacinto mariposa-lily	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Calochortus weedii</i> var. <i>intermedius</i>	intermediate mariposa-lily	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Calyptridium arizonicum</i>	Arizona pussypaws	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Carex obispoensis</i>	San Luis Obispo sedge	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Carlowrightia arizonica</i>	Arizona carlowrightia	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Caulanthus stenocarpus</i>	slender-pod jewelflower	N	-	-	-	Since 1995, <i>Caulanthus stenocarpus</i> has been determined to be synonymous with <i>Caulanthus heterophyllus</i> which is considered a common species and is not rare.
<i>Caulanthus simulans</i>	Payson's jewelflower	N	-	-	CRPR 4.2; USFS Sensitive	Not ESA-listed.
<i>Ceanothus cyaneus</i>	Lakeside ceanothus	N	-	-	CRPR 1B.2; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Chaenactis carphoclinia</i> var. <i>peirsonii</i>	Peirson's pincushion	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Chaenactis glabriuscula</i> var. <i>orcuttiana</i>	Orcutt's pincushion	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Chaenactis parishii</i>	Parish's chaenactis	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Ceanothus verrucosus</i>	wart-stemmed ceanothus	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Centromadia parryi</i> ssp. <i>australis</i>	southern tarplant	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Centromedia pungens</i> var. <i>laevis</i>	smooth tarplant	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Chloropyron maritimum</i> ssp. <i>maritimum</i>	salt marsh bird's-beak	Y	E	E	CRPR 1B.2	Included in the HCP Amendment.
<i>Chorizanthe orcuttiana</i>	Orcutt's spineflower	Y	E	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	long-spined spineflower	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Chorizanthe staticoides</i> ssp. <i>chrysacantha</i>	Orange County Turkish rugging	N	-	-	-	Not ESA-listed.
<i>Chorizanthe xanti</i> var. <i>leucotheca</i>	white-bracted spineflower	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Clarkia delicata</i>	delicate clarkia	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Clinopodium chandleri</i>	San Miguel savory	N	-	-	CRPR 1B.2; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	summer holly	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Corethrogyne filaginifolia</i> var. <i>incana</i>	San Diego sand aster	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Corethrogyne filaginifolia</i> var. <i>linifolia</i>	Del Mar Mesa sand aster	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Cryptantha ganderi</i>	Gander's cryptantha	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Cryptantha wigginsii</i>	Wiggins' cryptantha	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Cylindropuntia californica</i> var. <i>californica</i>	snake cholla	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Cylindropuntia fosbergii</i>	pink teddy-bear cholla	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Deinandra conjugens</i>	Otay tarplant	Y	T	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Deinandra floribunda</i>	Tecate tarplant	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.

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<i>Deinandra mohavensis</i>	Mojave tarplant	N	-	E	CRPR 1B.3; USFS Sensitive; BLM Sensitive	Known locations are not found within the PIZ. Few occurrences within the PIZ can be avoided. Unlikely that Covered Activities would impact this species.
<i>Delphinium hesperium</i> ssp. <i>cuyamacae</i>	Cuyamaca larkspur	N	-	R	CRPR 1B.2	Species is limited to Cuyamaca Lake area where SDG&E Facilities are mostly located in developed areas. Overlap with the PIZ minimal. Unlikely that Covered Activities would impact this species.
<i>Dicranostegia orcuttiana</i>	Orcutt's bird's-beak	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Dieteria asteroides</i> var. <i>lagunensis</i>	Mount Laguna aster	N	-	R	CRPR 2B.1	Species is limited to southern Mount Laguna area. Unlikely that SDG&E Covered Activities would impact this species.
<i>Digitaria californica</i> var. <i>californica</i>	Arizona cottontop	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Downingia concolor</i> var. <i>brevior</i>	Cuyamaca Lake downingia	N	-	E	CRPR 1B.1	Species is limited to Cuyamaca Lake area where SDG&E Facilities are mostly located in developed areas. Overlap with the PIZ minimal. Unlikely that Covered Activities would impact this species.
<i>Dudleya attenuata</i> ssp. <i>attenuata</i>	Orcutt's dudleya	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	Blochman's dudleya	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Dudleya brevifolia</i>	short-leaved dudleya	Y	-	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Dudleya multicaulis</i>	many-stemmed dudleya	N	-	-	CRPR 1B.2; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Dudleya stolonifera</i>	Laguna Beach dudleya	N	T	T	CRPR 1B.1	There are known occurrences of this federally threatened species just inside the boundary of the Plan Area in Orange County near the city of Laguna Beach. The exact location of plants within the occurrence point north of Aliso Creek is unknown, but the overhead distribution line structures in that area are in heavily disturbed and developed areas, which would allow work to avoid this species. The other location to the south of Aliso Creek is on a steep rock face according to CNDDDB while the SDG&E Facilities are in a disturbed area associated with development. It is unlikely that Covered Activities in the Plan Area would impact this species.
<i>Dudleya variegata</i>	variegated dudleya	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Dudleya viscida</i>	sticky dudleya	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Ericameria cuneata</i> var. <i>macrocephala</i>	Laguna Mountains goldenbush	N	-	-	CRPR 1B.3	Not ESA-listed.
<i>Ericameria palmeri</i> var. <i>palmeri</i>	Palmer's goldenbush	N	-	-	CRPR 1B.1; BLM Sensitive	Not ESA-listed.
<i>Eriodictyon sessilifolium</i>	sessile-leaved yerba santa	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Eriogonum evanidum</i>	vanishing wild buckwheat	N	-	-	CRPR 1B.1; USFS Sensitive	Not ESA-listed.
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	Y	E	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Eryngium pendletonense</i>	Pendleton button-celery	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Erysimum ammophilum</i>	sand-loving wallflower	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Eucnide rupestris</i>	annual rock-nettle	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Euphorbia abramsiana</i>	Abrams' spurge	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Euphorbia arizonica</i>	Arizona spurge	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Euphorbia misera</i>	cliff spurge	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Ferocactus viridescens</i>	San Diego barrel cactus	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Fremontodendron mexicanum</i>	Mexican flannelbush	N	E	R	CRPR 1B.1	Majority of occurrences outside the PIZ. Few occurrences within the PIZ; however, can be avoided. Unlikely that Covered Activities would impact this species.

Scientific Name	Common Name	Proposed for HCP Amendment Coverage?	ESA Listing Status ¹	CESA Listing Status ¹	Other Listing Status ¹	Rationale for Exclusion form HCP Amendment
<i>Galium angustifolium</i> ssp. <i>borregoense</i>	Borrego bedstraw	N	-	R	CRPR 1B.3; BLM Sensitive	Limited to an occurrence along the eastern Plan Area boundary in Grapevine Canyon. It is generally located outside the Plan Area and not likely to be impacted by Covered Activities.
<i>Galium angustifolium</i> ssp. <i>jacinticum</i>	San Jacinto Mountains bedstraw	N	-	-	CRPR 1B.3; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Galium proliferum</i>	desert bedstraw	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Geothallus tuberosus</i>	Campbell's liverwort	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Geraea viscida</i>	sticky geraea	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Gilia mexicana</i>	El Paso gilia	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Grindelia hallii</i>	San Diego gumplant	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Harpagonella palmeri</i>	Palmer's grappplinghook	N	-	-	CRPR 4.2	Not ESA-listed.
<i>Hazardia orcuttii</i>	Orcutt's hazardia	N	-	T	CRPR 1B.1	Not ESA-listed. Limited to one natural occurrence and a few transplanted locations. Overlap with PIZ is limited and adjacent to urban areas. Perennial species that can be detected throughout the year. Unlikely that Covered Activities would impact this species.
<i>Helianthus niveus</i> ssp. <i>tephrodes</i>	Algodones Dunes sunflower	N	-	E	CRPR 1B.2; BLM Sensitive	Known locations do not occur within the PIZ.
<i>Hesperocyparis forbesii</i>	Tecate cypress	N	-	-	CRPR 1B.1; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Hesperocyparis stephensonii</i>	Cuyamaca cypress	N	-	-	CRPR 1B.1; USFS Sensitive	Not ESA-listed.
<i>Heterotheca sessiliflora</i> ssp. <i>sessiliflora</i>	beach goldenaster	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Heuchera brevistaminea</i>	Laguna Mountains alumroot	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Horkelia cuneata</i> var. <i>puberula</i>	mesa horkelia	N	-	-	CRPR 1B.1; USFS Sensitive	Not ESA-listed.
<i>Horkelia truncata</i>	Ramona horkelia	N	-	-	CRPR 1B.3; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Hulsea californica</i>	San Diego sunflower	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Hulsea mexicana</i>	Mexican hulsea	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Imperata brevifolia</i>	California satintail	N	-	-	CRPR 2B.1; USFS Sensitive	Not ESA-listed.
<i>Ipomopsis tenuifolia</i>	slender-leaved ipomopsis	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Isocoma menziesii</i> var. <i>decumbens</i>	decumbent goldenbush	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Iva hayesiana</i>	San Diego marsh-elder	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Juncus luciensis</i>	Santa Lucia dwarf rush	N	-	-	CRPR 1B.2; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	N	-	-	CRPR 1B.1; BLM Sensitive	Not ESA-listed.
<i>Lepechinia cardiophylla</i>	heart-leaved pitcher sage	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Lepechinia ganderi</i>	Gander's pitcher sage	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Lepidium flavum</i> var. <i>felipense</i>	Blair Valley pepper-grass	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Leptosyne maritima</i>	sea dahlia	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Lessingia glandulifera</i> var. <i>tomentosa</i>	Warner Springs lessingia	N	-	-	CRPR 1B.1; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Lewisia brachycalyx</i>	short-sepaled lewisia	N	-	-	CRPR 2B.2; USFS Sensitive	Not ESA-listed.
<i>Lilium parryi</i>	lemon lily	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Limnanthes alba</i> ssp. <i>parishii</i>	Parish's meadowfoam	N	-	E	CRPR 1B.2	Not ESA-listed. Minimal overlap with PIZ occurs in the Cuyamaca Lake and Mount Laguna area. SDG&E Facilities are mostly located in developed areas at these locations. Unlikely that Covered Activities would impact this species.

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<i>Linanthus bellus</i>	desert beauty	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Linanthus maculatus</i> ssp. <i>emaculatus</i>	Jacumba Mountains linanthus	N	-	-	CRPR 1B.1; BLM Sensitive	Not ESA-listed.
<i>Linanthus orcuttii</i>	Orcutt's linanthus	N	-	-	CRPR 1B.3; USFS Sensitive	Not ESA-listed.
<i>Lupinus albifrons</i> var. <i>medius</i>	Mountain Springs bush lupine	N	-	-	CRPR 1B.3; BLM Sensitive	Not ESA-listed.
<i>Lycium parishii</i>	Parish's desert-thorn	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Malperia tenuis</i>	brown turbans	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Matelea parvifolia</i>	spear-leaf matelea	N	-	-	CRPR 2B.3; USFS Sensitive	Not ESA-listed.
<i>Mentzelia hirsutissima</i>	hairy stickleaf	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Monardella hypoleuca</i> ssp. <i>intermedia</i>	intermediate monardella	N	-	-	CRPR 1B.3	Not ESA-listed.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	felt-leaved monardella	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Monardella macrantha</i> ssp. <i>hallii</i>	Hall's monardella	N	-	-	CRPR 1B.3; USFS Sensitive	Not ESA-listed.
<i>Monardella nana</i> ssp. <i>leptosiphon</i>	San Felipe monardella	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Monardella stoneana</i>	Jennifer's monardella	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Monardella viminea</i>	willowy monardella	Y	E	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Muhlenbergia appressa</i>	appressed muhly	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Myosurus minimus</i> ssp. <i>apus</i>	little mousetail	N	-	-	CRPR 3.1	Not ESA-listed.
<i>Nama stenocarpa</i>	mud nama	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Navarretia fossalis</i>	spreading navarretia	Y	T	-	CRPR 1B.1	Included in the HCP Amendment.
<i>Navarretia peninsularis</i>	Baja navarretia	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Navarretia prostrata</i>	prostrate vernal pool navarretia	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Nemacaulis denudata</i> var. <i>denudata</i>	coast woolly-heads	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Nemacladus twisselmannii</i>	Twisselmann's nemacladus	N	-	R	CRPR 1B.2; USFS Sensitive	Not ESA-listed. Not known to occur within the PIZ.
<i>Nolina cismontana</i>	cismontane beargrass	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Nolina interrata</i>	Dehesa beargrass	Y	-	E	CRPR 1B.1; BLM Sensitive	Included in the HCP Amendment.
<i>Orcuttia californica</i>	California Orcutt grass	Y	E	E	CRPR 1B.1	Included in the HCP Amendment
<i>Ornithostaphylos oppositifolia</i>	Baja California birdbush	N	-	E	CRPR 2B.1	Not ESA-listed. Only population known in United States was impacted by border fence with Mexico. Attempts at transplantation mostly failed. Historic location are outside the PIZ. Current status of any living plants is unknown. Not likely to be impacted by Covered Activities.
<i>Packera ganderi</i>	Gander's ragwort	N	-	R	CRPR 1B.2; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Pentachaeta aurea</i> ssp. <i>allenii</i>	Allen's pentachaeta	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Petalonyx linearis</i>	narrow-leaf sandpaper-plant	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Phacelia keckii</i>	Santiago Peak phacelia	N	-	-	CRPR 1B.3; USFS Sensitive	Not ESA-listed.
<i>Phacelia stellaris</i>	Brand's star phacelia	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Pholistoma auritum</i> var. <i>arizonicum</i>	Arizona pholistoma	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Pinus torreyana</i> ssp. <i>torreyana</i>	Torrey pine	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Poa atropurpurea</i>	San Bernardino bluegrass	N	E	-	CRPR 1B.2	Species only overlaps with the PIZ in the Laguna Mountains. Overlap is minimal and impacts to occurrence can be avoided.
<i>Pogogyne abramsii</i>	San Diego mesa mint	Y	E	E	CRPR 1B.1	Included in the HCP Amendment.
<i>Pogogyne nudiuscula</i>	Otay Mesa mint	Y	E	E	CRPR 1B.1	Included in the HCP Amendment.

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<i>Pseudognaphalium leucocephalum</i>	white rabbit-tobacco	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Pseudorontium cyathiferum</i>	Deep Canyon snapdragon	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Quercus cedrosensis</i>	Cedros Island oak	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Quercus dumosa</i>	Nuttall's scrub oak	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Quercus engelmanni</i>	Engelmann oak	N	-	-	CRPR 4.2	Not ESA-listed.
<i>Rhus aromatica</i> var. <i>simplicifolia</i>	single-leaved skunkbrush	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Ribes canthariforme</i>	Moreno currant	N	-	-	CRPR 1B.3	Not ESA-listed.
<i>Ribes viburnifolium</i>	Santa Catalina Island currant	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Rosa minutifolia</i>	small-leaved rose	N	-	E	CRPR 2B.1	Not ESA-listed.
<i>Salvia munzii</i>	Munz's sage	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	southern mountains skullcap	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Selaginella eremophila</i>	desert spike-moss	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Senecio aphanactis</i>	chaparral ragwort	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Senna covesii</i>	Cove's cassia	N	-	-	CRPR 2B.2	Not ESA-listed.
<i>Sibaropsis hammittii</i>	Hammitt's clay-cress	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Sidalcea neomexicana</i>	salt spring checkerbloom	N	-	-	CRPR 2B.2; USFS Sensitive	Not ESA-listed.
<i>Solanum tenuilobatum</i>	narrow-leaved nightshade	N	-	-	-	Not ESA-listed. Since 1995, <i>Solanum tenuilobatum</i> was determined synonymous with <i>Solanum xanti</i> . This species is a common taxon and not rare.
<i>Spermolepis infernensis</i>	Hellhole scaleseed	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Sphenopholis interrupta</i> ssp. <i>californica</i>	prairie false oat	N	-	-	CRPR 1B.1	Not ESA-listed.
<i>Stemodia durantifolia</i>	purple stemodia	N	-	-	CRPR 2B.1	Not ESA-listed.
<i>Streptanthus campestris</i>	southern jewelflower	N	-	-	CRPR 1B.3; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Suaeda esteroa</i>	estuary seablite	N	-	-	CRPR 1B.2	Not ESA-listed.
<i>Symphotrichum defoliatum</i>	San Bernardino aster	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Tetracoccus dioicus</i>	Parry's tetracoccus	N	-	-	CRPR 1B.2; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Thermopsis californica</i> var. <i>semota</i>	velvety false lupine	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Thysanocarpus rigidus</i>	rigid fringe-pod	N	-	-	CRPR 1B.2; USFS Sensitive	Not ESA-listed.
<i>Tortula californica</i>	California screw moss	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
<i>Verbesina dissita</i>	big-leaved crownbeard	N	T	T	CRPR 1B.1	SDG&E Facilities in the vicinity of known occurrences are within developed habitat and will avoid impacts to this species.
<i>Viguiera purisimae</i>	La Purisima viguiera	N	-	-	CRPR 2B.3	Not ESA-listed.
<i>Xylorhiza orcuttii</i>	Orcutt's woody-aster	N	-	-	CRPR 1B.2; BLM Sensitive	Not ESA-listed.
Fish						
<i>Cyprinodon macularius</i>	desert pupfish	N	E	E	-	Occurs in refugium at Borrego Springs High School Pond, Borrego Palm Canyon Pond, Borrego Palm Canyon Refugium Pool near the Anza Borrego State Park Visitor Center, and another concrete pool near Palm Springs. This fish was introduced to these refugium pools. Covered Activities would not affect this species or the refugium pools.

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<i>Eucyclogobius newberryi</i>	tidewater goby	N	E	-		SDG&E Facilities overlapping with designated critical habitat and/or occurrences for this species are located outside of open water, or routine operation and maintenance are not expected to require work in open water that would support this species. Unlikely that Covered Activities would impact this species.
<i>Gasterosteus aculeatus williamsoni</i>	unarmored threespine stickleback	N	E	E	FP	Transplanted populations occur in San Felipe Creek outside the range of the species. Covered Activities for overhead facilities are not expected to impact open water habitat for this species.
<i>Gila orcuttii</i>	arroyo chub	N	-	-	SSC; USFS Sensitive	Not ESA-listed.
<i>Oncorhynchus mykiss irideus</i> pop. 10 ²	steelhead Southern California DPS ²	N	E	-		Covered Activities for overhead facilities are not expected to impact open water habitat for this species. Underground electric facilities are not expected to impact this species because the facilities are located outside of the open water channel, or expected operation and maintenance work will not result in impacts to the channel.
Invertebrates						
<i>Bombus crotchii</i>	Crotch bumble bee	N	-	CE	-	Not ESA-listed.
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	N	T	-		Habitat at known occurrence within Plan Area is no longer present. Species would not be impacted.
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	Y	E	-		Included in the HCP Amendment.
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	Y	E	-		Included in the HCP Amendment.
<i>Callophrys thornei</i>	Thorne's hairstreak butterfly	N	-	-	BLM Sensitive	Not ESA-listed.
<i>Danaus plexippus</i> pop. 1	Monarch – California overwintering population	N	C	-	USFS Sensitive	Not ESA-listed. SDG&E will monitor the listing status and coordinate with USFWS should it become ESA-listed.
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	N	E	-		Included as covered species in SDG&E's 2007 QCB LEHCP.
<i>Panoquina errans</i>	Wandering (=salt marsh skipper)	N	-	-		Not ESA-listed.
<i>Pyrgus ruralis lagunae</i>	Laguna Mountains skipper	Y	E	-		Included in the HCP Amendment.
<i>Lycaena Hermes</i>	Hermes copper butterfly	Y	T	-	USFS Sensitive	Included in the HCP Amendment.
Amphibians						
<i>Anaxyrus californicus</i>	arroyo toad	Y	E	-	SSC	Included in the HCP Amendment.
<i>Ensatina eschscholtzii klauberi</i>	large-blotched salamander	N	-	-	WL; USFS Sensitive	Not ESA-listed.
<i>Rana draytonii</i>	California red-legged frog	Y	T	-	SSC	Included in the HCP Amendment.
<i>Spea hammondi</i>	western spadefoot	Y	-	-	BLM Sensitive; SSC	Included in the HCP Amendment.
<i>Taricha torosa</i>	coast range newt	N	-	-	SSC	Not ESA-listed.
Reptiles						
<i>Aniella stebbinsi</i>	Southern California legless lizard	N	-	-	SSC; USFS Sensitive	Not ESA-listed.
<i>Arizona elegans occidentalis</i>	California glossy snake	N	-	-	SSC	Not ESA-listed.
<i>Aspidoscelis hyperythra</i>	orange-throated whiptail	N	-	-	WL; USFS Sensitive	Not ESA-listed.
<i>Aspidoscelis tigris stejnegeri</i>	coastal whiptail	N	-	-	SSC; USFS Sensitive	Not ESA-listed.
<i>Coleonyx switaki</i>	barefoot gecko	N	-	T	BLM Sensitive	Not ESA-listed. Unlikely to be impacted during routine operations and maintenance due to its limited range in California and specific microhabitat requirements where few facilities exist.
<i>Coleonyx variegatus abbotti</i>	San Diego banded gecko	N	-	-	SSC	Not ESA-listed.
<i>Crotalus ruber</i>	red-diamond rattlesnake	N	-	-	SSC; USFS Sensitive	Not ESA-listed.
<i>Diadophis punctatus similis</i>	San Diego ringneck snake	N	-	-	USFS Sensitive	Not ESA-listed.

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<i>Actinemys pallida</i>	southwestern pond turtle	Y	-	-	SSC; USFS Sensitive; BLM Sensitive	Included in the HCP Amendment.
<i>Gambelia copeii</i>	Cope's leopard lizard	N	-	-	SSC	Not ESA-listed.
<i>Lichanura trivirgata roseofusca</i>	coastal rosy boa	N	-	-		Not ESA-listed.
<i>Masticophis fuliginosus</i>	Baja California coachwhip	N	-	-	SSC	Not ESA-listed.
<i>Phrynosoma blainvillii</i>	coast horned lizard	Y	-	-	BLM Sensitive; SSC	Included in the HCP Amendment.
<i>Phrynosoma mcallii</i>	flat-tailed horned lizard	N	-	-	SSC; BLM Sensitive	Not ESA-listed.
<i>Plestiodon skiltonianus interparietalis</i>	Coronado skink	N	-	-	BLM Sensitive; WL	Not ESA-listed.
<i>Salvadora hexalepis virgultea</i>	coast patch-nosed snake	N	-	-	SSC	Not ESA-listed.
<i>Thamnophis hammondi</i>	two-striped garter snake	N	-	-	SSC; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Thamnophis sirtalis</i> pop. 1	south coast gartersnake	N	-	-	SSC	Not ESA-listed.
<i>Uma notata</i>	Colorado Desert fringe-toed lizard	N	-	-	SSC; BLM Sensitive	Not ESA-listed.
<i>Xantusia gracilis</i>	sandstone night lizard	N	-	-	SSC	Not ESA-listed.
Birds						
<i>Accipiter cooperii</i>	Cooper's hawk	N	-	-	WL	Not ESA-listed.
<i>Agelaius tricolor</i>	tricolored blackbird	Y	-	T	BLM Sensitive; SCC; BCC	Included in the HCP Amendment.
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow	N	-	-	WL	Not ESA-listed.
<i>Ammodramus savannarum</i>	grasshopper sparrow	N	-	-	SSC	Not ESA-listed.
<i>Amphispiza belli belli</i>	Bell's sage sparrow	N	-	-	WL	Not ESA-listed.
<i>Aquila chrysaetos</i>	golden eagle	Y	-	-	BGEPA; BLM Sensitive; FP; WL; BCC	Included in the HCP Amendment under the Eagle Conservation Plan.
<i>Asio otus</i>	long-eared owl	N	-	-	SSC	Not ESA-listed.
<i>Athene cunicularia</i>	burrowing owl	Y	-	-	SSC; BCC; BLM Sensitive	Included in the HCP Amendment.
<i>Branta canadensis</i>	Canada goose	N	-	-		Not ESA-listed.
<i>Buteo regalis</i>	ferruginous hawk	N	-	-	WL; BCC	Not ESA-listed.
<i>Buteo swainsoni</i>	Swainson's hawk	N	-	T	BLM Sensitive; BCC	Not ESA-listed.
<i>Campylorhynchus brunneicapillus sandiegensis</i>	coastal cactus wren	Y	-	-	SSC; USFS Sensitive; BCC	Included in the HCP Amendment.
<i>Charadrius montanus</i>	mountain plover	N	-	-	BLM Sensitive; SSC; BCC	Not ESA-listed.
<i>Charadrius nivosus</i>	western snowy plover	Y	T	-	SSC; BCC	Included in the HCP Amendment.
<i>Circus hudsonius</i>	northern harrier	N	-	-	SSC	Not ESA-listed.
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	Y	T	E	USFS Sensitive; BLM Sensitive; BCC	Included in the HCP Amendment.
<i>Egretta rufescens</i>	reddish egret	N	-	-		Not ESA-listed.
<i>Elanus leucurus</i>	white-tailed kite	N	-	-	FP; BLM Sensitive	Not ESA-listed.
<i>Empidonax traillii extimus</i>	southwestern willow flycatcher	Y	E	E		Included in the HCP Amendment.
<i>Eremophila alpestris actia</i>	California horned lark	N	-	-	WL	Not ESA-listed.
<i>Falco mexicanus</i>	prairie falcon	N	-	-	WL; BCC	Not ESA-listed.
<i>Falco peregrinus anatum</i>	American peregrine falcon	N	Delisted	Delisted	FP; BCC	Not ESA-listed.
<i>Haliaeetus leucocephalus</i>	bald eagle	Y	Delisted	E	BGEPA; BLM Sensitive; FP; USFS Sensitive; BCC	Included in the HCP under an Eagle Conservation Plan.

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<i>Icteria virens</i>	yellow-breasted chat	N	-	-	SSC	Not ESA-listed.
<i>Ixobrychus exilis</i>	least bittern	N	-	-	SSC; BCC	Not ESA-listed.
<i>Lanius ludovicianus</i>	loggerhead shrike	N	-	-	SSC; BCC	Not ESA-listed.
<i>Numenius americanus</i>	long-billed curlew	N	-	-	WL; BCC	Not ESA-listed.
<i>Pandion haliaetus</i>	osprey	N	-	-	WL	Not ESA-listed.
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	Y	-	E		Included in the HCP Amendment.
<i>Passerculus sandwichensis rostratus</i>	large-billed savannah sparrow	N	-	-	SSC	Not ESA-listed.
<i>Pelecanus occidentalis californicus</i>	California brown pelican	N	Delisted	Delisted	FP; USFS Sensitive; BLM Sensitive	Not ESA-listed.
<i>Phalacrocorax auritus</i>	double-crested cormorant	N	-	-	WL	Not ESA-listed.
<i>Plegadis chihi</i>	white-faced ibis	N	-	-	WL	Not ESA-listed.
<i>Polioptila californica californica</i>	coastal California gnatcatcher	Y	T	-	SSC	Included in the HCP Amendment.
<i>Progne subis</i>	purple martin	N	-	-	SSC	Not ESA-listed.
<i>Pyrocephalus rubinus</i>	vermillion flycatcher	N	-	-	SSC	Not ESA-listed.
<i>Rallus obsoletus levipes</i>	light-footed Ridgway's rail	Y	E	E	FP	Included in the HCP Amendment.
<i>Setophaga petechia</i>	yellow warbler	N	-	-	SSC; BCC	Not ESA-listed.
<i>Sialia Mexicana</i>	western bluebird	N	-	-		Not ESA-listed.
<i>Sternula antillarum browni</i>	California least tern	Y	E	E	FP	Included in the HCP Amendment.
<i>Thalasseus elegans</i>	elegant tern	N	-	-	WL	Not ESA-listed.
<i>Vireo bellii pusillus</i>	least Bell's vireo	Y	E	E		Included in the HCP Amendment.
Mammals						
<i>Antrozous pallidus</i>	pallid bat	N	-	-	SSC; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Chaetodipus californicus femoralis</i>	Dulzura pocket mouse	N	-	-	SSC	Not ESA-listed.
<i>Chaetodipus fallax fallax</i>	northwestern San Diego pocket mouse	N	-	-	SSC	Not ESA-listed.
<i>Chaetodipus fallax pallidus</i>	pallid San Diego pocket mouse	N	-	-	SSC	Not ESA-listed.
<i>Choeronycteris mexicana</i>	Mexican long-tongued bat	N	-	-	SSC	Not ESA-listed.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	N	-	-	SSC; BLM Sensitive; USFS Sensitive	Not ESA-listed.
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	Y	T	T		Included in the HCP Amendment.
<i>Eumops perotis californicus</i>	western mastiff bat	N	-	-	SSC; BLM Sensitive	Not ESA-listed.
<i>Lasiurus blossevillii</i>	western red bat	N	-	-	SSC	Not ESA-listed.
<i>Lasiurus xanthinus</i>	western yellow bat	N	-	-	SSC	Not ESA-listed.
<i>Leptonycteris yerbabuenae</i>	lesser long-nosed bat	N	Delisted	-	SSC	Not ESA-listed.
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	N	-	-	SSC	Not ESA-listed.
<i>Macrotus californicus</i>	California leaf-nosed bat	N	-	-	SSC; BLM Sensitive	Not ESA-listed.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	N	-	-	SSC	Not ESA-listed.
<i>Nyctinomops femorosaccus</i>	pocketed free-tailed bat	N	-	-	SSC	Not ESA-listed.
<i>Nyctinomops macrotis</i>	big free-tailed bat	N	-	-	SSC	Not ESA-listed.
<i>Odocoileus hemionus fuliginata</i>	southern mule deer	N	-	-		Not ESA-listed.

Scientific Name	Common Name	Proposed for HCP Amendment Coverage?	ESA Listing Status ¹	CESA Listing Status ¹	Other Listing Status ¹	Rationale for Exclusion form HCP Amendment
<i>Onychomys torridus ramona</i>	southern grasshopper mouse	N	-	-	SSC	Not ESA-listed.
<i>Ovis canadensis nelsoni</i> pop. 2 ³	Peninsular bighorn sheep DPS ³	Y	E	T	FP	Included in the HCP Amendment.
<i>Perognathus longimembris bangsi</i>	Palm Springs pocket mouse	N	-	-	SSC; BLM Sensitive	Not ESA-listed.
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	N	-	-	SSC	Not ESA-listed.
<i>Perognathus longimembris internationalis</i>	Jacumba pocket mouse	N	-	-	SSC	Not ESA-listed.
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	Y	E	-	SSC	Included in the HCP Amendment.
<i>Puma concolor</i>	mountain lion	N	-	C		Not ESA-listed. Incidental take from Covered Activities is not likely.
<i>Taxidea taxus</i>	American badger	N	-	-	SSC	Not ESA-listed.

¹ Listing Status Key

Endangered Species Act (ESA): E = Endangered; T = Threatened; C = Candidate

California Endangered Species Act (CESA): E = Endangered; T = Threatened; R = Rare; C = Candidate

Other:

California Rare Plant Rank (CRPR): Rank 1B = Plants rare, threatened, or endangered in California and elsewhere; Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere; Rank 3 = Plants about which more information is needed (Review List); Rank 4 = Plants of limited distribution (Watch List). 0.1 = Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat); 0.2 = Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat); 0.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

SSC = California Department of Fish & Wildlife (CDFW) Species of Special Concern

FP = State Fully Protected

SP = State Specially Protected

WL = CDFW Watch List

BGEPA = Bald and Golden Eagle Protection Act

BCC = U.S. Fish & Wildlife Service Bird of Conservation Concern

USFS Sensitive = U.S. Forest Service Sensitive

BLM Sensitive = Bureau of Land Management Sensitive

² Refers to the distinct population segment (population 10) that occurs in the coastal basins from the Santa Maria River (inclusive), south to the United States – Mexico Border

³ Refers to the distinct population segment (population 2) that is restricted to east-facing, lower elevation slopes (typically below 4,600 feet) of the Peninsular Ranges along the northwest edge of the Sonoran Desert in southern California.



SDG&E Vegetation Crosswalk

Appendix E
SDG&E Vegetation Crosswalk

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Agricultural	18000 General Agriculture	Agricultural	Agricultural	NA	NA
Agricultural	18200 Intensive Agriculture	NA	NA	NA	NA
Agricultural	18200 Intensive Agriculture - Dairies, Nurseries, Chicken Ranches	NA	NA	NA	NA
Agricultural	18300 Extensive Agriculture - Field/Pasture, Row Crops	NA	NA	NA	NA
Agricultural	18310 Field/Pasture	NA	NA	NA	NA
Agricultural	18310 Pasture	NA	NA	NA	NA
Agricultural	18320 Row Crops	NA	NA	NA	NA
Agricultural	18100 Orchards and Vineyards	NA	NA	NA	NA
Alkali Marsh	45300 Alkali Meadows and Seeps	NA	NA	<i>Anemopsis californica</i> Herbaceous Alliance	NA
Alkali Marsh	45320 Alkali Seep	<i>Iva hayesiana</i> Special Stands	<i>Iva hayesiana</i> Special Stands	NA	NA
Alkali Marsh	45320 Alkali Seep	<i>Juncus acutus</i> Provisional Alliance	Alliance only	NA	NA
Alkali Marsh	52300 Alkali Marsh	NA	NA	NA	NA
Alluvial Fan Scrub	32720 Alluvial Fan Scrub	NA	NA	<i>Lepidospartum squamatum</i> Shrubland Alliance	<i>Lepidospartum squamatum</i> - <i>Artemisia californica</i>
Badlands	46100 Badlands/Mudhill Forbs	NA	NA	<i>Atriplex hymenelytra</i> Alliance	<i>Atriplex hymenelytra</i> Association
Beach-Saltpan	13300 Saltpan/Mudflats	Salt Flat	Salt Flat	NA	NA
Beach-Saltpan	13300 Saltpan/Mudflats	Salt Ponds	Salt Ponds	NA	NA
Beach-Saltpan	13300 Saltpan/Mudflats	Tidal/Mudflat	Tidal/Mudflat	NA	NA
Beach-Saltpan	13400 Beach	Beach	Beach	NA	NA
Big Cone Spruce	84150 Bigcone Spruce (Bigcone Douglas Fir)-Canyon Oak Forest	NA	NA	<i>Pseudotsuga macrocarpa</i> Forest Alliance	<i>Pseudotsuga macrocarpa</i> - <i>Quercus agrifolia</i> Association
Big Cone Spruce	84150 Bigcone Spruce (Bigcone Douglas Fir)-Canyon Oak Forest	NA	NA	NA	<i>Pseudotsuga macrocarpa</i> - <i>Quercus chrysolepis</i> Association
Big Sagebrush Scrub	35000 Great Basin Scrub	NA	NA	NA	NA
Big Sagebrush Scrub	35200 Sagebrush Scrub	NA	NA	NA	NA
Big Sagebrush Scrub	35210 Big Sagebrush Scrub	NA	NA	<i>Artemisia tridentata</i> Shrubland Alliance	<i>Artemisia tridentata</i> Association
Big Sagebrush Scrub	35210 Big Sagebrush Scrub	NA	NA	NA	<i>Artemisia tridentata</i> - <i>Eriogonum fasciculatum</i> Association

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Big Sagebrush Scrub	35210 Big Sagebrush Scrub	NA	NA	NA	<i>Artemisia tridentata</i> - <i>Eriogonum wrightii</i> Association
Black Oak Forest	81340 Black Oak Forest	NA	NA	<i>Quercus kelloggii</i> Forest Alliance	<i>Quercus kelloggii</i> - <i>Pinus coulteri</i> / <i>Arctostaphylos glandulosa</i> Association
Black Oak Forest	81340 Black Oak Forest	NA	NA	<i>Quercus kelloggii</i> Forest Alliance	<i>Quercus kelloggii</i> Association
Black Oak Forest	81340 Black Oak Forest	NA	NA	NA	<i>Quercus kelloggii</i> - <i>Calocedrus decurrens</i> Association
Black Oak Forest	81340 Black Oak Forest	NA	NA	NA	<i>Quercus kelloggii</i> - <i>Quercus agrifolia</i> -pine/ <i>Holodiscus discolor</i> Association
Black Oak Forest	81340 Black Oak Forest	NA	NA	NA	<i>Quercus kelloggii</i> - <i>Pinus Coulteri</i> Association
Black Oak Forest	71120 Black Oak Woodland	NA	NA	<i>Quercus kelloggii</i> Forest Alliance	<i>Quercus kelloggii</i> /annual grass-herb Association
Chaparral	37000 Chaparral	NA	NA	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Alliance	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	NA	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> - <i>Ceanothus crassifolius</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	NA	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> - <i>Ceanothus tomentosus</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Arctostaphylos glandulosa</i> Alliance	Alliance only	NA	NA
Chaparral	37120 Southern Mixed Chaparral	NA	<i>Arctostaphylos glandulosa</i> - <i>Adenostoma fasciculatum</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	NA	<i>Arctostaphylos glandulosa</i> - <i>Adenostoma fasciculatum</i> / <i>Chamaebatia australis</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Arctostaphylos rainbowensis</i>	<i>Arctostaphylos rainbowensis</i>	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Ceanothus cyaneus</i> Special Stands	<i>Ceanothus cyaneus</i> Special Stands	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Ceanothus leucodermis</i> Alliance	<i>Ceanothus leucodermis</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Ceanothus spinosus</i> Alliance	<i>Ceanothus spinosus</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Ceanothus tomentosus</i> Alliance	<i>Ceanothus tomentosus</i> Association	NA	NA
Chaparral	37120 Southern Mixed Chaparral	<i>Cercocarpus minutiflorus</i> Alliance	<i>Cercocarpus minutiflorus</i> Provisional Association	NA	NA
Chaparral	37121 Granitic Southern Mixed Chaparral	Same as above on Granitic Soils	NA	NA	NA

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Chaparral	37122 Mafic Southern Mixed Chaparral	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Alliance	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> - <i>Pickeringia montana</i> Association	NA	NA
Chaparral	37130 Northern Mixed Chaparral	NA	NA	NA	NA
Chaparral	37131 Granitic Northern Mixed Chaparral	<i>Arctostaphylos glauca</i> Alliance	<i>Arctostaphylos glauca</i> - <i>Adenostoma fasciculatum</i> Association	NA	NA
Chaparral	37131 Granitic Northern Mixed Chaparral	NA	NA	<i>Adenostoma fasciculatum</i> Alliance	NA
Chaparral	37131 Granitic Northern Mixed Chaparral	NA	NA	<i>Ceanothus perplexans</i> (<i>greggii</i>) Shrubland Alliance	<i>Ceanothus perplexans</i> (<i>greggii</i>) Association
Chaparral	37200 Chamise Chaparral	<i>Adenostoma fasciculatum</i> Alliance	<i>Adenostoma fasciculatum</i> -(<i>Eriogonum fasciculatum</i> , <i>Artemisia californica</i> , <i>Salvia mellifera</i>) Association	NA	NA
Chaparral	37200 Chamise Chaparral	NA	<i>Adenostoma fasciculatum</i> - <i>Acmispon glaber</i> (<i>Lotus scoparius</i>) Association	NA	NA
Chaparral	37200 Chamise Chaparral	NA	<i>Adenostoma fasciculatum</i> - <i>Ceanothus tomentosus</i> Association	NA	NA
Chaparral	37210 Granitic Chamise Chaparral	NA	NA	NA	NA
Chaparral	37220 Mafic Chamise Chaparral	<i>Adenostoma fasciculatum</i> Alliance	<i>Adenostoma fasciculatum</i> Association	NA	NA
Chaparral	37300 Red Shank Chaparral	NA	NA	<i>Adenostoma sparsifolium</i> Shrubland Alliance	<i>Adenostoma sparsifolium</i> Association
Chaparral	37300 Red Shank Chaparral	NA	NA	NA	<i>Adenostoma sparsifolium</i> - <i>Eriogonum fasciculatum</i> - <i>Acmispon glaber</i> (<i>Lotus scoparius</i>) Association
Chaparral	37300 Red Shank Chaparral	NA	NA	NA	<i>Adenostoma sparsifolium</i> - <i>Artemisia tridentata</i> Association
Chaparral	37300 Red Shank Chaparral	NA	NA	NA	<i>Adenostoma sparsifolium</i> - <i>Ceanothus crassifolius</i> Association
Chaparral	37300 Red Shank Chaparral	NA	NA	NA	<i>Adenostoma sparsifolium</i> - <i>Ceanothus cuneatus</i> Association
Chaparral	37300 Red Shank Chaparral	NA	NA	NA	<i>Adenostoma sparsifolium</i> - <i>Cercocarpus betuloides</i> Association
Chaparral	37300 Red Shank Chaparral	NA	NA	NA	<i>Adenostoma sparsifolium</i> - <i>Ericameria linearifolia</i> - <i>Eriogonum fasciculatum</i> - <i>Opuntia basilaris</i> Association

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Chaparral	37400 Semi-Desert Chaparral	NA	NA	<i>Adenostoma fasciculatum</i> Shrubland Alliance	<i>Adenostoma fasciculatum</i> - <i>Ceanothus perplexans</i> (<i>greggii</i>) Association
Chaparral	37400 Semi-Desert Chaparral	NA	NA	<i>Adenostoma fasciculatum</i> - <i>Salvia apiana</i> Shrubland Alliance	<i>Adenostoma fasciculatum</i> - <i>Salvia apiana</i> Association
Chaparral	37500 Montane Chaparral	NA	NA	NA	NA
Chaparral	37510 Mixed Montane Chaparral	NA	NA	<i>Arctostaphylos glandulosa</i> Alliance	<i>Arctostaphylos glandulosa</i> Association
Chaparral	37520 Montane Manzanita Chaparral	NA	NA	<i>Arctostaphylos glauca</i> Alliance	<i>Arctostaphylos glauca</i> - <i>Adenostoma fasciculatum</i> Association
Chaparral	37520 Montane Manzanita Chaparral	NA	NA	NA	<i>Arctostaphylos glauca</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	<i>Ceanothus leucodermis</i> Alliance	<i>Ceanothus leucodermis</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	<i>Ceanothus oliganthus</i> Shrubland Alliance	<i>Ceanothus oliganthus</i> - <i>Adenostoma fasciculatum</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	NA	<i>Ceanothus oliganthus</i> - <i>Adenostoma sparsifolium</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	NA	<i>Ceanothus oliganthus</i> - <i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	NA	<i>Ceanothus oliganthus</i> - <i>Arctostaphylos glandulosa</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	NA	<i>Ceanothus oliganthus</i> - <i>Heteromeles arbutifolia</i> - <i>Rhus ovata</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	NA	<i>Ceanothus oliganthus</i> - <i>Quercus berberidifolia</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	<i>Ceanothus oliganthus</i> Shrubland Alliance	<i>Ceanothus oliganthus</i> Association
Chaparral	37530 Montane Ceanothus Chaparral	NA	NA	<i>Ceanothus perplexans</i> (<i>greggii</i>) Shrubland Alliance	<i>Ceanothus perplexans</i> (<i>greggii</i>) Association
Chaparral	37540 Montane Scrub Oak Chaparral	NA	NA	<i>Quercus wislizeni</i> Shrubland Alliance	<i>Quercus wislizeni</i> - <i>Cercocarpus betuloides</i> (<i>montanus</i>) Association

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Chaparral	37540 Montane Scrub Oak Chaparral	NA	NA	NA	<i>Quercus wislizeni</i> Shrubland Association
Chaparral	37540 Montane Scrub Oak Chaparral	NA	NA	NA	<i>Quercus wislizeni</i> - <i>Arctostaphylos glandulosa</i> Association
Chaparral	37540 Montane Scrub Oak Chaparral	NA	NA	NA	<i>Quercus wislizeni</i> - <i>Ceanothus leucodermis</i> Association
Chaparral	37800 Upper Sonoran Ceanothus Chaparral	NA	NA	NA	NA
Chaparral	37810 Buck Brush Chaparral	NA	NA	<i>Ceanothus integrerrimus</i> Shrubland Alliance	<i>Ceanothus leucodermis</i> Association
Chaparral	37820 <i>Ceanothus crassifolius</i> Chaparral	<i>Ceanothus crassifolius</i> Alliance	<i>Ceanothus crassifolius</i> Association	NA	NA
Chaparral	37820 <i>Ceanothus crassifolius</i> Chaparral	NA	<i>Ceanothus crassifolius</i> - <i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Association	NA	NA
Chaparral	37820 <i>Ceanothus crassifolius</i> Chaparral	NA	<i>Ceanothus crassifolius</i> - <i>Malosma laurina</i> Association	NA	NA
Chaparral	37900 Scrub Oak Chaparral	<i>Quercus (berberidifolia, ††acutidens)</i> Alliance	Alliance only	NA	NA
Chaparral	37900 Scrub Oak Chaparral	NA	<i>Quercus (berberidifolia, ††acutidens)</i> Association	NA	NA
Chaparral	37900 Scrub Oak Chaparral	NA	<i>Quercus (berberidifolia, ††acutidens)</i> - <i>Ceanothus leucodermis</i> Association	NA	NA
Chaparral	37900 Scrub Oak Chaparral	NA	<i>Quercus (berberidifolia, ††acutidens)</i> - <i>Cercocarpus minutiflorus</i> Provisional Association	NA	NA
Chaparral	37900 Scrub Oak Chaparral	<i>Quercus (berberidifolia, ††acutidens)</i> - <i>Adenostoma fasciculatum</i> Alliance	Alliance only	NA	NA
Chaparral	37900 Scrub Oak Chaparral	NA	<i>Quercus (berberidifolia, ††acutidens)</i> - <i>Adenostoma fasciculatum</i> Association	NA	NA
Chaparral	37900 Scrub Oak Chaparral	<i>Quercus cedrosensis</i> Special Stands	<i>Quercus cedrosensis</i> Special Stands	NA	NA
Chaparral	37A00 Interior Live Oak Chaparral	NA	NA	<i>Quercus wislizeni</i> Shrubland Alliance	<i>Quercus wislizeni</i> - <i>Quercus berberidifolia</i> Association
Chaparral	37B00 Upper Sonoran Manzanita Chaparral	NA	NA	<i>Arctostaphylos pringlei</i> ssp. <i>drupacea</i> Shrubland Alliance	<i>Arctostaphylos pringlei</i> ssp. <i>drupacea</i> Association
Chaparral	37B00 Upper Sonoran Manzanita Chaparral	NA	NA	NA	<i>Arctostaphylos pringlei</i> ssp. <i>drupacea</i> - <i>Adenostoma fasciculatum</i> Association
Chaparral	37B00 Upper Sonoran Manzanita Chaparral	NA	NA	NA	<i>Arctostaphylos pringlei</i> ssp. <i>drupacea</i> - <i>Arctostaphylos pungens</i> Association

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Chaparral	37K00 Montane Buckwheat Scrub	NA	NA	<i>Eriogonum fasciculatum</i> Shrubland Alliance	<i>Eriogonum fasciculatum</i> var. <i>polifolium</i> / <i>Eriastrum pleurifolium</i> Association
Chaparral	39000 Upper Sonoran Subshrub Scrub	NA	NA	<i>Eriogonum wrightii</i> Dwarf Shrubland Alliance	<i>Eriogonum wrightii</i> - <i>Eriophyllum confertiflorum</i> / <i>Monardella antonina</i> ssp. <i>bentensis</i> Association
Coast Live Oak Forest	81320 Canyon Live Oak Forest	NA	NA	<i>Quercus chrysolepis</i> Forest Alliance	<i>Quercus chrysolepis</i> - <i>Quercus kelloggii</i> /(<i>Toxicodendron diversilobum</i>) Association
Coast Live Oak Forest	81100 Mixed Evergreen Forest	NA	NA	<i>Quercus chrysolepis</i> Forest Alliance	<i>Quercus chrysolepis</i> - <i>Calocedrus decurrens</i>
Coast Live Oak Forest	81100 Mixed Evergreen Forest	NA	NA	NA	<i>Quercus chrysolepis</i> - <i>Umbellularia californica</i> Association
Coast Live Oak Forest	81300 Oak Forest	NA	NA	NA	NA
Coast Live Oak Forest	81310 Coast Live Oak Forest	NA	NA	<i>Quercus agrifolia</i> Woodland Alliance	<i>Quercus agrifolia</i> - <i>Pinus coulteri</i> Association
Coast Live Oak Forest	81320 Canyon Live Oak Forest	NA	NA	<i>Quercus chrysolepis</i> Forest Alliance	<i>Quercus chrysolepis</i> Association
Coast Live Oak Riparian Forest	61310 Southern Coast Live Oak Riparian Forest	<i>Quercus agrifolia</i> Alliance	<i>Quercus agrifolia</i> / <i>Salix lasiolepis</i> Association	NA	NA
Coast Live Oak Riparian Forest	61310 Southern Coast Live Oak Riparian Forest	NA	<i>Quercus agrifolia</i> / <i>Toxicodendron diversilobum</i> /Grass Association	NA	NA
Coastal Sage Chaparral Mix	37G00 Coastal Sage-Chaparral Transition	<i>Adenostoma fasciculatum</i> Alliance	<i>Adenostoma fasciculatum</i> - (<i>Eriogonum fasciculatum</i> , <i>Artemisia californica</i> , <i>Salvia mellifera</i>) Association	NA	NA
Coastal Sage Scrub	32000 Coastal Scrub	<i>Acmispon glaber</i> (<i>Lotus scoparius</i>) Alliance	<i>Acmispon glaber</i> (<i>Lotus scoparius</i>) Association	NA	NA
Coastal Sage Scrub	32000 Coastal Scrub	<i>Isocoma menziesii</i> Alliance	<i>Isocoma menziesii</i> Provisional Association	NA	NA
Coastal Sage Scrub	32000 Coastal Scrub	NA	<i>Isocoma menziesii</i> / <i>Distichlis spicata</i> Association	NA	NA
Coastal Sage Scrub	32000 Coastal Scrub	<i>Malosma laurina</i> Alliance	<i>Malosma laurina</i> - <i>Acmispon glaber</i> (<i>Lotus scoparius</i>) Association	NA	NA
Coastal Sage Scrub	32000 Coastal Scrub	<i>Rhamnus crocea</i> Provisional Alliance	<i>Rhamnus crocea</i> Provisional Association	NA	NA
Coastal Sage Scrub	32000 Coastal Scrub	<i>Toxicodendron diversilobum</i> Alliance	<i>Toxicodendron diversilobum</i> - <i>Artemisia californica</i> / <i>Leymus condensatus</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Agave shawii</i>	<i>Agave shawii</i>	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Artemisia californica</i> Alliance	<i>Artemisia californica</i> Association	NA	NA

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Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	NA	<i>Artemisia californica</i> - <i>Mimulus aurantiacus</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Alliance	<i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> - <i>Malosma laurina</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Artemisia californica</i> - <i>Salvia mellifera</i> Alliance	<i>Artemisia californica</i> - <i>Salvia mellifera</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Bahiopsis laciniata</i> Alliance	<i>Bahiopsis laciniata</i> - <i>Artemisia californica</i> - <i>Eriogonum fasciculatum</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Encelia californica</i> Alliance	<i>Encelia californica</i> - <i>Artemisia californica</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Eriogonum fasciculatum</i> Alliance	<i>Eriogonum fasciculatum</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	NA	<i>Eriogonum fasciculatum</i> / <i>Salvia columbariae</i> - <i>Mirabilis laevis</i> Provisional Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	NA	<i>Eriogonum fasciculatum</i> - <i>Bebbia juncea</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Eriogonum fasciculatum</i> - <i>Salvia apiana</i> Alliance	<i>Eriogonum fasciculatum</i> - <i>Salvia apiana</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Gutierrezia (californica, sarothrae)</i> Provisional Alliance	NA	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Keckiella antirrhinoides</i> Alliance	<i>Keckiella antirrhinoides</i> - <i>Artemisia californica</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Rhus integrifolia</i> Alliance	<i>Rhus integrifolia</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Rhus integrifolia</i> Alliance	<i>Rhus integrifolia</i> Association <i>emisia californica</i> - <i>Eriogonum fasciculatum</i> - <i>Malosma laurina</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Salvia apiana</i> Alliance	<i>Salvia apiana</i> Provisional Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	NA	<i>Salvia apiana</i> - <i>Artemisia californica</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Salvia mellifera</i> Alliance	<i>Salvia mellifera</i> - <i>Eriogonum fasciculatum</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	NA	<i>Salvia mellifera</i> - <i>Malosma laurina</i> Association	NA	NA
Coastal Sage Scrub	32500 Diegan Coastal Sage Scrub	<i>Selaginella bigelovii</i> Alliance	Alliance only	NA	NA
Coastal Sage Scrub	32510 Diegan Coastal Sage Scrub: Coastal form	<i>Artemisia californica</i> Alliance	<i>Artemisia californica</i> Association	NA	NA
Coastal Sage Scrub	32520 Diegan Coastal Sage Scrub: Inland form (>1,000 feet elevation)	<i>Salvia apiana</i> Alliance	<i>Salvia apiana</i> Provisional Association	NA	NA
Coastal Sage Scrub	32530 Diegan Coastal Sage Scrub: Baccharis-dominated	<i>Baccharis pilularis</i> Alliance	<i>Baccharis pilularis</i> /Herbaceous Association	NA	NA
Coastal Sage Scrub	32530 Diegan Coastal Sage Scrub: Baccharis-dominated	<i>Baccharis sarothroides</i> Provisional Alliance	<i>Baccharis sarothroides</i> Association	NA	NA

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Coastal Sage Scrub	32700 Riversidian Sage Scrub	NA	NA	<i>Encelia farinosa</i> Shrubland Alliance	<i>Encelia farinosa</i> Association (west of mountain crest)
Coastal Sage Scrub	32700 Riversidian Sage Scrub	NA	NA	NA	<i>Encelia farinosa-Artemisia californica</i> Association
Coastal Sage Scrub	32700 Riversidian Sage Scrub	NA	NA	NA	<i>Encelia farinosa-Mirabilis californica</i>
Coulter Pine Forest	84140 Coulter Pine Forest	NA	NA	<i>Pinus coulteri</i> Woodland Alliance	<i>Pinus coulteri-Quercus chroselepis/Arctostaphylos pringlei</i> Association
Coulter Pine Forest	84140 Coulter Pine Forest	NA	NA	<i>Pinus coulteri</i> Woodland Alliance	<i>Pinus coulteri/Arctostaphylos glandulosa</i> Association
Coulter Pine Forest	84140 Coulter Pine Forest	NA	NA	NA	<i>Pinus coulteri/Arctostaphylos glauca</i> Association
Coulter Pine Forest	84140 Coulter Pine Forest	NA	NA	NA	<i>Pinus coulteri-Quercus chroselepis</i> Association
Dense Engelmann Oak Woodland	71180 Engelmann Oak Woodland	<i>Quercus engelmannii</i> Alliance	<i>Quercus engelmannii/Quercus berberidifolia</i> Association	NA	NA
Dense Engelmann Oak Woodland	71180 Engelmann Oak Woodland	NA	<i>Quercus engelmannii-Quercus agrifolia/Toxicodendron diversilobum/Grass</i> Association	NA	NA
Dense Engelmann Oak Woodland	71182 Dense Engelmann Oak Woodland	<i>Quercus engelmannii</i> Alliance	<i>Quercus engelmannii-Quercus agrifolia/Artemisia californica</i> Association	NA	NA
Dense Oak Woodland	71162 Dense Coast Live Oak Woodland	<i>Quercus agrifolia</i> Alliance	<i>Quercus agrifolia</i> Association	NA	NA
Desert Dunes	22100 Active Desert Dunes	NA	NA	<i>Dicoria canescens-Abronia villosa</i> Sparsely Vegetated Alliance	<i>Dicoria canescens</i> Association
Desert Dunes	22300 Stabilized and Partially-Stabilized Desert Sand Field	NA	NA	<i>Dicoria canescens-Abronia villosa</i> Sparsely Vegetated Alliance	<i>Dicoria canescens</i> Association
Desert Dunes	24000 Stabilized Alkaline Dunes	NA	NA	<i>Dicoria canescens-Abronia villosa</i> Sparsely Vegetated Alliance	<i>Dicoria canescens</i> Association
Desert Scrub	33100 Sonoran Creosote Bush Scrub	NA	NA	<i>Larrea tridentata</i> Shrubland Alliance	<i>Larrea tridentata</i> Association
Desert Scrub	33200 Sonoran Desert Mixed Scrub	NA	NA	NA	NA
Desert Scrub	33210 Sonoran Mixed Woody Scrub	NA	NA	<i>Larrea tridentata -Encelia farinosa</i> Shrubland Alliance	<i>Larrea tridentata-Encelia farinosa</i> Association
Desert Scrub	33220 Sonoran Mixed Woody and Succulent Scrub	NA	NA	<i>Agave deserti</i> Shrubland Alliance	<i>Agave deserti-Ambrosia salsola</i> Association
Desert Scrub	33220 Sonoran Mixed Woody and Succulent Scrub	NA	NA	<i>Cylindropuntia bigelovii</i> Shrubland Alliance	<i>Cylindropuntia bigelovii</i> Association

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Desert Scrub	33220 Sonoran Mixed Woody and Succulent Scrub	NA	NA	<i>Larrea tridentata</i> - <i>Encelia farinosa</i> Shrubland Alliance	<i>Larrea tridentata</i> - <i>Encelia farinosa</i> - <i>Ferocactus clindraceus</i> Association
Desert Scrub	33230 Sonoran Wash Scrub	NA	NA	<i>Condea (Hyptis) emoryi</i> Shrubland Alliance	<i>Condea (Hyptis) emoryi</i> Association
Desert Scrub	33230 Sonoran Wash Scrub	NA	NA	NA	<i>Condea (Hyptis) emoryi</i> - <i>Psorothamnus schottii</i> Association
Desert Scrub	33600 Encelia Scrub	NA	NA	<i>Encelia farinosa</i> Shrubland Alliance	<i>Encelia farinosa</i> Association (east of mountain crest)
Desert Scrub	33600 Encelia Scrub	NA	NA	NA	<i>Encelia farinosa</i> - <i>Eriogonum fasciculatum</i> - <i>Agave deserti</i> Association
Desert Scrub	33700 Acacia Scrub	NA	NA	<i>Senegalia (Acacia) greggii</i> Shrubland Alliance	<i>Senegalia (Acacia) greggii</i> /annual herbs (<i>Bromus rubens</i>) Association
Desert Scrub	33700 Acacia Scrub	NA	NA	NA	<i>Senegalia (Acacia) greggii</i> - <i>Eriogonum fasciculatum</i> Association
Desert Scrub	34000 Mojavean Desert Scrub	NA	NA	NA	NA
Desert Scrub	72320 Peninsular Juniper Woodland and Scrub	NA	NA	<i>Juniperus californica</i> Woodland Alliance	<i>Juniperus californica</i> /Agave <i>deserti</i> Association
Desert Scrub	72320 Peninsular Juniper Woodland and Scrub	NA	NA	NA	<i>Juniperus californica</i> - <i>Yucca schidigera</i> Association
Developed	12000 Urban/Developed	Developed	Developed	NA	NA
Disturbed Habitat	11300 Disturbed Habitat	<i>Carpobrotus edulis</i> or Other Ice Plants - Semi-Natural Stands	<i>Carpobrotus edulis</i> or Other Ice Plants - Semi-Natural Stands	NA	NA
Disturbed Habitat	11300 Disturbed Habitat	<i>Cortaderia (jubata, selloana)</i> Semi-Natural Stands	<i>Cortaderia (jubata, selloana)</i> Semi-Natural Stands	NA	NA
Disturbed Habitat	11300 Disturbed Habitat	<i>Cynara carduluncus</i>	<i>Cynara carduluncus</i>	NA	NA
Disturbed Habitat	11300 Disturbed Habitat	<i>Glebionis coronaria</i> Semi-Natural Stands	<i>Glebionis coronaria</i> Semi-Natural Stands	NA	NA
Disturbed Habitat	11300 Disturbed Habitat	<i>Pennisetum setaceum</i> Semi-Natural Stands	<i>Pennisetum setaceum</i> Semi-Natural Stands	NA	NA
Disturbed Habitat	13000 Unvegetated Habitat	Dike	Dike	NA	NA
Disturbed Habitat	13000 Unvegetated Habitat	Eroded Bluff	Eroded Bluff	NA	NA
Disturbed Habitat	13000 Unvegetated Habitat	Graded/Scraped/Maintained	Graded/Scraped/Maintained	NA	NA
Disturbed Habitat	13000 Unvegetated Habitat	Rock Outcrop	Rock Outcrop	NA	NA
Disturbed Wetland	11200 Disturbed Wetland	NA	NA	NA	NA
Disturbed Wetland	13200 Lakeshore Fringe	Reservoir Margin	Reservoir Margin	NA	NA

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Eucalyptus Woodland	79100 Eucalyptus Woodland	<i>Eucalyptus (globulus, camaldulensis)</i> Semi-Natural Stands	<i>Eucalyptus (globulus, camaldulensis)</i> Semi-Natural Stands	NA	NA
Freshwater Marsh	52400 Freshwater Marsh	NA	NA	NA	NA
Freshwater Marsh	52410 Coastal and Valley Freshwater Marsh	<i>Schoenoplectus americanus</i> Alliance	<i>Schoenoplectus americanus</i> Association	NA	NA
Freshwater Marsh	52410 Coastal and Valley Freshwater Marsh	<i>Schoenoplectus caifornicus</i> Alliance	<i>Schoenoplectus americanus</i> Association	NA	NA
Freshwater Marsh	52410 Coastal and Valley Freshwater Marsh	<i>Typha (angustifolia, domingensis, latifolia)</i> Alliance	Alliance only	NA	NA
Freshwater Marsh	52410 Coastal and Valley Freshwater Marsh	NA	<i>Typha domingensis</i> Association	NA	NA
Freshwater Marsh	52410 Coastal and Valley Freshwater Marsh	NA	<i>Typha latifolia</i> Association	NA	NA
Freshwater Marsh	52430 Montane Freshwater Marsh	NA	NA	<i>Schoenoplectus acutus</i> Herbaceous Alliance	<i>Schoenoplectus acutus</i> Association
Freshwater Marsh	52430 Montane Freshwater Marsh	NA	NA	NA	<i>Schoenoplectus acutus-Typha angustifolia</i> Association
Freshwater Marsh	52440 Emergent Wetland	<i>Eleocharis macrostachya</i> Herbaceous Alliance in part	<i>Eleocharis macrostachya</i> Association in part	NA	NA
Grassland	42000 Valley and Foothill Grassland	NA	NA	NA	NA
Grassland	42100 Native Grassland	<i>Leymus condensatus</i> Alliance	<i>Leymus condensatus</i> Association	NA	NA
Grassland	42110 Valley Needlegrass Grassland	<i>Stipa (Nassella) pulchra</i> Alliance	<i>Stipa (Nassella) pulchra</i> Association	NA	NA
Grassland	42110 Valley Needlegrass Grassland	<i>Stipa lepida</i> Provisional Alliance	<i>Stipa lepida</i> Provisional Association	NA	NA
Grassland	42120 Valley Sacaton Grassland	NA	NA	<i>Sporobolus airoides</i> Herbaceous Alliance	<i>Sporobolus airoides</i> Association
Grassland	42130 Saltgrass Grassland	<i>Distichlis spicata</i> Herbaceous Alliance	NA	NA	NA
Grassland	42200 Non-Native Grassland	<i>Avena (barbata, fatua)</i> Semi-Natural Stands	<i>Avena (barbata, fatua)</i> Semi-Natural Stands	NA	NA
Grassland	42200 Non-Native Grassland	<i>Bromus (diandrus, hordeaceus)-Brachypodium distachyon</i> Semi-Natural Stands	<i>Bromus (diandrus, hordeaceus)-Brachypodium distachyon</i> Semi-Natural Stands	NA	NA
Grassland	42200 Non-Native Grassland	<i>Bromus rubens-Schismus (arabicus, barbatus)</i> Semi-Natural Stands	<i>Bromus rubens-Schismus (arabicus, barbatus)</i> Semi-Natural Stands	NA	NA
Grassland	42200 Non-Native Grassland	Mediterranean California Naturalized Annual and Perennial Grassland Semi-Natural Stands	Mediterranean California Naturalized Annual and Perennial Grassland Semi-Natural Stands	NA	NA
Grassland	42200 Non-Native Grassland	<i>Pennisetum setaceum</i> Semi-Natural Stands	<i>Pennisetum setaceum</i> Semi-Natural Stands	NA	NA

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Grassland	42200 Non-Native Grassland	<i>Lolium perenne</i> Semi-Natural Stands	<i>Lolium perenne</i> Semi-Natural Stands	NA	NA
Grassland	42210 Non-Native Grassland: Broadleaf-Dominated	<i>Brassica (nigra)</i> and Other Mustards	<i>Raphanus sativus</i> Semi-Natural Stand	NA	NA
Grassland	42210 Non-Native Grassland: Broadleaf-Dominated	<i>Brassica (nigra)</i> and Other Mustards Semi-Natural Stands	<i>Brassica (nigra)</i> and Other Mustards Semi-Natural Stands	NA	NA
Grassland	42211 Non-Native Grassland: Artichoke-Thistle-dominated	Semi-Natural Stands	<i>Brassica (nigra)</i> and Other Mustards Semi-Natural Stands	NA	NA
Grassland	42300 Wildflower Field	<i>Deinandra fasciculata</i> Provisional Alliance	<i>Deinandra fasciculata</i> Association	NA	NA
Grassland	42400 Foothill/Mountain Perennial Grassland	NA	NA	<i>Leymus triticoides</i> Alliance	<i>Leymus triticoides</i> Association
Grassland	42400 Foothill/Mountain Perennial Grassland	NA	NA	<i>Muhlenbergia rigens</i> Alliance	<i>Muhlenbergia rigens</i> Association
Grassland	42470 Transmontane Perennial Grassland	NA	NA	<i>Aristida purpurea</i> Provisional Herbaceous Alliance	NA
Inland Water	13100 Open Water	Open Water	Open Water	NA	NA
Inland Water	13140 Freshwater	NA	NA	NA	NA
Jeffrey Pine	85100 Jeffrey Pine Forest	NA	NA	<i>Pinus jeffreyi</i> Forest Alliance	<i>Pinus jeffreyi</i> Association
Jeffrey Pine	85100 Jeffrey Pine Forest	NA	NA	NA	<i>Pinus jeffreyi-Calocedrus decurrens/Ceanthus cuneatus</i> Association
Jeffrey Pine	85100 Jeffrey Pine Forest	NA	NA	<i>Pinus jeffreyi</i> Forest Alliance	<i>Pinus jeffreyi-Quercus kelloggii</i> Association
Jeffrey Pine	85100 Jeffrey Pine Forest	NA	NA	NA	<i>Pinus jeffreyi-Quercus kelloggii/Rhus aromatica (trilobata)</i> Association
Maritime Succulent Scrub	32400 Maritime Succulent Scrub	<i>Artemisia californica-Eriogonum fasciculatum</i> Alliance	<i>Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis/Dudleya (edulis)</i>	NA	NA
Maritime Succulent Scrub	32400 Maritime Succulent Scrub	<i>Lycium californicum</i> Provisional Alliance	<i>Lycium californicum</i> Provisional Association	NA	NA
Maritime Succulent Scrub	32400 Maritime Succulent Scrub	<i>Simmondsia chinensis</i> Alliance	<i>Simmondsia chinensis-Ambrosia chenopodifolia</i> Provisional Association	NA	NA
Maritime Succulent Scrub	32400 Maritime Succulent Scrub	NA	<i>Simmondsia chinensis-Bahiopsis laciniata</i> Association	NA	NA
Meadow/Seep	45100 Montane Meadow	NA	NA	NA	NA
Meadow/Seep	45110 Wet Montane Meadow	NA	NA	<i>Iris missouriensis</i> Provisional Herbaceous Alliance	NA

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Meadow/Seep	45110 Wet Montane Meadow	NA	NA	<i>Juncus (oxymeris, xiphioides)</i> Provisional Herbaceous Alliance	NA
Meadow/Seep	45110 Wet Montane Meadow	NA	NA	<i>Juncus arcticus</i> (var. <i>balticus, mexicanus</i>) Herbaceous Alliance	NA
Meadow/Seep	45110 Wet Montane Meadow	NA	NA	<i>Juncus effusus</i> Herbaceous Alliance	NA
Meadow/Seep	45110 Wet Montane Meadow	NA	NA	<i>Muhlenbergia rigens</i> Herbaceous Alliance	NA
Meadow/Seep	45110 Wet Montane Meadow	NA	NA	<i>Poa pratensis</i> Semi-Natural Herbaceous Stands	NA
Meadow/Seep	45120 Dry Montane Meadows	NA	NA	<i>Poa secunda</i> Herbaceous Alliance	NA
Meadow/Seep	45400 Freshwater Seep	<i>Juncus acutus</i> Provisional Alliance	Alliance only	NA	NA
Meadow/Seep	45000 Meadow and Seep	NA	NA	NA	NA
Mixed Oak/Coniferous Forest	77000 Mixed Oak Woodland	NA	NA	NA	NA
Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA	<i>Abies concolor-Pinus lambertiana</i> Forest Alliance	<i>Abies concolor-Pinus lambertiana</i> Association
Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA		<i>Abies concolor-Pinus lambertiana-Calocedrus decurrens-Quercus chrysolepis</i> Association
Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA	<i>Calocedrus decurrens</i> Forest Alliance	<i>Calocedrus decurrens-Quercus chrysolepis-Quercus kelloggii</i> Association
Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA	<i>Pinus ponderosa-Calocedrus decurrens</i> Forest Alliance	<i>Pinus ponderosa-Calocedrus decurrens-Quercus kelloggii</i> Association
Mountain Conifer Forest	72300 Peninsular Pinon and Juniper Woodlands	NA	NA	NA	NA
Mountain Conifer Forest	72310 Peninsular Pinon Woodland	NA	NA	<i>Pinus monophylla</i> Woodland Alliance	<i>Pinus monophylla-Juniperus californica/Quercus cornelius-mulleri</i> Association
Mountain Conifer Forest	72310 Peninsular Pinon Woodland	NA	NA	<i>Pinus quadrifolia</i> Woodland Alliance	<i>Pinus quadrifolia-Quercus cornelius-mulleri</i> Association
Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA	<i>Abies concolor</i> Forest Alliance	<i>Abies concolor-Calocecrus decurrens-Quercus kelloggii</i> Association

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Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA	NA	<i>Abies concolor-Calocedrus decurrens/Symphoricarpus mollis</i> Association
Mountain Conifer Forest	84230 Sierran Mixed Coniferous Forest	NA	NA	NA	<i>Abies concolor-Calocedrus decurrens-Pinus jeffreyi</i> Association
Mountain Conifer Forest	84500 Mixed Oak/Coniferous/Bigcone/Coulter	NA	NA	<i>Quercus chrysolepis</i> Forest Alliance	<i>Quercus chrysolepis-Quercus kelloggii/(Toxicodendron diversilobum)</i> Association
Non-Vegetated Floodchannel	13200 Non-Vegetated Channel, Floodway, Lakeshore Fringe	Lake Margin	Lake Margin	NA	NA
Non-Vegetated Floodchannel	13200 Non-Vegetated Channel, Floodway, Lakeshore Fringe	Wash/Channel	Wash/Channel	NA	NA
Open Engelmann Oak Woodland	71181 Open Engelmann Oak Woodland	<i>Quercus engelmannii</i> Alliance	<i>Quercus engelmannii</i> /annual grass-herb Association	NA	NA
Open Engelmann Oak Woodland	71181 Open Engelmann Oak Woodland	NA	<i>Quercus engelmannii/Salvia apiana</i> Association	NA	NA
Open Oak Woodland	71100 Oak Woodland	NA	NA	NA	NA
Open Oak Woodland	71160 Coast Live Oak Woodland	<i>Quercus agrifolia</i> Alliance	<i>Quercus agrifolia</i> Association	NA	NA
Open Oak Woodland	71160 Coast Live Oak Woodland	NA	<i>Quercus agrifolia/Artemisia californica</i> Association	NA	NA
Open Oak Woodland	71160 Coast Live Oak Woodland	NA	<i>Quercus agrifolia/Salix lasiolepis</i> Association	NA	NA
Open Oak Woodland	71161 Open Coast Live Oak Woodland	<i>Quercus agrifolia</i> Alliance	<i>Quercus agrifolia/Quercus (berberifolia,xacutidens)</i> Association	NA	NA
Riparian Forest	61300 Southern Riparian Forest	NA	NA	NA	NA
Riparian Forest	61320 Southern Arroyo Willow Riparian Forest	<i>Salix lasiolepis</i> Alliance	<i>Salix lasiolepis</i> Association	NA	NA
Riparian Forest	61330 Southern Cottonwood-Willow Riparian Forest	<i>Populus fremontii</i> Alliance	<i>Populus fremontii</i> Association	NA	NA
Riparian Forest	61330 Southern Cottonwood-Willow Riparian Forest	NA	<i>Populus fremontii/Baccharis salicifolia</i> Association	NA	NA
Riparian Forest	61330 Southern Cottonwood-Willow Riparian Forest	NA	<i>Populus fremontii-Salix gooddingii/Baccharis salicifolia</i> Association	NA	NA
Riparian Forest	61510 White Alder Riparian Forest	NA	NA	<i>Alnus rhombifolia</i> Forest Alliance	<i>Alnus rhombifolia -Salix laevigata</i> Association
Riparian Forest	61810 Sonoran Cottonwood-Willow Riparian Forest	NA	NA	<i>Populus fremontii</i> Alliance	<i>Populus fremontii</i> Association
Riparian Forest	61810 Sonoran Cottonwood-Willow Riparian Forest	NA	NA	NA	<i>Populus fremontii-Baccharis salicifolia</i> Association
Riparian Forest	61810 Sonoran Cottonwood-Willow Riparian Forest	NA	NA	NA	<i>Populus fremontii-Salix gooddingii/Baccharis salicifolia</i> Association
Riparian Forest	61820 Mesquite Bosque	NA	NA	<i>Prosopis glandulosa</i> Woodland Alliance	<i>Prosopis glandulosa</i> Association

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Riparian Scrub	63000 Riparian Scrubs	NA	NA	NA	NA
Riparian Scrub	63300 Southern Riparian Scrub	<i>Artemisia dracunculus</i> Alliance	Alliance only	NA	NA
Riparian Scrub	63300 Southern Riparian Scrub	NA	<i>Artemisia dracunculus</i> Association	NA	NA
Riparian Scrub	63300 Southern Riparian Scrub	NA	NA	<i>Ambrosia monogyra</i> Provisional Alliance	<i>Ambrosia monogyra</i> Provisional Association
Riparian Scrub	63310 Mule Fat Scrub	<i>Baccharis salicifolia</i> Alliance	<i>Baccharis salicifolia</i> Association	NA	NA
Riparian Scrub	63320 Southern Willow Scrub	<i>Pluchea sericea</i> Alliance	<i>Pluchea sericea</i> Association	NA	NA
Riparian Scrub	63320 Southern Willow Scrub	<i>Salix exigua</i> Alliance	<i>Salix exigua</i> Association	NA	NA
Riparian Scrub	63321 <i>Arundo donax</i> Dominant/Southern Willow Scrub	<i>Arundo donax</i> Semi-Natural Stands	<i>Arundo donax</i> - <i>Salix exigua</i> Association	NA	NA
Riparian Scrub	63321 <i>Arundo donax</i> Dominant/Southern Willow Scrub	<i>Arundo donax</i> Semi-Natural Stands	<i>Arundo donax</i> Association	NA	NA
Riparian Scrub	63800 Colorado Riparian Scrub	NA	NA	NA	NA
Riparian Scrub	63810 Tamarisk Scrub	NA	NA	<i>Tamarix</i> spp. Semi-Natural Shrubland Stands	<i>Tamarix</i> spp. Semi-Natural Shrubland Stands
Riparian Scrub	63820 Arrowweed Scrub	NA	NA	<i>Pluchea sericea</i> Shrubland Alliance	<i>Pluchea sericea</i> - <i>Atriplex canescens</i> Association
Riparian Scrub	65000 Non-Native Riparian	<i>Arundo donax</i> Semi-Natural Stands	<i>Arundo donax</i> Semi-Natural Stands	NA	NA
Riparian Scrub	65000 Non-Native Riparian	Naturalized Warm-Temperate Riparian and Wetland Semi-Natural Stands	Naturalized Warm-Temperate Riparian and Wetland Semi-Natural Stands	NA	NA
Riparian Scrub	65000 Non-Native Riparian	<i>Schinus (molle, terebinthifolius)</i> - <i>Myoporum laetum</i> Semi-Natural Woodland Stands	<i>Schinus molle</i> Stands	NA	NA
Riparian Scrub	65000 Non-Native Riparian	<i>Tamarix</i> spp. Semi-Natural Stands	<i>Tamarix</i> spp. Semi-Natural Stands	NA	NA
Riparian Woodland	61820 Mesquite Bosque	NA	NA	<i>Prosopis pubescens</i> Woodland Alliance	<i>Prosopis</i> / <i>Atriplex</i> spp. Association
Riparian Woodland	62000 Riparian Woodlands	NA	NA	NA	NA
Riparian Woodland	62200 Desert Dry Wash Woodland	NA	NA	<i>Parkinsonia florida</i> - <i>Olneya tesota</i> Woodland Alliance	<i>Parkinsonia florida</i> - <i>Olneya tesota</i> Association
Riparian Woodland	62200 Desert Dry Wash Woodland	NA	NA	NA	<i>Parkinsonia florida</i> - <i>Olneya tesota</i> /Condea (<i>Hyptis</i>) <i>emoryi</i> Association
Riparian Woodland	62300 Desert Fan Palm Oasis Woodland	NA	NA	<i>Washingtonia filifera</i> Woodland Alliance	<i>Washingtonia filifera</i> /spring (<i>Atriplex</i> - <i>Baccharis</i> - <i>Pluchea</i>) Association
Riparian Woodland	62300 Desert Fan Palm Oasis Woodland	NA	NA	NA	<i>Washingtonia filifera</i> - <i>Platanus racemosa</i> /Salix spp. Association

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Riparian Woodland	62400 Southern Sycamore-Alder Riparian Woodland	<i>Platanus racemosa</i> Alliance	<i>Platanus racemosa</i> - <i>Quercus agrifolia</i> / <i>Baccharis salicifolia</i> / <i>Artemisia douglasiana</i> Association	NA	NA
Riparian Woodland	62500 Southern Riparian Woodland	<i>Platanus racemosa</i> Alliance	Alliance only	NA	NA
Riparian Woodland	62500 Southern Riparian Woodland	NA	<i>Platanus racemosa</i> / <i>Baccharis salicifolia</i> Association	NA	NA
Riparian Woodland	62500 Southern Riparian Woodland	NA	<i>Platanus racemosa</i> - <i>Populus</i> spp./ <i>Salix lasiolepis</i> Association	NA	NA
Riparian Woodland	62500 Southern Riparian Woodland	<i>Salix gooddingii</i> Alliance	<i>Salix gooddingii</i> Association	NA	NA
Riparian Woodland	62500 Southern Riparian Woodland	<i>Salix laevigata</i> Alliance	<i>Salix laevigata</i> Association	NA	NA
Shallow Bays	13110 Marine	NA	NA	NA	NA
Shallow Bays	13111 Subtidal	NA	NA	NA	NA
Shallow Bays	13112 Intertidal	NA	NA	NA	NA
Shallow Bays	13121 Deep Bay	NA	NA	NA	NA
Shallow Bays	13122 Intermediate Bay	NA	NA	NA	NA
Shallow Bays	13123 Shallow Bay	NA	NA	NA	NA
Shallow Bays	13130 Estuarine	NA	NA	NA	NA
Southern Coastal Bluff Scrub	31200 Southern Coastal Bluff Scrub	<i>Encelia californica</i> Alliance	<i>Encelia californica</i> - <i>Artemisia californica</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Arthrocnemum subterminale</i> Alliance	Alliance only	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Arthrocnemum subterminale</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Arthrocnemum subterminale</i> - <i>Sarcocornia pacifica</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Bolboschoenus maritimus</i> Alliance	<i>Bolboschoenus maritimus</i> - <i>Sarcocornia pacifica</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Cressa truxillensis</i> - <i>Distichlis spicata</i> Alliance	<i>Cressa truxillensis</i> - <i>Distichlis spicata</i> Provisional Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Frankenia palmeri</i> Special Stands	NA	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Frankenia salina</i> Alliance	<i>Frankenia salina</i> - <i>Distichlis spicata</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Juncus acutus</i> Provisional Alliance	<i>Juncus acutus</i> - <i>Jaumea carnosa</i> Provisional Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Sarcocornia pacifica</i> (<i>Salicornia depressa</i>) Alliance	Alliance only	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Sarcocornia pacifica</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Sarcocornia pacifica</i> - <i>Frankenia salina</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Sarcocornia pacifica</i> - <i>Jaumea carnosa</i> Association	NA	NA

SDG&E Vegetation Communities	Holland (1986)/Oberbauer et al. (2008) Classification	Vegetation Classifications for Western San Diego County and Western Orange County: Alliances	Vegetation Classifications for Western San Diego County and Western Orange County: Associations	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Alliances	Vegetation Classifications for Eastern San Diego County and Eastern Orange County: Associations
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Sarcocornia pacifica</i> - <i>Jaumea carnosa</i> - <i>Batis maritima</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	NA	<i>Sarcocornia pacifica</i> - <i>Monanthochloe littoralis</i> Special Stands	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Spartina foliosa</i> Alliance	<i>Spartina foliosa</i> Association	NA	NA
Southern Coastal Salt Marsh	52120 Southern Coastal Salt Marsh	<i>Suaeda estroea</i> Special Stands	NA	NA	NA
Southern Coastal Salt Marsh	52310 Cismontane Alkali Marsh	<i>Anemopsis californica</i> Alliance	<i>Anemopsis californica</i> - <i>Juncus arcticus</i> Association	NA	NA
Southern Coastal Salt Marsh	52310 Cismontane Alkali Marsh	<i>Cressa truxillensis</i> - <i>Distichlis spicata</i> Alliance	<i>Cressa truxillensis</i> Provisional Association	NA	NA
Southern Foredunes	21230 Southern Foredunes	<i>Ambrosia chamissonis</i> - <i>Abronia maritima</i> Alliance	<i>Ambrosia chamissonis</i> - <i>Abronia maritima</i> - <i>Cakile maritima</i> Association	NA	NA
Southern Maritime Chaparral	37C30 Southern Maritime Chaparral	<i>Adenostoma fasciculatum</i> Alliance	<i>Adenostoma fasciculatum</i> Southern Maritime Association	NA	NA
Southern Maritime Chaparral	37C30 Southern Maritime Chaparral	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Alliance	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> - <i>Ceanothus verrucosus</i> Association	NA	NA
Southern Maritime Chaparral	37C30 Southern Maritime Chaparral	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> Alliance	<i>Adenostoma fasciculatum</i> - <i>Xylococcus bicolor</i> - <i>Quercus (berberidifolia, H. acutidens)</i> Association	NA	NA
Southern Maritime Chaparral	37C30 Southern Maritime Chaparral	<i>Ceanothus verrucosus</i> Alliance	<i>Ceanothus verrucosus</i> Association	NA	NA
Southern Maritime Chaparral	37C30 Southern Maritime Chaparral	<i>Quercus dumosa</i> Alliance	<i>Quercus dumosa</i> Association	NA	NA
Tecate Cypress Forest	83230 Southern Interior Cypress Forest	<i>Fremontodendron mexicanum</i> Special Stands	<i>Fremontodendron mexicanum</i> Special Stands	NA	NA
Tecate Cypress Forest	83230 Southern Interior Cypress Forest	<i>Hesperocyparis (Callitropsis) forbesii</i> Woodland Alliance	<i>Callitropsis forbesii</i> Provisional Association	NA	NA
Tecate Cypress Forest	83230 Southern Interior Cypress Forest	<i>Hesperocyparis (Callitropsis) stephensonii</i> Woodland Special Stands	NA	NA	NA
Tecate Cypress Forest	83230 Southern Interior Cypress Forest	NA	NA	NA	NA
Tecate Cypress Forest	84000 Lower Montane Coniferous Forest	NA	NA	NA	NA
Torrey Pine Forest	83140 Torrey Pine Forest	<i>Pinus torreyana</i> Special Stands	<i>Pinus torreyana</i> Special Stands	NA	NA
Vernal Pool	44000 Vernal Pool	Vernal Pools	Vernal Pools	NA	NA
Vernal Pool	44322 San Diego Mesa Claypan Vernal Pool (southern mesas)	NA	NA	NA	NA

NA = not applicable

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Habitat Type Crosswalk Relative to Groupings in Tables 4.5 and 4.6

Appendix F
Habitat Type Crosswalk Relative to Groupings in Table 4.5 and Table 4.6

First Level Vegetation Group	Second Level Vegetation Group	Habitat Type
Riparian and Wetlands	Alkali Playa	Alkali Playa
Riparian and Wetlands	Disturbed Wetlands	Disturbed Wetlands
Riparian and Wetlands	Marsh	Alkali Marsh
Riparian and Wetlands	Marsh	Freshwater Marsh
Riparian and Wetlands	Marsh	Southern Coastal Salt Marsh
Riparian and Wetlands	Meadow/Seep	Meadow/Seep
Riparian and Wetlands	Non-Vegetated Floodchannel	Non-Vegetated Floodchannel
Riparian and Wetlands	Open Water	Inland Waters
Riparian and Wetlands	Riparian Forest/Woodland	Coast Live Oak Riparian Forest
Riparian and Wetlands	Riparian Forest/Woodland	Riparian Forest
Riparian and Wetlands	Riparian Forest/Woodland	Riparian Woodland
Riparian and Wetlands	Riparian Scrub	Riparian Scrub
Riparian and Wetlands	Vernal Pools	Vernal Pool
Uplands	Chaparral	Chaparral
Uplands	Chaparral	Coastal Sage Scrub/Chaparral Mix
Uplands	Chaparral	Southern Maritime Chaparral
Uplands	Coastal Scrub	Alluvial Fan Scrub
Uplands	Coastal Scrub	Buckwheat Scrub
Uplands	Coastal Scrub	Coastal Sage Scrub
Uplands	Coastal Scrub	Maritime Succulent Scrub
Uplands	Coastal Scrub	Southern Coastal Bluff Scrub
Uplands	Desert Scrub	Desert Scrub
Uplands	Forest/Woodland	Black Oak Forest
Uplands	Forest/Woodland	Coast Live Oak Forest
Uplands	Forest/Woodland	Coulter Pine Forest
Uplands	Forest/Woodland	Dense Engelmann Oak Woodland
Uplands	Forest/Woodland	Jeffrey Pine Forest
Uplands	Forest/Woodland	Mixed Oak/Coniferous Forest
Uplands	Forest/Woodland	Mountain Conifer Forest
Uplands	Forest/Woodland	Open Engelmann Oak Woodland
Uplands	Forest/Woodland	Open Oak Woodland
Uplands	Forest/Woodland	Tecate Cypress Forest
Uplands	Forest/Woodland	Torrey Pine Forest
Uplands	Grasslands	Grassland
Uplands	Great Basin Scrub	Big Sagebrush Scrub
Uplands	Desert Dunes	Desert Dunes
Uplands	Badlands	Badlands

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Land Use Categories

Appendix G

Land Use Categories¹

Land Use Code	Land Use	Land Use Category
1000	Spaced Rural Residential	Developed
1090	Spaced Rural Residential Without Units	Undeveloped
1110	Single Family Detached	Developed
1120	Single Family Multiple-Units	Developed
1190	Single Family Residential Without Units	Developed
1200	Multi-Family Residential	Developed
1280	Single Room Occupancy Units (SROs)	Developed
1290	Multi-Family Residential Without Units	Developed
1300	Mobile Home Park	Developed
1401	Jail/Prison	Developed
1402	Dormitory	Developed
1403	Military Barracks	Developed
1404	Monastery	Developed
1409	Other Group Quarters Facility	Developed
1501	Hotel/Motel (Low-Rise)	Developed
1502	Hotel/Motel (High-Rise)	Developed
1503	Resort	Developed
2001	Heavy Industry	Developed
2101	Industrial Park	Developed
2103	Light Industry - General	Developed
2104	Warehousing	Developed
2105	Public Storage	Developed
2201	Extractive Industry	Developed
2301	Junkyard/Dump/Landfill	Developed
4101	Commercial Airport	Developed
4102	Military Airport	Developed
4103	General Aviation Airport	Developed
4104	Airstrip	Developed
4111	Rail Station/Transit Center	Developed
4112	Freeway	Developed
4113	Communications and Utilities	Developed
4114	Parking Lot - Surface	Developed
4115	Parking Lot - Structure	Developed
4116	Park and Ride Lot	Developed
4117	Railroad Right of Way	Developed
4118	Road Right of Way	Developed
4119	Other Transportation	Developed
4120	Marine Terminal	Developed
5001	Wholesale Trade	Developed

Land Use Code	Land Use	Land Use Category
5002	Regional Shopping Center	Developed
5003	Community Shopping Center	Developed
5004	Neighborhood Shopping Center	Developed
5005	Specialty Commercial	Developed
5006	Automobile Dealership	Developed
5007	Arterial Commercial	Developed
5008	Service Station	Developed
5009	Other Retail Trade and Strip Commercial	Developed
6001	Office (High-Rise)	Developed
6002	Office (Low-Rise)	Developed
6003	Government Office/Civic Center	Developed
6101	Cemetery	Developed
6102	Religious Facility	Developed
6103	Library	Developed
6104	Post Office	Developed
6105	Fire/Police Station	Developed
6108	Mission	Developed
6109	Other Public Services	Developed
6501	UCSD/VA Hospital/Balboa Hospital	Developed
6502	Hospital - General	Developed
6509	Other Health Care	Developed
6701	Military Use	Developed
6702	Military Training	Undeveloped
6703	Weapons Facility	Developed
6801	SDSU/CSU San Marcos/UCSD	Developed
6802	Other University or College	Developed
6803	Junior College	Developed
6804	Senior High School	Developed
6805	Junior High School or Middle School	Developed
6806	Elementary School	Developed
6807	School District Office	Developed
6809	Other School	Developed
7201	Tourist Attraction	Developed
7202	Stadium/Arena	Developed
7203	Racetrack	Developed
7204	Golf Course	Developed
7205	Golf Course Clubhouse	Developed
7206	Convention Center	Developed
7207	Marina	Developed
7208	Olympic Training Center	Developed
7209	Casino	Developed
7210	Other Recreation - High	Developed

Land Use Code	Land Use	Land Use Category
7211	Other Recreation - Low	Developed
7601	Park - Active	Developed
7603	Open Space Park or Preserve	Undeveloped
7604	Beach - Active	Developed
7605	Beach - Passive	Undeveloped
7606	Landscape Open Space	Developed
7607	Residential Recreation	Developed
7609	Undevelopable Natural Area	Undeveloped
8001	Orchard or Vineyard	Developed
8002	Intensive Agriculture	Developed
8003	Field Crops	Developed
9101	Vacant and Undeveloped Land	Undeveloped
9200	Water	Undeveloped
9201	Bay or Lagoon	Undeveloped
9202	Lake/Reservoir/Large Pond	Undeveloped
9501	Residential Under Construction	Developed
9502	Commercial Under Construction	Developed
9503	Industrial Under Construction	Developed
9504	Office Under Construction	Developed
9505	School Under Construction	Developed
9506	Road Under Construction	Developed
9700	Mixed Use	Developed

¹ San Diego Association of Governments 2018 land use categories

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Endangered Species Act Section 7 Compliance Templates

Appendix H

Endangered Species Act Section 7 Compliance Templates

Under Section 7 of the Endangered Species Act (ESA), every federal action agency must ensure that its action does not jeopardize the continued existence of a listed species, or destroy or adversely modify a listed species' critical habitat.

Agencies satisfy that obligation through consultation with the appropriate consulting agency, the U.S. Fish & Wildlife Service (USFWS) and/or National Marine Fisheries Service (NMFS), under ESA Section 7. Informal consultation concludes when the action agency concludes its action "may affect but is not likely to adversely affect" listed species or destroy/adversely modify critical habitat and the consulting agency concurs with that determination. Formal consultation is required where the proposed action is likely to adversely affect listed species. It concludes with the relevant consulting agency's issuance of its Biological Opinion.

Based on San Diego Gas & Electric's (SDG&E's) experience implementing the existing 1995 Subregional Natural Community Conservation Plan and Habitat Conservation Plan (Subregional Plan), it has identified a need for a consistent approach to future ESA Section 7 consultations that involve Covered Activities so that the streamlining benefits of an approved and permitted 2023 Habitat Conservation Plan Amendment (HCP Amendment) can be fully realized. SDG&E developed this appendix to assist SDG&E staff, contractors (i.e., environmental consultants), and federal agency staff in completing Section 7 consultation, with a focus on preparing a Biological Evaluation (BE) for HCP Amendment Covered Activities that require approval or authorization from a federal agency such as the U.S. Army Corps of Engineers, U.S. Forest Service, Bureau of Land Management, Department of Defense (e.g., U.S. Navy or U.S. Marine Corps), or the Bureau of Indian Affairs. The BE will provide relevant information about listed and proposed species and designated and proposed critical habitat that may be present in the action area, and evaluate potential effects of the agency's action on such species and habitat.

The specific approach to Section 7 consultation will vary based on the federal agency involved, its concerns about the resources being affected, and the extent to which Covered Species may be affected on federal lands or waters subject to federal jurisdiction. To assist federal action agencies in meeting their Section 7 obligations, SDG&E has created several templates to ensure that project descriptions of Covered Activities and *effects determinations* that have already been considered and reached by USFWS in its intra-agency consultation related to its approval of the HCP Amendment and issuance of an amended incidental take permit are consistent with any BE required for Section 7 consultation.

These templates consist of the following:

1. An annotated BE template

2. Two suggested cover letter templates
 - a. Generic cover email from SDG&E to action agency
 - b. Generic cover letter for action agency to USFWS
3. A set of cover letter templates to address Covered Species effects determinations under anticipated scenarios:
 - a. Informal consultation – Covered Species and Covered Activities (Effects already considered; *may affect but not likely to adversely affect*)
 - b. Informal consultation – Both Covered and Non-Covered Species (*May affect but not likely to adversely affect*)
 - c. Formal consultation – Both Covered and Non-Covered Species (*May affect and likely to adversely affect*).
4. For ease of reference, SDG&E has included a copy of the U.S. Army Corps of Engineers, General Condition 18, part (f). As a non-federal permittee with a valid ESA section 10(a)(1)(b) incidental take permit with an approved Habitat Conservation Plan, future Section 7 consultations between U.S. Army Corps of Engineers and USFWS can benefit from having this general condition available.

Suggested approaches to align information from the HCP Amendment with future BEs for Section 7 consultation are presented in Table 1.

Table 1
Suggested Approaches to Align Information from the
HCP Amendment with Future BEs for Section 7 Consultation

Section of Biological Evaluation	SDG&E	Federal Agency
Proposed Action and Project Description	Explain how proposed activities are consistent with Covered Activities included in the HCP Amendment.	Ensure that Covered Activities are consistent with those of the HCP Amendment.
Action Area	Explain how the Action Area is within the HCP Amendment Plan Area.	Ensure that Action Area is within the HCP Amendment.
Species/Critical Habitat Considered	Use Conservation Analysis in Appendix of HCP Amendment to describe current population trends and habitat conditions of Covered Species and associated critical habitat.	Rely on the best scientific and commercial information available.
Effects Analysis	Use Conservation Analysis in Appendix of HCP Amendment to describe effects analyzed for the HCP Amendment.	Evaluate potential effects of the action on listed and proposed species and designated and proposed critical habitat that may be present in the action area.

Section of Biological Evaluation	SDG&E	Federal Agency
Conclusion and Determination of Effects for each protected resource	<ul style="list-style-type: none"> • For Covered Species, effects determinations <u>recommendations</u> in the BE should be THE SAME as those in the intra-agency Section 7 Biological Opinion (BO) prepared by USFWS for the HCP Amendment. • For non-covered species addressed in the intra-agency Section 7 BO, the effects determination <u>does not need to be the same</u> for any future, project-specific BE being prepared for Section 7 consultation. • For Covered Species, relevant HCP Operational Protocols must be listed to support any recommendations of effects determinations. As stated above, recommendations for effects determinations for Covered Species should be THE SAME as those made in the intra-Service BO. 	Ensure that effects determinations recommendations for species addressed in the Biological Assessment are THE SAME as those in the BO (for covered and non-covered species).
Compensatory Mitigation	<ul style="list-style-type: none"> • Explain amount and type of compensatory mitigation that would be deducted from SDG&E's mitigation bank credit accounts. Ensure that off-site, out-of-kind mitigation may be used to satisfy compensatory mitigation requirements. 	Ensure that mitigation totals are correct, pursuant to approved HCP Amendment. Provide rationale for alternative mitigation proposals where on-site, in-kind mitigation is preferred.

Template Biological Evaluation Outline for Streamlined ESA Section 7 Consultation.

SDG&E will utilize the following templates when a project is on federal land or triggers a federal action (i.e., it is funded, permitted, or authorized in whole or part by any federal agency [action agency]). The following Frequently Asked Questions, based on years of HCP implementation experience, will benefit both SDG&E (applicant) and federal agencies when Section 7 is required.

Why is Section 7 required when SDG&E has an approved HCP?

Under section 7 of the Endangered Species Act (ESA), every federal action agency has its own obligations that an agency must satisfy. The action agency's obligations under Section 7 are different from and exist independently of SDG&E's ESA obligations and the HCP Amendment.

What are the action agency's obligations?

It must ensure that its action—*what it is giving SDG&E to allow SDG&E to do its work*—does not (i) jeopardize the continued existence of a listed species; or (ii) destroy or adversely modify a listed species' critical habitat.

How does the action agency meet its ESA obligations?

Through consultation with the U.S. Fish & Wildlife Service (USFWS) under ESA Section 7.

Informal consultation may be used when the action agency concludes its action “may affect but is not likely to adversely affect” listed species or destroy/adversely modify critical habitat. It ends when USFWS concurs with that determination. The BE template in this appendix is the only template that should be used in this instance. *Formal consultation* is required where the proposed action is likely to adversely affect listed species. It concludes with USFWS's issuance of its Biological Opinion to the action agency. The BE template may be used for formal consultation in coordination with the action agency and USFWS.

What is SDG&E's role?

SDG&E helps the action agency satisfy the action agency's ESA Section 7 obligations.

How does SDG&E help the action agency?

Because SDG&E understands its project and the details of the HCP Amendment, SDG&E helps explain for the action agency (and USFWS) how the proposed federal action may affect listed species and assists the action agency to secure USFWS's concurrence, where appropriate, that the proposed action is not likely to adversely affect listed species or adversely modify critical habitat.

How does SDG&E help to streamline concurrence?

These templates are designed to help streamline the agencies' informal consultation by providing relevant information about listed species and critical habitat in the action area, evaluating potential effects of the agency's action on such species and habitat, and supporting a *not likely to adversely affect determination*, where appropriate. Templates

include a biological evaluation with that analysis, action agency cover letter seeking USFWS's concurrence, and an SDG&E transmittal email sending the package to the action agency.

Biological Evaluation Template

I. Introduction

Section 7 of the Endangered Species Act (ESA) requires federal agencies to determine whether their actions may affect listed species and designated critical habitat (hereinafter, protected resources). If so, the federal agency must either request concurrence from the U.S. Fish & Wildlife Service (USFWS) that the action “may affect, but [is] not likely to adversely affect” protected resources, or request initiation of formal consultation.¹

Here, SDG&E is proposing to [briefly specify the proposed action (e.g., wood to steel pole replacement)] on [identify location of project (federal land)]. To undertake its project, SDG&E has requested that [the action agency undertake the federal action (e.g., issue 404 permit)].

This evaluation provides relevant information about listed and proposed species and designated and proposed critical habitat that may be present in the action area² and evaluates potential effects of the agency's action on such species and habitat. As discussed herein, given SDG&E's 1995 Subregional Natural Community Conservation Plan and Habitat Conservation Plan (Subregional Plan); 2023 Habitat Conservation Plan Amendment (HCP Amendment), along with SDG&E's commitment to implement its project in accordance with the Operational Protocols prescribed therein; and other considerations discussed below, this evaluation concludes that the proposed action may affect, but is not likely to adversely affect, any species listed as threatened or endangered [add Critical Habitat if appropriate] by USFWS under the ESA, 16 U.S.C. section 1531 *et seq.*

Suggestions for this section include (1) Describe the proposed project in the context of Covered Activities identified in the HCP Amendment.

II. SDG&E's Subregional Plan and 2023 HCP Amendment

Habitat Conservation Plans (HCPs) are planning documents that are required as part of an application for an incidental take permit under section 10 of the ESA. HCPs must meet the following permit issuance criteria of section 10(a)(2)(B) of the ESA: (i) take will be incidental; (ii) the applicant will, to the maximum extent practicable, minimize and

¹ “May affect, but not likely to adversely affect” means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and include those effects that are undetectable, not measurable, or cannot be evaluated. Discountable effects are those extremely unlikely to occur. These determinations require written concurrence from USFWS.

² See Section III, *infra*. ESA regulations define action area as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” 50 C.F.R. § 402.02.

mitigate the impacts of the taking; (iii) the applicant will ensure that adequate funding for the plan will be provided; (iv) taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (v) other measures, as required by USFWS, will be met.

1995 Subregional Plan

In the mid-1990s, SDG&E developed its Subregional Plan with USFWS and the California Department of Fish & Wildlife (CDFW) pursuant to the Natural Community Conservation Planning Act (NCCPA), California Fish and Game Code section 2800 *et seq.*, and the ESA. The Subregional Plan was designed to avoid, minimize, and mitigate impacts to numerous Covered Species and their habitat while allowing SDG&E to undertake Covered Activities, essentially those needed to install, maintain, operate, repair, and expand its existing gas and electric system. In 1995, USFWS determined that the Subregional Plan met the permit issuance criteria of ESA section 10(a)(2)(B) and issued SDG&E an incidental take permit that authorized a total of 400 acres of habitat modification because of SDG&E's Covered Activities before requiring an amendment.

2023 HCP Amendment

The 2023 HCP Amendment maintains and bolsters the Operational Protocols outlined in the 1995 Subregional Plan. For instance, SDG&E will continue to (i) provide comprehensive annual training to all SDG&E personnel working within natural habitats (Section 5.1.2); (ii) provide a process to ensure SDG&E activities comply with the HCP Amendment (Section 5.1.3); and (iii) implement Species-Specific Protocols as needed to avoid and minimize impacts to species (Section 5.1.13). To achieve its goal of maintaining habitat quality for covered species, SDG&E will implement Operational and Species-Specific Protocols, described in Section 5.1 of the HCP Amendment, to minimize impacts to habitat in the vicinity of SDG&E activities, and implement a robust habitat restoration and enhancement program as described in Section 5.2 to restore temporary impact areas within 5 years. The HCP Amendment also provides a process to evaluate and restore certain access roads. And, to meet SDG&E's goal of contributing to the network of permanently protected and managed lands in the service area that support species and their habitats, the HCP Amendment provides sufficient mitigation for unavoidable permanent impacts to species covered by the HCP Amendment or their habitat through conveyance of land to third-party-approved conservation land managers or provide funding for programs/in-lieu fees (Section 5.5).

[In 2023, USFWS determined that the HCP Amendment met the permit issuance criteria of section 10(a)(2)(B) of the ESA and issued SDG&E an amended incidental take permit that authorized incidental take of certain species provided that SDG&E implement and comply with the HCP Amendment, which included a 400-acre increase to the Subregional Plan's permanent impact maximum; 210 acres of temporary impacts; and an additional 210 acres for fuels modification work, before requiring a further amendment.]

III. Proposed Action and Project Description

The proposed federal action is [X]. If the agency undertakes this action, SDG&E will be [authorized/permited] to undertake its [X project]. The remainder of this section describes the project, including its location, when it is expected to occur, who is going to undertake the project, and how the project will be accomplished.

Because the proposed action and SDG&E's project are fully within the geographic boundaries of [SDG&E's Subregional Plan and/or HCP Amendment], this section also identifies applicable Operational Protocols [and Species-Specific Protocols] required therein, and other conservation measures that are included in its project,³ which will be implemented to avoid, reduce, or eliminate adverse effects or that would benefit the protected species or critical habitat. Typical information that should be discussed includes:

- Subdivide proposed action into project elements (e.g., construction, operation, and maintenance), if applicable.
- Describe the where, when, and how for each project element.
- Include a map delineating the location of each project element.
- Identify *specific* Operational Protocols and applicable Species-Specific Protocols from the HCP Amendment that apply. Identify any Operational Protocols that would apply to non-covered species.
- Identify any additional conservation measures that will be incorporated into the project design.

IV. Action Area

To determine whether a species or critical habitat may be present, the "action area" must be delineated. ESA regulations define action area as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." 50 C.F.R. § 402.02. The action area encompasses the geographic extent of environmental changes that will result directly and indirectly from the action.⁴

Here, all areas affected directly or indirectly by the federal action are within the geographic boundaries of SDG&E's Subregional Plan and HCP Amendment.

[delineate the geographic area that will be affected, i.e., where the physical, chemical, and biotic effects will occur].

³ Other measures beyond those in the HCP Amendment that further reduce the effects on protected resources can be added to the consultation as conservation measures.

⁴ These effects are consequences that would not have occurred *but for* the proposed action and are *reasonably certain to occur*. These effects may be indirect, in that they occur later in time and outside the immediate area involved in the action (e.g., dust, erosion). See Section V *infra*; 50 C.F.R §§ 402.02, 402.17.

[Describe the physical and biological attributes of the action area (e.g., topography, vegetation, condition, and trend)].

[map delineating where the action will occur]

Delineate the specific areas that will be affected by each of the project elements.

Identify any ongoing activities that may be affecting the species or habitat.

V. Species/Critical Habitat Considered

Identify listed species and critical habitat that “may be present” in the action area. Based on that review, the following species and critical habitat “may be present” in the action area:

- LIST SPECIES.
- LIST CRITICAL HABITAT.

Describe how species are either (1) Covered by the HCP Amendment or (2) Not covered by the HCP Amendment. [For each protected resource that “may be present” *use conservation analysis in appendix of HCP Amendment* to describe the current population and habitat conditions (status and trend, if known) in the action area.]

VI. Effects Analysis

This section evaluates potential effects of the action on listed and proposed species and designated and proposed critical habitat that may be present in the action area. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. 50 C.F.R. § 402.02.

To be considered an effect of a proposed action, a consequence must be caused by the proposed action (*i.e.*, the consequence would not occur but for the proposed action and is reasonably certain to occur). 50 C.F.R. § 402.17. A conclusion of reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available. *Id.* Considerations for determining that a consequence to the species or critical habitat is not caused by the proposed action include, but are not limited to:

(1) The consequence is so remote in time from the action under consultation that it is not reasonably certain to occur; or

(2) The consequence is so geographically remote from the immediate area involved in the action that it is not reasonably certain to occur; or

(3) The consequence is only reached through a lengthy causal chain that involves so many steps as to make the consequence not reasonably certain to occur. *Id.*

ADDRESS ALL THAT APPLY TO THIS PROJECT:

- For each species or critical habitat unit:
 - *Explain* how it will or will not be exposed to the project elements; be sure to consider effects to all life stages (eggs, larvae, neonates, juveniles, subadults, adults).
 - *Explain* how Operational Protocols and any conservation measures will avoid and minimize effects.
 - *Describe* the anticipated response (e.g., none, abandoned the area, decrease foraging success, reduced fecundity, injury, death, etc.) from any likely exposure.

[NOTE: Your discussion should provide the basis for and support a not likely to adversely affect determination.]

VII. Conclusion and Determination of Effects for each protected resource

For each protected resource: Explain that all effects on Covered and non-Covered Species from Covered Activities have been previously analyzed and effects from SDG&E's proposed project are consistent with those analyzed in the USFWS intra-service Biological Opinion prepared for the HCP Amendment. Include a recommended Section 7 determination of "may affect, but not likely to adversely affect" finding and provide your rationale.

In sum, given SDG&E's existing Subregional Plan, its commitment to implement its project in accordance with the avoidance and minimization measures prescribed therein, and other considerations discussed above, the proposed action is not likely to adversely affect any species listed as threatened or endangered [add Critical Habitat if appropriate] by USFWS under ESA.

This evaluation supports the agency's requested concurrence with that determination from USFWS.

VIII. Literature Cited

IX. List of Contacts Made and Preparers

X. Attachments

A. Relevant Reports

B. Survey Results

C. Supporting Documents

Generic cover email from SDG&E to action agency

ACTION AGENCY ADDRESS

Re: [PERMIT NUMBER OR PROJECT NAME]

Dear Ms./Mr. _____,

We have asked the [agency] to [authorize/fund/permit] San Diego Gas & Electric (SDG&E)'s proposed [our project (e.g., wood to steel replacement project on [San Isabel Reservation])].

[or]

San Diego Gas & Electric (SDG&E) is proposing to undertake [our project (e.g., wood to steel replacement project on [specify federal land])].

Enclosed herewith please find the following:

1. A draft cover letter from your office to USFWS requesting its concurrence that your proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered [add Critical Habitat if appropriate] by USFWS under the Endangered Species Act (ESA).
2. A Biological Evaluation that provides supporting analysis for that determination.

Generic cover letter for action agency

USFWS ADDRESS

Attn: _____

Re: [PERMIT NUMBER OR PROJECT NAME]

Dear Ms./Mr. _____,

We are [authorizing/funding/permitting] San Diego Gas & Electric (SDG&E)'s proposed [wood to steel replacement project on [San Isabel Reservation]]. After carefully and independently reviewing the attached Biological Evaluation and for the reasons discussed therein, including SDG&E's commitment to implement its project in accordance with the Operational Protocols prescribed in the 2023 Habitat Conservation Plan Amendment, and other considerations discussed in the attached assessment, we have determined that the proposed activity may affect, but is not likely to adversely affect, any species listed as threatened or endangered [add Critical Habitat if appropriate] by USFWS under the Endangered Species Act (ESA). Additionally, all effects on Covered and non-Covered Species from Covered Activities have been previously analyzed and effects from SDG&E's proposed project are consistent with those analyzed in the USFWS intra-service Biological Opinion prepared for the HCP Amendment.

This letter requests concurrence from your office with our determination. The supporting analysis is provided in the attached assessment.

Covered Species and Covered Activities

Re: Informal Section 7 Consultation for [project name] in [project location]

Dear: USFWS

This letter serves as a request for initiation of informal Section 7 consultation for [project name]. The [federal agency] is processing a request from SDG&E to [e.g., access land/dischARGE dredge or fill material into waters of the U.S. etc.] so that it may [describe Covered Activity]. The activity is a "Covered Activity" under the [2023 HCP Amendment] and Section 10 incidental take permit issued to SDG&E on [date of permit issuance], and the way the activity is proposed to be carried out is consistent with the HCP.

The proposed action of [e.g., granting access/issuing a permit etc.] may affect the [species name]. The [species] is a "Covered Species" under the HCP and Section 10 permit, and SDG&E is authorized to incidentally take [species] as it undertakes Covered Activities. The proposed action may affect and is likely to adversely affect [species]. The HCP requires implementation of Operational Protocols so that the effects of Covered Activities on Covered Species are minimized and mitigated to the maximum extent practicable. The U.S. Fish & Wildlife Service (USFWS) evaluated the effects of the Covered Activities in the Biological Opinion [file number] prepared for the decision to issue the incidental take permit and concluded that the Covered Activities were not likely to jeopardize the continued existence of the Covered Species. Based on the applicability of the HCP to the proposed action, we are requesting confirmation from USFWS that the Section 7 obligations of [federal agency] are complete [*for federally listed Covered Species*] with respect to the proposed action.

Additionally, all effects on Covered and non-Covered Species from Covered Activities have been previously analyzed and effects from SDG&E's proposed project are consistent with those analyzed in the USFWS intra-service Biological Opinion prepared for the HCP Amendment.

Both Covered and Non-Covered Species (Not Likely to be Adversely Affected)

Re: Informal Section 7 Consultation for [project name] in [project location]

Dear:

This letter serves as a request for initiation of informal Section 7 consultation for [project name]. The [federal agency] is processing a request from SDG&E to [access land/ discharge dredge or fill material into waters of the U.S. etc.] so that it may [describe Covered Activity]. The activity is a "Covered Activity" under the 2023 HCP Amendment and Section 10 incidental take permit issued to SDG&E on [date of permit issuance], and the way the activity is proposed to be carried out is consistent with the HCP.

The proposed action of [granting access/issuing a permit etc.] may affect the [species name]. The [species] is a "Covered Species" under the HCP and Section 10 permit, and SDG&E is authorized to incidentally take [species] as it undertakes Covered Activities. The proposed action may affect and is likely to adversely affect [species]. The HCP requires implementation of Operational Protocols so that the effects of Covered Activities on Covered Species are minimized and mitigated to the maximum extent practicable. The U.S. Fish & Wildlife Service (USFWS) evaluated the effects of the Covered Activities in the Biological Opinion [file number] prepared for the decision to issue the incidental take permit and concluded that the Covered Activities were not likely to jeopardize the continued existence of the Covered Species. Based on the applicability of the HCP to the proposed action, we are requesting confirmation from the Service that the Section 7 obligations of [federal agency] are complete for federally listed Covered Species with respect to the proposed action.

The proposed action also may affect [species name]. The [species] is not a Covered Species under the 2023 HCP Amendment. Implementation of the Covered Activity will include Operational Protocols identified in the 2023 HCP Amendment, which will minimize and mitigate effects to [species]. We request concurrence from USFWS that the proposed action is not likely to adversely affect [species].

Additionally, all effects on Covered and non-Covered Species from Covered Activities have been previously analyzed and effects from SDG&E's proposed project are consistent with those analyzed in the USFWS intra-service Biological Opinion prepared for the HCP Amendment.

Both Covered and Non-Covered Species (Likely to be Adversely Affected)

Re: Formal Section 7 Consultation for [project name] in [project location]

Dear:

This letter serves as a request for initiation of formal Section 7 consultation for [project name]. The [federal agency] is processing a request from SDG&E to [access land/ discharge dredge or fill material into waters of the U.S. etc.] so that it may [describe Covered Activity]. The activity is a "Covered Activity" under the HCP Amendment and Section 10 incidental take permit issued to SDG&E on [date of permit issuance], and the way the activity is proposed to be carried out is consistent with the HCP.

The proposed action of [granting access/issuing a permit etc.] may affect the [species name]. The [species] is a "Covered Species" under the HCP and Section 10 permit, and SDG&E is authorized to incidentally take [species] as it undertakes Covered Activities. The proposed action may affect and is likely to adversely affect [species]. The HCP requires implementation of Operational Protocols so that the effects of Covered Activities on Covered Species are minimized and mitigated to the maximum extent practicable. The U.S. Fish & Wildlife Service (USFWS) evaluated the effects of the Covered Activities in the Biological Opinion [file number] prepared for the decision to issue the incidental take permit and concluded that the Covered Activities were not likely to jeopardize the continued existence of the Covered Species. Based on the applicability of the HCP to the proposed action, we are requesting confirmation from the Service that the Section 7 obligations of [federal agency] are complete for federally listed Covered Species with respect to the proposed action.

The proposed action also may affect and is likely to adversely affect [species name]. The [species] is not a Covered Species under the HCP. Implementation of the Covered Activity will include the conservation measures identified in the HCP, which will minimize and mitigate effects to [species]. Enclosed is an assessment of effects likely to result to [species] because of implementation of the Covered Activity.

Additionally, all effects on Covered and non-Covered Species from Covered Activities have been previously analyzed and effects from SDG&E's proposed project are consistent with those analyzed in the USFWS intra-service Biological Opinion prepared for the HCP Amendment.

Nationwide Permit General Condition 18 Endangered Species

(a) No activity is authorized under any Nationwide Permit (NWP) that is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP that “may affect” a listed species or critical habitat, unless ESA Section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA Section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under Section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect federally listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-federal applicant of the U.S. Army Corps of Engineers’ (Corps) determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species or critical habitat, or until ESA Section 7 consultation has been completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the USFWS or National Marine Fisheries Service (NMFS) the district engineer may add species-specific permit conditions to the NWPs.

Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from USFWS or NMFS, the ESA prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(e) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the pre-construction notification required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA Section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA Section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA Section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA Section 7 consultation is required.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of USFWS and NMFS or their worldwide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

