WILDLIFE AGENCY REVIEW DRAFT

Santee MSCP Subarea Plan

Prepared for: City of Santee | Prepared by: ICF | December 2018

ICF

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SANTEE MULTIPLE SPECIES CONSERVATION PLAN (MSCP) SUBAREA PLAN

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Acronyms and Abbreviations

°	degrees
BA	biological assessment
BMPs	Best Management Practices
BIOS	Biogeographic Information and Observation System
BO	biological opinion
CAL-IPC	California Invasive Plant Inventory
CBI	Conservation Biology Institute
CCLT	California Council of Land Trusts
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CMP	Corrugated Metal Pipe
DWR	California Department of Water Resources
CNDDB	California Natural Diversity Database
CNLM	Center for Natural Lands Management
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
RWQCB	California Regional Water Quality Control Board
CWA	Clean Water Act
DOD	U.S. Department of Defense
DPLU	Department of Planning and Land Use
ECOS	Environmental Conservation Online System
BGEPA	Bald Eagle and Golden Eagle Protection Act
EHC	Endangered Habitats Conservancy
EIR/EIS	environmental impact report/environmental impact statement
EIS	environmental impact statement
EMP	Environmental Mitigation Program
EO	Elemental Occurrence
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESLs	Environmentally sensitive lands
F	Fahrenheit
FEMA	Federal Emergency Management Agency
Final EIR/EIS	Final EIR/EIS: Issuance of Take Authorizations for Threatened and Endangered Species due to Urban Growth within the Multiple Species Conservation Program Planning Area
FMP	Fire Management Plan

FIRM	Flood Insurance Rate Maps
FR	Federal Register
GIS	geographic information system
GSOB	Goldspotted Oak Borer
HCA	Habitat Conservation Area
HCP	Habitat Conservation Plan
Helix	Helix Environmental Planning, Inc.
HLIT	Habitat Loss and Incidental Take
HMP	Habitat Management Plan
HOA	Homeowners Association
IA	Implementing Agreement
ICE	UC Davis Information Center for the Environment
IEMM	Institute of Ecological Monitoring and Management
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
KEPS	Klein-Edwards Professional Services
LDCA	Lakeside Downs Conservation Area
LMDs	Landscape Maintenance Districts
LTAC	Land Trust Alliance Certification
LTAM	Land Trust Alliance Member
MBTA	Migratory Bird Treaty Act
MCAS	Marine Corps Air Station
MEP	Maximum extent practicable
MHCP	Multiple Habitat Conservation Plan
MHPA	Multi-Habitat Planning Area
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
MPU	Master Plan Update
MSCP	Multiple Species Conservation Program
MSP	Management Strategic Plan
MTDB	Metropolitan Transit Development Board
MTRP	Mission Trails Regional Park
MWD	Municipal Water District
NCCPA	Natural Community Conservation Planning Act
NDVI	Normalized difference vegetation index
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRMP	Natural Resource Management Plan
NWPs	nationwide permits

P/OS	Park/Open Space
PD	Planned Development
PDMWD	Padre Dam Municipal Water District
PMP	Preserve Management Plan
POM	Property Owner Manager
PSBS	Pacific Southwest Biological Services, Inc.
RAACP	Railroad Avenue Ambrosia Conservation Preserve
RCP	RCP Block and Brick
REPI	Readiness and Environmental Protection Integration
RMA	Rate and Method Apportionment
RMP	Resource Management Plan
SANDAG	San Diego Association of Governments
SB	Senate Bill
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas & Electric
SDMMP	San Diego Management and Monitoring Program
SDRT	San Diego River Trail
SDSU	San Diego State University
SHB	Shot hole borer
SPA	Specific Plan Area
SR	State Route
SSAR	Society for the Study of Amphibians and Reptiles
SUSMP	Standard Urban Storm Water Mitigation Plan
SWANCC	Solid Waste Agency of Northern Cook County
TC	Town Center
TET	The Environmental Trust
TNC	The Nature Conservancy
TPI	Topographic Position Index
the City	City of Santee
USACE	U.S. Army Corps of Engineers
USC	U.S. Government Code
USDA	U.S. Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geographic Survey
VPHCP	Vernal Pool Habitat Conservation Plan
VPMP	Vernal Pool Mitigation Plan
WCB	Wildlife Conservation Board
WDR	Waste Discharge Requirement
Wildlife Agencies	USFWS and CDFW
WNV	West Nile Virus
WoUS	waters of the United States
WUI	Wildlands Urban Interface

Chapter 1
Introduction and Overview

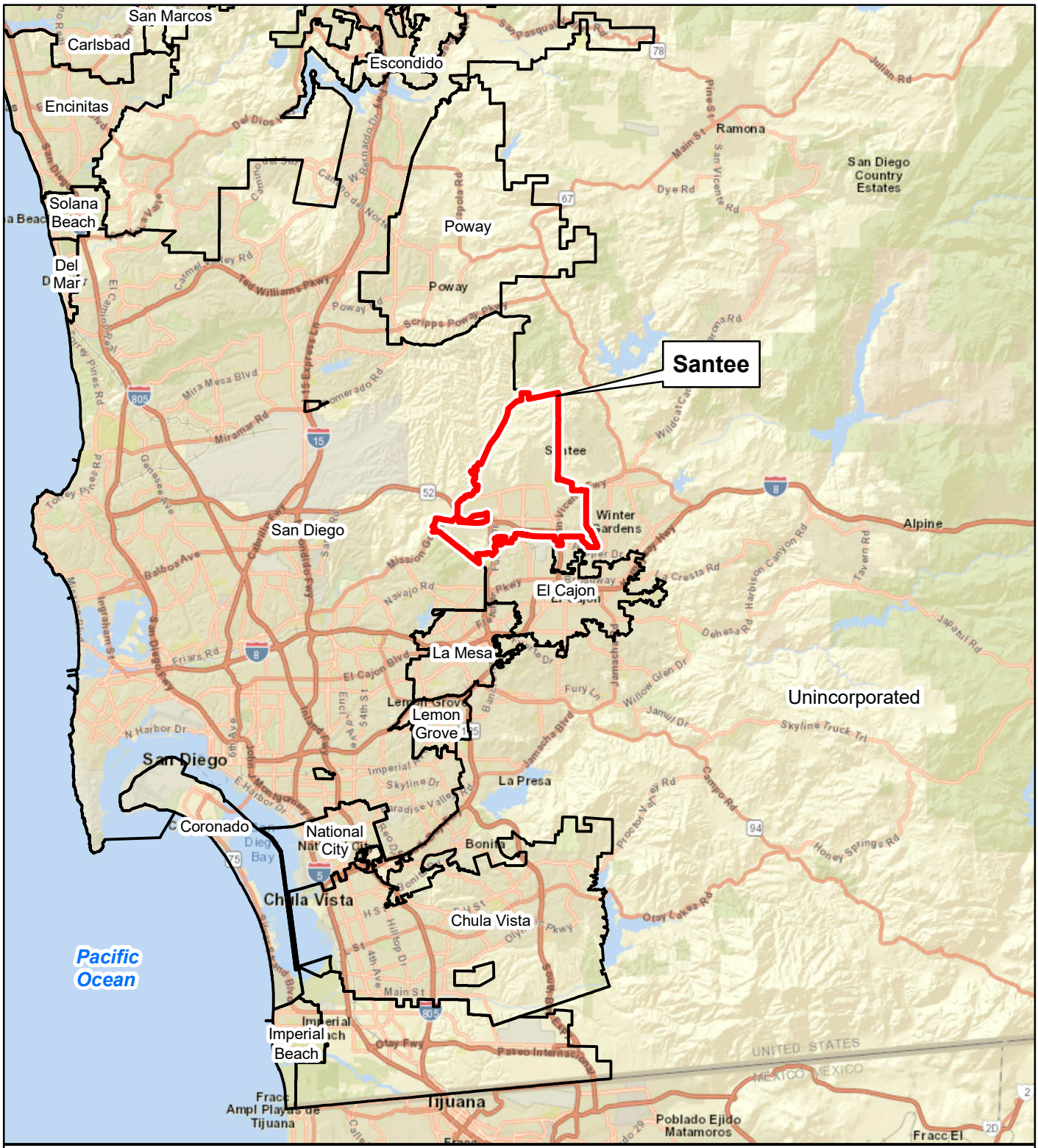
1.1 Background

The Multiple Species Conservation Program (MSCP) Subregional Plan (City of San Diego 1998) Area is located in the southwestern portion of the San Diego region and includes the City of Santee (the City), portions of the unincorporated County of San Diego, and ten other jurisdictions (cities of San Diego, Chula Vista, Coronado, Del Mar, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, and Poway). The MSCP is a comprehensive program designed to create, manage, and monitor an ecosystem preserve and is intended to protect viable populations of native plant and animal species and their habitats in perpetuity, while accommodating continued economic development and quality of life amenities such as open space and hiking opportunities for residents within the area. The MSCP Subregional Plan is implemented through local Subarea Plans. The City of Santee has prepared this Subarea Plan to address the implementation of the MSCP Subregional Plan within the jurisdictional boundary of Santee, located east of the City of San Diego and north of El Cajon (see Figure 1-1). The Santee Subarea Plan has been prepared pursuant to the requirements of the MSCP Subregional Plan, the state Natural Community Conservation Planning Act (NCCPA), and the federal Endangered Species Act (ESA) section 10(a)(1)(B).

The Subregional MSCP planning effort was initiated in the early 1990s. T*he Final EIR/EIS: Issuance of Take Authorizations for Threatened and Endangered Species due to Urban Growth within the Multiple Species Conservation Program (MSCP) Planning Area* (Final EIR/EIS), analyzed several alternative MSCP Subregional Preserve designs, all of which included the Preserve design incorporated into this Subarea Plan. The environmental impacts associated with the establishment of this Subarea Plan Preserve were studied within the range of alternatives analyzed in the Final EIR/EIS.

This Subarea Plan forms the basis for a Federal 10(a)(1)(B) permit and State 2835 permit. In addition, an Implementing Agreement (IA) has been completed and included as Appendix A to this Subarea Plan. The IA is an agreement between the City, United States Fish and Wildlife Service (USFWS), and California Department of Fish and Wildlife (CDFW) that ensures implementation of the Subarea Plan. The Santee Subarea Plan and its associated IA establishes the conditions under which the City, for the benefit of itself, public and private landowners, and other land development proponents within its Subarea boundaries, will receive from the USFWS and CDFW (herein referred to as the Wildlife Agencies) authorizations allowing the take of certain Covered Species incidental to land development and other lawful land uses which are authorized by the City. Take authorization will be issued upon approval of this Subarea Plan by the Wildlife Agencies, execution of the IA, and issuance of Federal and State Take permits.

This Subarea Plan implements all relevant sections of the MSCP Subregional Plan, including the habitat and species conservation goals and requirements found in Table 3-5 of the Subregional Plan (see Appendix B, *MSCP Subregional Plan Tables*). The provisions of this Subarea Plan and IA supersede those of the overall MSCP Subregional Plan in the event of conflicts between the two plans.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 1-1 Regional Location.mxd Date: 12/19/2018 34153

Figure 1-1
Regional Location
Santee MSCP Subarea Plan

1.1.1 Subarea Plan Goals

The goals for the implementation of the Santee Subarea Plan are to:

- Comprehensively address how the City will conserve natural communities and Covered Species pursuant to the state NCCPA and the federal ESA.
- Assemble a habitat preserve system and implement habitat management policies that conserve Covered Species and their habitats, and result in the conservation of biological cores and habitat linkages.
- Provide a proactive and adaptive habitat management strategy to be implemented by the Preserve Managers throughout the City.
- Provide regulatory certainty to landowners within the City and aid in conserving the region's biodiversity, thereby enhancing the overall quality of life for residents of Santee.
- Assist in the region's effort to sustain and enhance the habitat for wetland-dependent species.
- Receive issuance of take authorizations under 2835 of the NCCPA from CDFW and under section 10(a) of the federal ESA from the USFWS for the take of Covered Species.
- Maintain functional wildlife corridors and habitat linkages between critical biological resource areas within the MSCP Preserve System.
- Streamline the endangered species consultation process under section 7 of the ESA and the California Endangered Species Act (CESA).
- Conform to the build-out of the land use plan as described in the City's General Plan.
- Institute a strategy to proactively mitigate impacts on the City's biological resources.
- Balance the conservation of species and ecological communities addressed with housing, property rights, recreation, transportation, economic development, and other community and regional goals, as described in the City's General Plan.

1.1.2 Purpose and Need

The Subarea Plan comprehensively addresses how the City will conserve natural biotic communities and Covered Species pursuant to the NCCPA of 1991 and the ESA. Amendments to the NCCPA enacted effective January 1, 2003 expressly provide that the City of Santee Subarea Plan will be solely governed in accordance with the NCCPA as it read on December 31, 2001. References to the NCCPA within this Subarea Plan refer to the NCCPA of 1991 since this is the applicable version of the NCCPA governing this Subarea Plan. This Subarea Plan is both an NCCP Plan and a Habitat Conservation Plan (HCP), pursuant to section 10(a)(1)(B) of the ESA (as amended). Thus, approval and adoption of this Subarea Plan by the City results in issuance of Federal and State authorizations for the take of certain listed rare, threatened, or endangered species.

Permits issued pursuant to this Subarea Plan do not include U.S. Army Corps of Engineers (USACE) 404 or CDFW 1601 permits for impacts to wetlands. However, this Subarea Plan requires that the City comply with the wetlands protection measures stipulated in the Clean Water Act 404(b)(1) (40 CFR Part 230). This Subarea Plan provides a basis for ESA Section 7 consultations and issuance of a Biological Opinion by the USFWS for USACE 404 permits within the Study Area. Thus, approval of this Subarea Plan will streamline the endangered species consultation process for wetland permits.

This Subarea Plan provides regulatory certainty to landowners within the City and will aid considerably in conserving the region's biodiversity and in enhancing the overall quality of life for residents of Santee and surrounding region. The Subarea Plan addresses the potential impacts to natural habitats and rare, threatened, or endangered species due to public and private projects within the City. The Subarea Plan also institutes a conservation strategy to proactively offset these impacts on the City's biological resources through the assembly of a habitat preserve and implementation of habitat management policies designed to protect and enhance Covered Species population size and stability within the Subarea Plan Area. This comprehensive and proactive approach provides local landowners and agencies greater certainty for both economic development and conservation of biological resources than other approaches available under ESA and CESA.

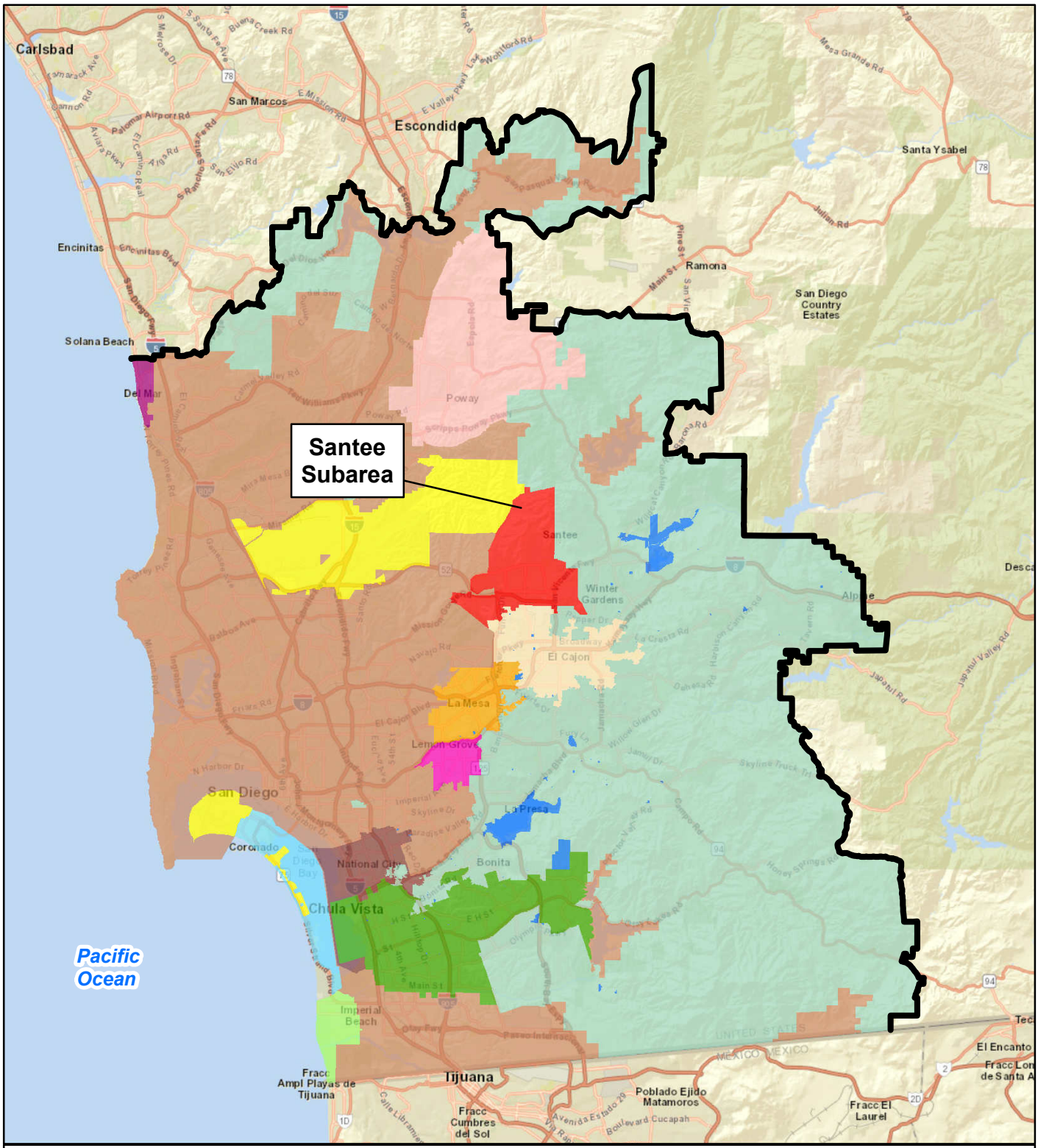
1.1.3 Consistency within the MSCP Subregional Plan

The MSCP Subregional Plan, finalized in 1998, area covers approximately 900 square miles (582,243 acres) in southwestern San Diego County and includes the City of Santee, portions of the unincorporated County of San Diego, and 10 additional cities (San Diego, Coronado, Chula Vista, Del Mar, El Cajon, Poway, La Mesa, Imperial Beach, National City, and Lemon Grove). Subarea plans have been finalized for cities of Poway (1996), San Diego (1998), La Mesa (1998), and Chula Vista (2005), and the unincorporated County of San Diego (1998) (Figure 1-2). The Subarea Plan Area is the current jurisdictional boundary of the City of Santee (Figure 1-3).

This Subarea Plan represents Santee's contribution to the Subregional MSCP and to regional NCCP conservation goals. The planning process for Santee is an outgrowth of the evolving Subregional Plan and is completely integrated and consistent with the MSCP. Preliminary biological analyses and attempts to define regional biological core areas (larger blocks of habitat with relatively high biological value) and landscape linkage areas for wildlife (areas of natural habitat that connect biological core areas so that species can disperse and move among biological cores) in the MSCP subregion have set the stage for more refined planning within Santee. As part of the development of the Subregional MSCP adopted in 1998, the Multi-Habitat Planning Area (MHPA) was developed to delineate areas in which habitat conservation and preserve assembly is encouraged to occur, as well as appropriate development. Figure 1-4 shows the original MHPA boundaries (as drawn in the 1990s) within the Santee Subarea Plan Area. The overall MSCP preserve system will be assembled as each participating jurisdiction implements their portion of the MSCP. Therefore, any modifications to the preserve design within a subarea of the MSCP must result in an equal or better level of conservation of species and habitats in order to be consistent with the assumptions of the MSCP Subregional Plan's conservation expectations.

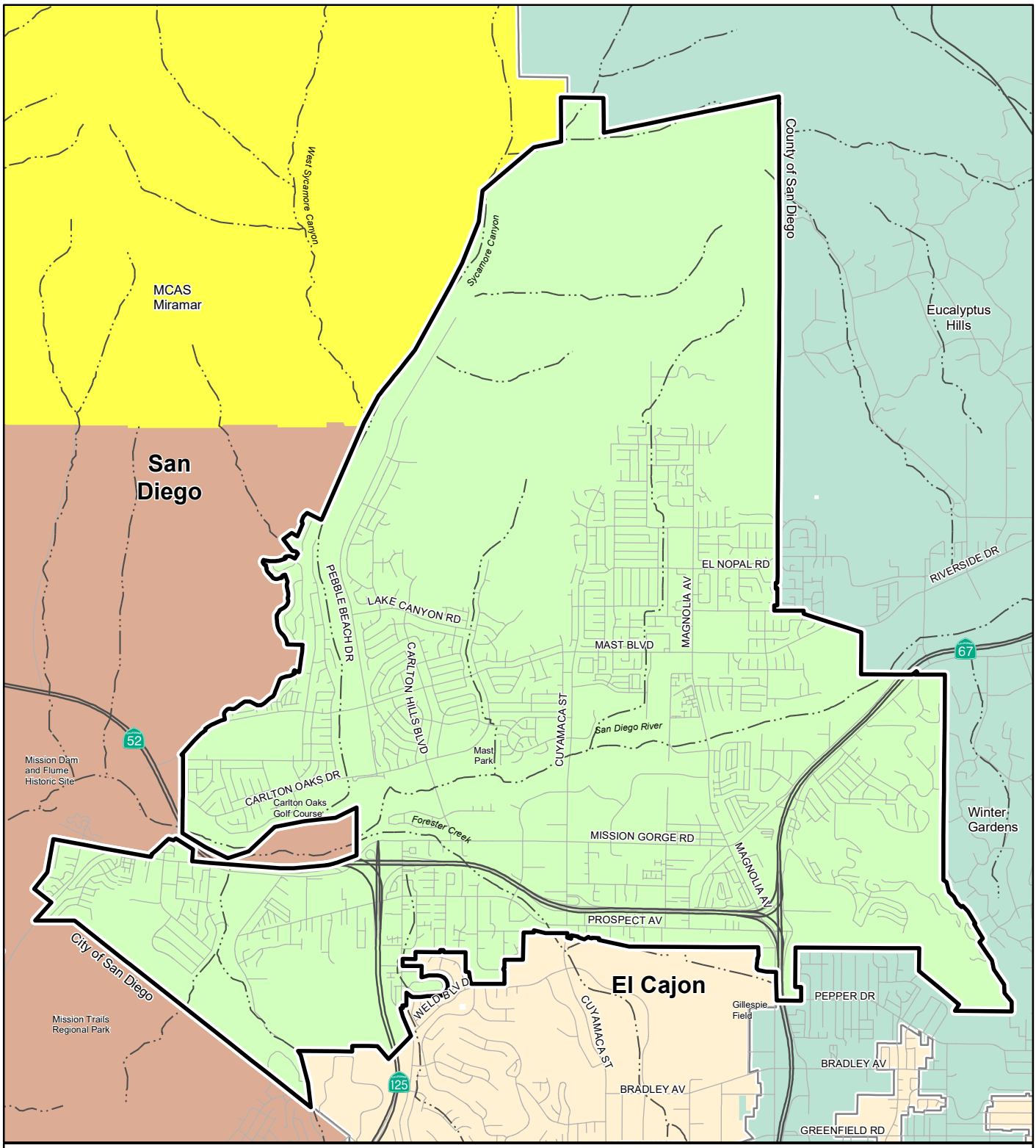
For the Santee Subarea Plan, preserve boundaries were drawn as a result of the City's efforts to refine and expand the MHPA boundaries, to better define conservation priorities within the City, and to formulate a Subarea conservation plan under the umbrella of the MSCP Subregional Plan. The resulting boundaries are identified as the Santee Subarea Plan Preserve System in this document (see Figure 5-1 in Chapter 5, *Conservation Strategy*).

The MSCP Subregional Plan and Final EIR/EIS were adopted by the City of San Diego, the project's lead agency, and approved by the Wildlife Agencies in 1998. For the Final EIR/EIS evaluation, draft Subarea Plans from participating jurisdictions were used as the basis for consideration, including a draft City of Santee MSCP Subarea Plan, dated August 1996 ("1996 Draft Subarea Plan"). The current Santee Subarea Plan includes changes which are consistent with the goals of the MSCP Subregional



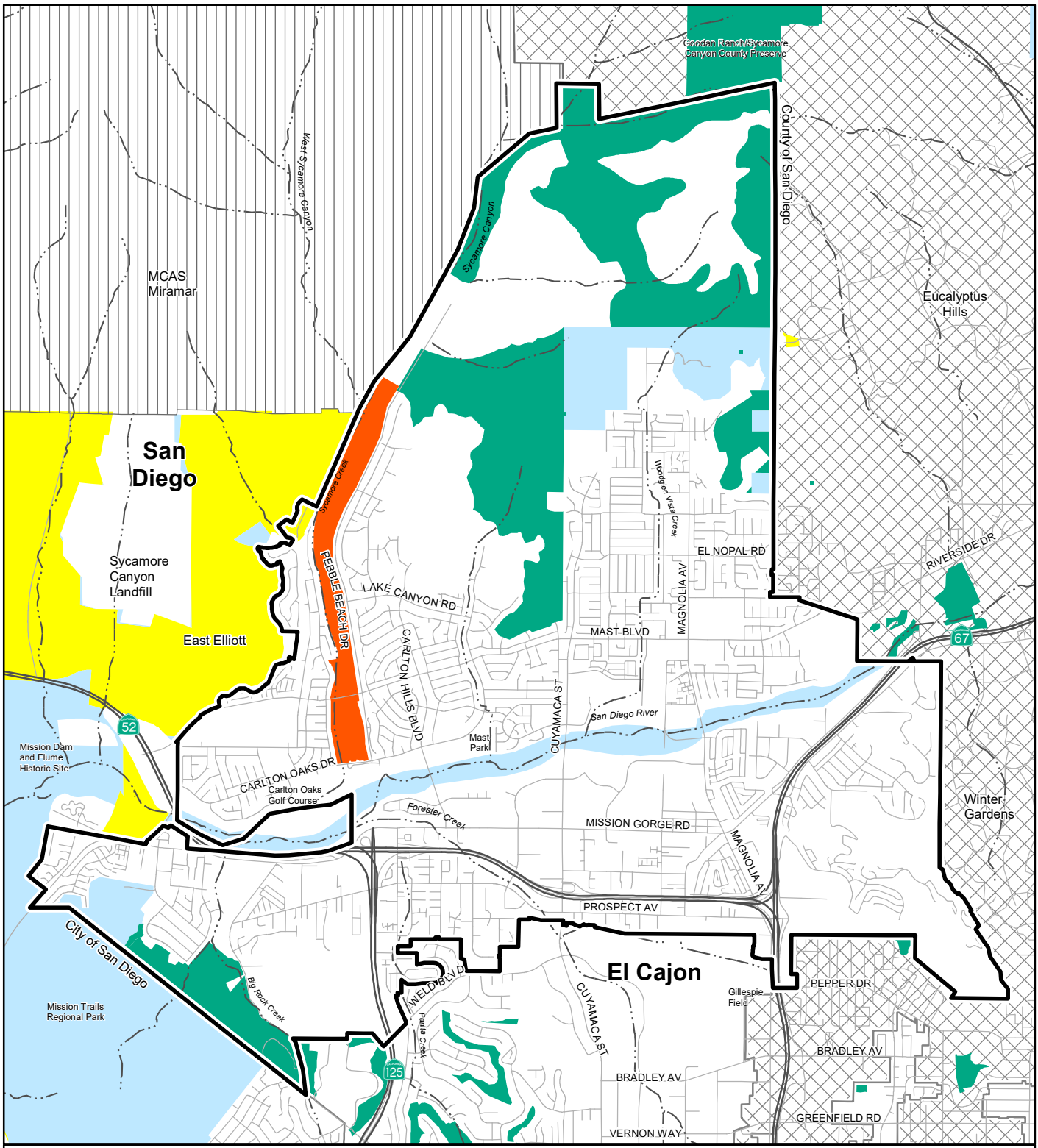
\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 1-2 MSCP Subregional Plan and Subareas.mxd Date: 12/19/2018 34153

Figure 1-2
MSCP Subregional Plan and Subareas
Santee MSCP Subarea Plan



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 1-3 Plan Area.mxd Date: 12/19/2018 34153

Figure 1-3
Subarea Plan Area
Santee MSCP Subarea Plan



Note: The MHPA boundaries were delineated as part of the original MSCP Subregional Plan adopted in 1998. The MHPA serves as a benchmark to compare with the preserve boundaries included in this Subarea Plan (see Figure 5-1, Subarea Plan Preserve System Map).

Source: City of San Diego 1998. MSCP Subregional Plan.

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Figure 1-4
MSCP Multiple Habitat Planning Areas (MHPA)
Santee MSCP Subarea Plan

Plan and Final EIR/EIS and which strengthen the conservation efforts detailed in the 1996 Draft Subarea Plan.

The Final EIR/EIS for the Take Authorization identifies "Vegetation Community Conservation Target Acres" for conservation by subarea (see Appendix B, *MSCP Subregional Plan Tables*). The Santee Subarea Plan exceeds the 2,067 acres that were expected to be conserved within the MSCP's MHPA preserve boundaries for the Santee Subarea. Implementation of this Subarea Plan will result in the conservation of approximately 3,060 acres (67.8%) of the remaining natural habitat within the jurisdictional boundaries of the City (see Table 5-2, *Habitat Conserved within Santee Subarea Plan Preserve System* and Table 6-1, *Vegetation Communities Within Subarea Plan Preserve System Compared with 1998 MSCP MHPA*).

1.2 Scope of the Subarea Plan

1.2.1 Permittee and Participating Entities

Take authorizations will be granted to the City by the Wildlife Agencies. The City, in turn, may then authorize the incidental taking of natural habitats and/or associated Covered Species by public or private projects within its jurisdiction, as long as Covered Activities are implemented consistent with the provisions of this Subarea Plan.

1.2.2 Plan Area

The area covered by the Subarea Plan Area includes the City of Santee current jurisdictional boundary (Figure 1-3). The Subarea Plan Area encompasses approximately 10,710.0 acres.

1.2.3 Covered Species

As required by the NCCPA, the Subarea Plan will protect native biological diversity, habitat for native species, natural communities, and local ecosystems. This broad scope will conserve a wide range of natural resources, including native species that are common or rare. However, the permits issued by the Wildlife Agencies will address a defined set of sensitive species selected for coverage under this Subarea Plan ("Covered Species"). Covered Species are generally the species currently listed as threatened or endangered or that may reasonably become listed during the 50-year permit term, that may be impacted by Covered Activities, and that will benefit from Subarea Plan-related conservation and management.

Table 1-1 presents the list of 22 species included as Covered Species under this Subarea Plan (8 plants and 14 animals). This Subarea Plan was developed under the umbrella of the MSCP Subregional Plan; therefore, the list of species in Table 1-1 represents primarily species addressed by the MSCP which have the potential to occur in the Santee Subarea Plan Area and have the potential to be impacted as a result of Covered Activities. Table 1-1 also includes additional species that were not covered by the MSCP but will be covered by the Santee Subarea Plan. These include the Quino checkerspot butterfly, Hermes copper butterfly, and western spadefoot toad. See Section 3.1, *Determination of Covered Species List*, for more details on how Covered Species were identified for this Subarea Plan.

Table 1-1. Santee Subarea Plan Covered Species

Type	Common Name	Scientific Name
Plants	San Diego ambrosia	*Ambrosia pumila*
	San Diego barrel cactus	*Ferocactus viridescens*
	San Diego button-celery	*Eryngium aristulatum* var. *parishii*
	San Diego goldenstar	*Bloomeria clevelandii*
	San Diego mesa mint	*Pogogyne abramsii*
	San Diego thornmint	*Acanthomintha ilicifolia*
	Variegated dudleya	*Dudleya variegata*
	Willowy monardella	*Monardella viminea*
Invertebrates	Hermes copper butterfly	*Lycaena hermes*
	Quino checkerspot butterfly	*Euphydryas editha quino*
	Riverside fairy shrimp	*Streptocephalus woottoni*
	San Diego fairy shrimp	*Branchinecta sandiegonensis*
Reptiles and Amphibians	Belding's orange-throated whiptail	*Aspidoscelis hyperythra beldingi*
	Blainville's horned lizard	*Phrynosoma blainvillii*
	Southwestern pond turtle	*Actinemys pallida*
	Western spadefoot toad	*Spea hammondii*
Birds	Coastal California gnatcatcher	*Polioptila californica californica*
	Least Bell's vireo	*Vireo bellii pusillus*
	San Diego cactus wren	*Campylorhynchus brunneicapillus sandiegensis*
	Southwestern willow flycatcher	*Empidonax traillii extimus*
	Tricolored blackbird	*Agelaius tricolor*
	Western burrowing owl	*Athene cunicularia hypugaea*

1.2.4 Covered Activities

The primary goal of the Santee Subarea Plan is to obtain authorization for take of Covered Species[2] under the NCCPA and ESA for the implementation of Covered Activities. Covered Activities include all habitat or ground-disturbing impacts resulting from following:

- **Known and Anticipated Projects**: The City has completed a review and inventory of all known and anticipated projects. This includes public and private planned development projects, streets projects, trails projects, drainage projects, and ongoing City operations and maintenance. A total of 68 projects have been inventoried with varying size and potential for direct and indirect impacts on natural habitats. A total of 1,137.3 acres of new direct impacts have been estimated from known and anticipated projects. The majority of the direct impacts (874 acres) are

[2] "Take" under the federal ESA does not apply to listed plant species or non-listed wildlife species; therefore, take of listed plant species is not prohibited under the ESA, and a federal incidental take permit is not required for plant species covered by the Subarea Plan. USFWS recommends that permit applicants include conservation measures for listed plants in habitat conservation plans and typically extends regulatory assurances for covered plant species in recognition of such plan conservation measures. Any reference to "take" of covered plant species in the Subarea Plan and EIR/EIS means, with regard to the federal incidental take permit, impacts on covered plant species.

associated with the proposed Fanita Ranch development in the northern portion of the Subarea Plan Area.

- **Future Development within Santee**: In addition to the known and anticipated projects, the Santee Subarea Plan defines the process by which future development activities are reviewed and permitted. The City of Santee is near build-out conditions. A majority (54.1%) of the City is already developed or disturbed habitat. Of the remaining areas of the city in natural habitat, over half (56%) occurs within the Fanita Ranch project area, approximately 2% occurs within other known and anticipated projects, and approximately a quarter (26.6%) is currently protected as open space. Only 15.2% of the remaining natural habitat is subject to future development activities.
- **Preserve Management Activities**: Covered Activities also include the potential for a small amount of take of Covered Species and their habitats within in the Preserves as a result of ongoing habitat management, restoration, and monitoring activities by Preserve Managers. These routine activities will also be covered by the Subarea Plan, as well as a limited amount of improvements such as creation of new trails, staging areas, and access roads, where appropriate.

For details on the Covered Activities, see Chapter 4, *Covered Activities and Impact Assessment*.

1.2.5 Permit Duration

The City of Santee will be the sole permittee seeking permits from the Wildlife Agencies with terms of 50 years from the date of NCCP/HCP permit issuance. Accordingly, all assessments in the Subarea Plan are based on a 50-year time period. Prior to permit expiration, the City may apply to renew or amend the Subarea Plan and its associated permits and authorizations.

1.3 Regulatory Framework

The Subarea Plan is designed primarily to comply with the NCCPA and ESA. The Subarea Plan is also consistent with other state and federal wildlife and related laws and regulations, each of which is referenced below and described in greater detail in subsection 1.3.2.

- California Fish and Game Code Sections 3511, 4700, 5050, and 5515 (Fully Protected Species)
- California Fish and Game Code Section 3503 (Bird Nests)
- California Fish and Game Code Section 3503.5 (Birds of Prey)
- Migratory Bird Treaty Act (MBTA)
- Bald Eagle and Golden Eagle Protection Act (BGEPA)
- California Environmental Quality Act of 1970 (CEQA)
- National Environmental Policy Act of 1969 (NEPA)
- CWA Sections 401, 402, and 404
- Porter-Cologne Water Quality Control Act
- Fish and Game Code Sections 1601–1607 (Lake or Streambed Alteration Agreement)
- National Historic Preservation Act

1.3.1 State and Federal Endangered Species Laws

1.3.1.1 California Endangered Species Act

The California Endangered Species Act (CESA) prohibits take of wildlife and plants listed as threatened or endangered by the California Fish and Game Commission. *Take* is defined under the California Fish and Game Code as any action or attempt to "hunt, pursue, catch, capture, or kill." Therefore, take under CESA does not include "the taking of habitat alone or the impacts of the taking."[3] Rather, the courts have affirmed that under CESA, "taking involves mortality."

CESA allows exceptions to the take prohibition for take that occurs during otherwise lawful activities. The requirements of an application for incidental take under CESA are described in Section 2081 of the California Fish and Game Code. Incidental take of state-listed species may be authorized if an applicant submits an approved plan that minimizes and "fully mitigates" the impacts of this take.

1.3.1.2 Natural Community Conservation Planning Act

In 1991, California's NCCPA (California Fish and Game Code, Section 2800 et seq.) was enacted to implement broad-based planning that balances appropriate development and growth with conservation of wildlife and habitat. Pursuant to the NCCPA, local, state, and federal agencies are encouraged to prepare NCCPs to provide comprehensive management and conservation of multiple species and their habitats under a single plan, rather than through preparation of numerous individual plans on a project-by-project basis. The NCCPA is broader in its orientation and objectives than are the CESA and ESA. Additionally, preparation of an NCCP is a voluntary action. The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale while accommodating compatible land use. To be approved by CDFW, an NCCP must provide for the conservation of species and protection and management of their habitat and natural communities in the Plan Area in-perpetuity.

The 1991 NCCPA was repealed and replaced with a substantially revised and expanded NCCPA in 2002. While the revised NCCPA established new standards and guidance on many facets of the program, including scientific information, public participation, biological goals, interim project review, and approval criteria, amendments to the NCCPA enacted effective January 1, 2003 (Section 2830[b][2] expressly provide that Subarea Plans for the San Diego MSCP will be solely governed in accordance with the NCCPA as it read on December 31, 2001. Copies of the 1991 NCCPA and Section 2830 of the 2003 NCCPA are included in Appendix C. The City enrolled as an NCCP participant and entered in to a Memorandum of Agreement for coordinated habitat planning on May 13, 1992 (City of Santee City Council Resolution No. 54-92).

1.3.1.3 Federal Endangered Species Act

USFWS under the Department of Interior and the National Marine Fisheries Service (NMFS) under the Department of Commerce, administer the ESA. The ESA requires USFWS and NMFS to maintain lists of threatened and endangered species and affords substantial protection to listed species. NMFS's jurisdiction under the ESA is limited to the protection of marine mammals (with a number of

[3] *Environmental Council of Sacramento v. City of Sacramento*, 142 Cal. App. 4th 1018 (2006).

exceptions, including polar bears, manatees, and sea otters), marine fishes, and anadromous fishes[4]; all other species are subject to USFWS jurisdiction. The Santee Subarea Plan will be subject only to USFWS jurisdiction.

USFWS can list species as either *endangered* or *threatened*. An endangered species is at risk of extinction throughout all or a significant portion of its range (ESA Section 3[6]). A threatened species is likely to become endangered in the foreseeable future (ESA Section 3[19]). Section 9 of the ESA prohibits the take of any fish or wildlife species listed under the ESA as endangered and most species listed as threatened.[5] *Take*, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined as "any act that kills or injures the species, including significant habitat modification." Section 9 prohibits the "removal or reduction to possession" of any listed plant species "under federal jurisdiction" (i.e., on federal land). Even though take under the ESA does not apply to plants and there is no prohibition of take of plants, the Plan covers three plants. These plants are covered in order to meet regulatory obligations under Section 7 of the ESA and to comply with the CESA. Plants are also included as Covered Species to provide *no-surprises* assurances for these species.

The ESA includes mechanisms that provide exceptions to the Section 9 take prohibitions. These are addressed in the ESA under Section 7 (federal actions) and Section 10 (non-federal actions).

Section 7

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of federally designated critical habitat. To ensure that its actions do not result in jeopardy to listed species or in the adverse modification of critical habitat,[6] each federal agency must consult with USFWS or NMFS—or both—regarding discretionary federal agency actions that may affect listed species. Consultation begins when the federal agency submits a written request for initiation to USFWS or NMFS, along with the agency's biological assessment (BA) of its proposed action (if necessary), and USFWS or NMFS accepts that sufficient information has been provided to initiate consultation. If USFWS or NMFS concludes that the action is not likely to adversely affect a listed species, the action may be conducted without further review under the ESA. Otherwise, USFWS or NMFS must prepare a written biological opinion (BO) describing how the agency's action will affect the listed species and its critical habitat. The issuance of a Section 10 permit for this Subarea Plan is a federal action that triggers a Section 7 consultation. USFWS will consult internally to address this requirement.

If the BO concludes that the proposed action would jeopardize the continued existence of a listed species or adversely modify its critical habitat, the opinion must include "reasonable and prudent alternatives" that would avoid that result. If the BO concludes that the project as proposed would

[4] *Anadromous fishes* are fish that spend part of their life cycle in the ocean and part in fresh water. NMFS has jurisdiction over anadromous fish that spend the majority of their life cycle in the ocean.

[5] The protection of threatened species under Section 9 is discretionary through a rule issued under Section 4(d) of the ESA. Until a "4(d) rule" is issued by NMFS, threatened anadromous fish or marine species are not protected by the ESA. By regulation, USFWS automatically affords Section 9 protection to threatened species at the time of listing. These protections later can be modified by USFWS through a 4(d) rule.

[6] *Critical habitat* is generally defined under the ESA and its implementing regulations as specific geographic areas, whether occupied by listed species or not, that are determined to be essential for the conservation and management of listed species, and that have been formally described in the *Federal Register*.

involve the take of a listed wildlife species, but not to an extent that would jeopardize the species' continued existence, the BO must include an incidental take statement. *Incidental take* is take that is "incidental to, and not intended as part of, an otherwise lawful activity" (Code of Federal Regulations [CFR], Title 64, Section 60728). The incidental take statement specifies an amount of take that may occur as a result of the action and may include reasonable and prudent measures to minimize the impact of the take. If the action complies with the BO and incidental take statement, it may be implemented without violation of the ESA, even if incidental take occurs.

Section 10

Until 1982, state, local, and private entities had no means to acquire incidental take authorization as federal agencies could under Section 7. Private landowners and local and state agencies risked being in direct violation of the ESA no matter how carefully their projects were implemented. This statutory dilemma led Congress to amend Section 10 of the ESA in 1982 to authorize the issuance of an incidental take permit to non-federal project proponents upon completion of an approved conservation plan. The term *conservation plan* has evolved into *habitat conservation plan* (HCP).

In cases where federal land, funding, or authorization is not required for an action by a non-federal entity, the take of listed species must be permitted by USFWS and/or NMFS through the Section 10 process. Private landowners, corporations, state agencies, local agencies, and other non-federal entities must obtain a Section 10(a)(1)(B) incidental take permit for take of federally listed wildlife species "that is incidental to, but not the purpose of, otherwise lawful activities."

There is no take prohibition for listed plants; however, certain actions are prohibited with regard to plants under the ESA. Under Section 9(a)(2)(B) of the ESA, endangered plants are protected from "removal, reduction to possession, and malicious damage or destruction" in areas that are under federal jurisdiction. Section 9(a)(2)(B) of the ESA also provides protection to plants from removal, cutting, digging up, damage, or destruction where the action takes place in violation of any state law or regulation or in violation of a state criminal trespass law. Similar protections have been extended to federally listed threatened plant species by regulation at 50 CFR 17.71. Thus, the ESA does not prohibit the take of federally listed plants but does prohibit certain actions on private or other non-federal lands in violation of state law. Therefore, Section 10 incidental take permits are necessary only for take of wildlife species. The Section 7(a)(2) prohibition against jeopardy, however, applies to plants, and USFWS may not issue a Section 10(a)(1)(B) incidental take permit if the issuance of that permit would result in jeopardy to a listed plant species.

To receive a Section 10(a)(1)(B) incidental take permit, the permit applicant is required to provide the following.

- A complete description of the activity sought to be authorized.
- The common and scientific names of the species sought to be covered by the permit, as well as the number, age, and sex of such species, if known.
- An HCP.

The HCP must specify the following mandatory elements.

- The impact that will likely result from the taking of covered species.

- The steps the applicant will take to monitor, minimize, and mitigate such impacts; the funding that will be available to implement such steps; and the procedures to be used to deal with unforeseen circumstances.[7]
- The alternative actions to taking of covered species the applicant considered and the reasons why such alternatives are not proposed to be utilized.
- Such other measures that the Secretaries of the Department of Interior or Commerce may require as being necessary or appropriate for purposes of the plan (50 CFR 17.22[b]).

The Santee Subarea Plan satisfies these requirements.

To receive an incidental take permit, Section 10(a)(2)(B) of the ESA requires that the following criteria be met.

- The taking will be incidental to otherwise lawful activities.
- The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking.
- The applicant will ensure adequate funding for the HCP and procedures to deal with unforeseen circumstances.
- The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild.
- The applicant will ensure that other measures that the USFWS may require as being necessary or appropriate will be provided.
- The USFWS has received such other assurances as may be required that the HCP will be implemented.

Prior to the approval of an HCP, USFWS is required to undertake an *internal* Section 7 consultation because issuance of an incidental take permit is a federal action (see the discussion of ESA Section 7, above.). Elements specific to the Section 7 process (e.g., analysis of impacts on designated critical habitat, analysis of impacts on listed plant species, and analysis of indirect and cumulative impacts on listed species) are included in this Subarea Plan to meet the requirements of Section 7.

1.3.2 Other State and Federal Wildlife Laws and Regulations

1.3.2.1 California Fully Protected Species

In the 1960s, before the CESA was enacted, the California Legislature identified species for specific protection under the California Fish and Game Code. These fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. Fully protected species are described in Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These protections state that "…no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected [bird], [mammal], [reptile or amphibian], [fish]." On October 8, 2011, Senate Bill (SB) 618 was signed into law. The bill revises the

[7] *Unforeseen circumstances* are defined at 50 CFR 17.3 as changes in circumstances affecting a covered species or geographic area covered by the HCP that could not reasonably have been anticipated by the plan developers, and that result in a substantial and adverse change in the status of a covered species.

definition of "covered species" under the NCCPA to include fully protected species. As a result of SB 618, the "taking" of fully protected species can now be authorized in cases where the take is incidental and the fully protected species is being conserved and managed under an NCCP approved by CDFW. No fully protected species are covered by the Subarea Plan. Fully protected species that could potentially occur in the Subarea Plan Area include, but are not restricted to, those listed below.

- Golden eagle (*Aquila chrysaetos*)
- Bald eagle (*Haliaeetus leucocephalus*)

1.3.2.2 California Fish and Game Code 3503 (Bird Nests)

Section 3503 of the Fish and Game Code makes it "unlawful to take, possess or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Therefore, CDFW may issue permits authorizing take pursuant to the CESA or NCCPA**.** The Subarea Plan contains conservation measures to avoid such take to the maximum extent practicable in order to comply with Section 3503. However, some take of covered birds still may occur; the NCCPA permit will serve as the authorization for take of nests or eggs of covered birds pursuant to Section 3503.

1.3.2.3 California Fish and Game Code 3503.5 (Birds of Prey)

Section 3503.5 of the Fish and Game Code prohibits the take, possession, or destruction of any birds of prey or their nests or eggs "except as otherwise provided by this code or any regulation adopted pursuant thereto." CDFW may issue permits authorizing take pursuant to the CESA or NCCPA. There are no birds of prey covered by the Subarea Plan. However, the Subarea Plan contains conservation measures to avoid such take in order to comply with Section 3503.5.

1.3.2.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful as is taking of any parts, nests, or eggs of such birds (U.S. Government Code [USC], Title 16, Section 703). The definition of *taking* is different under the MBTA than under the ESA and includes only the death or injury of individuals of a migratory bird species or its eggs. *Take* under the MBTA does not include the concepts of harm and harassment as defined by the ESA. The MBTA defines migratory birds broadly; all covered birds in this Subarea Plan are considered migratory birds under the MBTA.

USFWS provides guidance regarding the incidental take of ESA-listed migratory birds (Chapter 7 in the HCP Handbook [USFWS 2016]). According to these guidelines, an incidental take permit can function as a Special Purpose Permit under the MBTA (50 CFR 21.27) for the take of all ESA-listed covered species in the amount and/or number and subject to the terms and conditions specified in an HCP. Any such take will not be in violation of the MBTA of 1918, as amended (16 USC 703-12). The following Covered Species are protected by the MBTA.

- Coastal California gnatcatcher (*Polioptila californica californica*)
- Least Bell's vireo (*Vireo bellii pusillus*)
- San Diego Cactus wren (*Campylorhynchus brunneicapillus sandiegensis*)

- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Tricolored blackbird (*Agelaius tricolor*)
- Western burrowing owl (*Athene cunicularia hypugaea*)

Of these six bird species, the coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher are listed under the ESA. Accordingly, once issued, the incidental take permit will automatically function as a Special Purpose Permit under the MBTA, as specified under 50 CFR 21.27, for these species for a 3-year term subject to renewal by the City. The San Diego cactus wren, tricolored blackbird, and western burrowing owl are not listed under the ESA, and, therefore, no MBTA coverage can be provided for these species through the Subarea Plan. Should these species become listed under the ESA during the permit term, the ESA take permit would also constitute an MBTA Special Purpose Permit for these species for a 3-year term as specified under 50 CFR 21.27, subject to renewal by the City.

Non-listed Covered Species as well as other migratory birds not covered by the permit would benefit from seasonal restrictions on construction and other conservation measures described in the Subarea Plan. The establishment of a Preserve System will be a significant "benefit to the migratory bird resources" as required by the Special Purpose Permit.

1.3.2.5 Bald Eagle and Golden Eagle Protection Act

The Bald Eagle and Golden Eagle Protection Act (BGEPA) prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. Under the BGEPA, it is a violation to "…take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof…." Here, *take* is defined as to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, and disturb. *Disturb* is further defined in 50 CFR 22.3 as follows:

> 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.

Recent revisions to regulations implementing the BGEPA authorize take of bald eagles and golden eagles under the following conditions: (1) where the take is compatible with the preservation of the bald eagle and golden eagle, (2) is necessary to protect an interest in a particular locality, (3) is associated with but not the purpose of an otherwise lawful activity, (4) for individual instances of take where the take cannot be avoided, or (5) for programmatic take where the take is unavoidable even though advanced conservation practices are being implemented (50 CFR 22.26). Permits issued under this regulation usually authorize disturbance only; however, in limited cases a permit may authorize lethal take that results from but is not the purpose of an otherwise lawful activity.

Neither the bald nor the golden eagle is a Covered Species under the Subarea Plan. The Subarea Plan does not seek a permit under the BGEPA because disturbance, injury, or death of eagles or eggs, or disturbance of nests is not anticipated in association with Covered Activities or overall Subarea Plan implementation.

1.3.2.6 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that significant environmental impacts of proposed projects be reduced to less-than-significant levels through adoption of feasible avoidance, minimization, or mitigation measures unless overriding considerations are identified and documented. CEQA applies to certain activities in California undertaken by either a public agency or a private entity that must receive some discretionary approval from a California government agency. In issuing the NCCP permit, CDFW must comply with CEQA. Similarly, the action of the Permittees in adopting the Subarea Plan is subject to CEQA compliance. The City is serving as the lead agency under CEQA. To comply with CEQA, the City will release a draft joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS) with a 90-day public comment period. The final EIR/EIS will accompany the final Subarea Plan.

The final EIR/EIS prepared for this Subarea Plan is intended to provide programmatic CEQA compliance for all Covered Activities covered by the Subarea Plan regarding impacts on Covered Species and jurisdictional wetlands and waters (see Section 1.3.5 below for a definition and discussion of jurisdictional wetlands and waters as they relate to the Subarea Plan). As an individual Covered Activity is implemented in the future that will receive take coverage under the Subarea Plan, that project must comply with CEQA at a project-level detail. The conservation provided by the Subarea Plan will be sufficient to meet all CEQA mitigation standards for impacts on the Covered Species and natural communities that are addressed by the Subarea Plan. The Subarea Plan implements a conservation strategy designed to achieve a comprehensive set of biological goals and objectives. Furthermore, as an NCCP, the Subarea Plan provides for broad-based planning to preserve natural communities at the ecosystem scale.

1.3.2.7 National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to include in their decision-making process appropriate and careful consideration of the environmental effects of a proposed action and of possible alternatives. Documentation of the significant environmental effects of a proposed federal action and reasonable alternatives to the action must be made available for public notice and review. This analysis is documented in an environmental impact statement (EIS). NEPA's requirements are more procedural than substantive in that NEPA requires disclosure of environmental effects and mitigation possibilities but includes no actual mandate to require mitigation.

The issuance by USFWS of an incidental take permit under section 10 of the ESA constitutes a federal action. Therefore, USFWS must comply with NEPA. To satisfy NEPA requirements, USFWS will release a draft EIS with a 90-day comment period. The final EIS will accompany the final NCCP/HCP.

1.3.2.8 Federal and State Wetland Laws and Regulations

The CWA is the primary federal law that protects the physical, chemical, and biological integrity of the nation's waters, including lakes, rivers, wetlands, and coastal waters. Programs conducted under the CWA are directed at both point-source pollution (e.g., waste discharged from outfalls and filling of waters) and nonpoint-source pollution (e.g., runoff from roads, freeways, and bridges). Under Sections 401, 402, and 404 of the CWA, the U.S. Environmental Protection Agency (EPA), federal

agencies, and state agencies set effluent limitations and issue permits. These permits are the primary regulatory tools of the CWA. The EPA oversees all CWA permits.

Clean Water Act Section 404

Pursuant to Section 404 of the CWA, the USACE regulates the discharge (temporary or permanent) of dredged or fill material into waters of the United States (WoUS), including wetlands. A discharge of fill material includes activities such as grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into WoUS. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, performing certain drainage channel maintenance activities, constructing temporary mining and farm/forest roads, tree trimming, and excavating without stockpiling.

USACE issues two types of permits under Section 404: general permits (either nationwide permits [NWPs] or regional permits) and standard permits (either letters of permission or individual permits). General permits are issued by USACE to streamline the Section 404 process for nationwide, statewide, or regional activities that have minimal direct or cumulative environmental impacts on the aquatic environment. Standard permits are issued for activities that do not qualify for a general permit (i.e., that may have more than a minimal adverse environmental impact). The USACE will review and consider issuing permits for projects in the Subarea Plan Area that propose to fill WoUS.

The Subarea Plan will not provide permits under Section 404 of the CWA for impacts on wetlands or other waters from Covered Activities. However, the 404 permitting process is expected to be streamlined substantially as a result of the Subarea Plan. Issuance of a Section 404 permit often requires the USACE to consult with USFWS to comply with Section 7 of the ESA. This consultation would address the federally listed species covered by the Subarea Plan. Accordingly, provided that Covered Activities requiring Section 404 permits are consistent with the Subarea Plan, the USFWS will not require any mitigation beyond that already required by the Subarea Plan. The Section 7 BO issued for the Subarea Plan also can serve as the basis for any future BOs in the study area for Covered Activities. In addition, the conservation actions for impacts on wetlands in the Subarea Plan Area may fully satisfy USACE requirements for wetland mitigation.

Clean Water Act Section 401 and the Porter-Cologne Water Quality Control Act

Under Clean Water Act (CWA) Section 401, states have the authority to certify federal permits for discharges to waters under state jurisdiction. States may review proposed federal permits (e.g., CWA Section 404 permits) for compliance with state water quality standards. A permit cannot be issued if the state denies certification. In California, the State Water Board and the RWQCBs are responsible for the issuance of CWA Section 401 certifications.

Porter-Cologne is the primary state law concerning water quality. It authorizes the State Water Board and RWQCBs to prepare management plans such as Regional Water Quality Plans (or Basin Plans) to address the quality of groundwater and surface water. Porter-Cologne also authorizes the RWQCBs to issue Waste Discharge Requirements (WDRs) defining limitations on allowable discharge to waters of the state. In addition to issuing CWA Section 401 certifications on CWA Section 404 applications to fill waters, the RWQCBs may issue WDRs for such activities. Because the authority for WDRs is derived from Porter-Cologne and not the CWA, WDRs may apply to a somewhat different range of aquatic resources than do CWA Section 404 permits and CWA Section

401 Water Quality Certifications. Applicants that obtain a permit from the USACE under Section 404 also must obtain certification of that permit from the RWQCB.

The Subarea Plan does not include certifications under Section 401 or WDRs under Porter-Cologne. A Section 401 Water Quality Certification will be obtained separately for the Covered Activities, as necessary. However, project proponents implementing Covered Activities that comply with the terms of the Plan should find their permit process streamlined with the RWQCB or State Water Board because the Subarea Plan provides a comprehensive means to address the needs of threatened and endangered species in the Subarea Plan Area.

Clean Water Act Section 402, National Pollutant Discharge Elimination System

CWA Section 402 controls direct discharges into navigable waters. Direct discharges or "point–source" discharges are from sources such as pipes and sewers. National Pollutant Discharge Elimination System (NPDES) permits are issued by the state with oversight by the EPA. A facility that intends to discharge into the nation's waters must obtain a permit before initiating a discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. The 402 permit then will set forth the conditions and effluent limitations under which a facility may make a discharge. The Subarea Plan does not include certifications under Section 402 or NPDES permits under the CWA. These authorizations, if required, must be obtained separately.

Lake or Streambed Alteration Agreement

CDFW has jurisdictional authority over streams and lakes and wetland resources associated with these aquatic systems under California Fish and Game Code Section 1600 et seq., which was repealed and replaced in October 2003 with the new Section 1600–1616 that took effect on January 1, 2004 (Senate Bill 418 Sher). CDFW has the authority to regulate work that will "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake."

Activities of any person, state or local governmental agency, or public utility are regulated by CDFW under Section 1602 of the California Fish and Game Code. CDFW enters into a streambed or lakebed alteration agreement with the project proponent and can impose conditions on the agreement to ensure no net loss of values or acreage of the stream, lake, associated wetlands, and associated riparian habitat.

The lake or streambed alteration agreement is not a permit, but rather a mutual agreement between CDFW and the project proponent. Because CDFW includes under its jurisdiction streamside habitats that may not qualify as wetlands under the federal CWA definition, as well as a broader definition of the lateral jurisdiction, CDFW jurisdiction may be broader than USACE jurisdiction.

A project proponent must submit a notification of streambed alteration to CDFW before construction. The notification requires an application fee for streambed alteration agreements, with a specific fee schedule to be determined by CDFW. CDFW can enter into streambed alteration agreements that cover recurring operation and maintenance activities and can enter into long-term agreements to cover development and other activities described in regional plans. Many of the concerns raised by CDFW during streambed alteration agreement negotiations are related to

special-status species. Activities covered by the Subarea Plan that need a streambed alteration agreement are expected to partially or fully meet the standards of the streambed alteration agreement through compliance with the Subarea Plan.

CDFW and USFWS will attempt to align the conservation measures for CDFW 1600 agreements, USFWS Section 7 consultations, and USACE permit requirements with the commitments in the Subarea Plan.

Definition of Jurisdictional Wetlands and Waters

The term *jurisdictional wetlands and waters* is used in the Subarea Plan to refer to state and federally regulated wetlands and other water bodies that cannot be filled or altered without permits from USACE under Section 404 of the CWA, the State Water Board or the RWQCBs under either Section 401 of the CWA or Porter-Cologne, or CDFW under Fish and Game Code Section 1602 as of the date the Subarea Plan takes effect.

Federal regulations define the waters that are subject to federal jurisdiction or WoUS (that is, waters that cannot be filled without permits from the USACE under Section 404 of the CWA) as follows:

> (1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters…; (4) all impoundments of waters otherwise defined as waters of the United States under the definition; (5) tributaries of waters identified in paragraphs (1)–(4) of this section; (6) the territorial seas; and (7) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1)–(6) of this section. (33 CFR 328.3)

The USACE publishes protocols for delineating WoUS and certifies the adequacy of such delineations. The USACE delineation protocols require that an area meet three criteria to be designated as a jurisdictional wetland:

1. Wetland hydrology (inundation or saturation)
2. Hydric soils
3. Hydrophytic vegetation

Streams and other drainages and water bodies such as lakes or ponds do not have to meet these three criteria to be considered a WoUS, but they do have to meet other criteria established by federal law and regulations.

The State Water Board and RWQCBs regulate impacts on waters covered by federal regulations as well as some additional waters. The State Water Board and RWQCBs also regulate the fill of wetland areas that meet the federal definition in CFR Section 328.3, above, but are outside of federal jurisdiction because they are isolated, intrastate, nonnavigable waters, as stated in the U.S. Supreme Court ruling in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers,* 531 U.S. 159 (2001) (SWANCC), or because they do not meet the standard for regulation identified by the U.S. Supreme Court in *Rapanos et ux., et al. v. United States*, 547 U.S. 126 S. Ct. 2208 (2006) (Rapanos).

The CDFW regulates impacts on lakes and within the banks of streams. Waters subject to CDFW regulation typically are delineated more broadly than the USACE-supervised delineation process. For example, federal jurisdiction extends to the ordinary high water mark, and CDFW jurisdiction will extend up to the top of the bank or out to the edge of the riparian zone (whichever is farther). Both delineation methods typically are presented in one technical document and will be presented as such for the Subarea Plan to support the permit process.

The Subarea Plan requires mitigation or payment of fees for the fill of any waters that are considered jurisdictional under either Sections 401 and 404 of the CWA (plus any isolated, nonnavigable intrastate waters no longer regulated by the USACE in light of SWANCC or Rapanos and currently regulated by the State Water Board or RWQCBs, which are not expected as a result of the PJD described above) or Section 1602 of the Fish and Game Code.

1.3.2.9 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470 et seq.), requires federal agencies to take into account the effects of their proposed actions on properties eligible for inclusion in the National Register of Historic Places. *Properties* is defined as cultural resources, which includes prehistoric and historic sites, buildings, and structures that are listed on or eligible for listing on the National Register of Historic Places. An *undertaking* is defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency. The issuance of an incidental take permit is an undertaking subject to Section 106 of the NHPA. The USFWS has determined that the area of potential effects for the present undertaking is that area where on-the-ground project activities will result in take of species. The NHPA and the potential effects of the conservation strategy on resources subject to the NHPA are discussed in detail in the EIR/EIS.

1.4 Overview of the Subarea Plan Planning Process

The basic approach of the planning process has been to identify a Subarea Plan Preserve System that meets local and regional biological goals, while minimizing fiscal and economic impacts to the City and adverse effects on private property rights or property values. The following general steps were undertaken as part of the conservation planning process:

1. General biological resources data were updated throughout the City (2017) and detailed biological resources data were updated on Fanita Ranch (Spring and Summer 2004, 2005, and 2006, 2016, 2017), with particular focus on those areas considered to have regional conservation value or where existing biological data were considered inadequate for conservation planning (see Chapter 2, *Existing Conditions*).
2. A geographic information system (GIS) database was updated for the City. The database included updated biological resources information, as well as existing and planned land uses, land management and land ownership status, proposed projects, and other digital information pertinent to conservation planning and implementation (see Chapter 2, *Existing Conditions*).

3. Biological core areas and linkage areas were defined based on local and regional conservation goals established for the MSCP and refined as necessary using the updated biological information (see Section 2.5, *Habitat Connectivity*, and Chapter 3.0, *Covered Species*).
4. Analyses were performed to identify biologically important areas where biological resources were insufficiently protected to meet current NCCP and MSCP conservation goals (see Chapter 6.0, *Conservation Analysis*).
5. Important biological resource areas were also evaluated relative to opportunities and constraints for increased conservation. The effects of existing City plans, zoning, codes and ordinances, policy guidelines, and existing constraints on development (such as steep slopes, wetlands, or utility easements) were considered in identifying opportunities and constraints for conservation. Existing conservation agreements (e.g., existing preserve areas in Mission Trails Regional Park) were reviewed to identify potential opportunities for achievement of conservation goals complementary with existing protected open space (see Chapter 5, *Conservation Strategy*).
6. The results of these planning studies—which were performed with input from property owners, the City, the Wildlife Agencies, and other interested parties—were used to establish a Subarea Plan Preserve System and preserve assembly mechanisms that would meet conservation goals while minimizing adverse effects of preserve implementation on property owners or the public. Certain properties were included as hardline development/preserve boundaries, incorporating these commitments into the Subarea Plan. (see Chapter 5, *Conservation Strategy*).
7. Preserve designation categories were used as part of the Subarea Plan Preserve System to reflect their existing or intended conservation targets (proposed target conservation levels for areas of the preserve are either 75% or 100% conservation) (see Chapter 5, *Conservation Strategy*).

1.5 Key Entities in the Preparation of Subarea Plan

1.5.1.1 City of Santee

The City of Santee Department of Development Services is the lead in the development of the Subarea Plan. Other City departments, including fire, public works, engineering, and finance, assisted in the preparation of this Subarea Plan.

The Santee City Council has been briefed and updated on the progress and content of the Subarea Plan. The City Council is responsible for approval of the Subarea Plan and signature of the IA.

1.5.1.2 Science Advisors

USFWS "encourage[s] the use of scientific advisory committees during development and implementation of an HCP" (*Federal Register* [FR], volume 65, no. 106 35256, June 1, 2000). Independent scientific input is required by the NCCPA (Section 2810[b][5]). Since the Santee MSCP Subarea Plan is part of the MSCP Subregional Plan (which included a Science Advisor review), the City facilitated an independent scientific review of the conservation analysis with a focus on those species which are proposed for coverage under the Subarea Plan and that are not otherwise covered by the MSCP. Accordingly, the City obtained input and review for the Quino checkerspot butterfly, Hermes copper butterfly, and western spadefoot toad. The Science Advisors were chosen based on

their knowledge of the key species, including their technical expertise as it relates to the species and habitats addressed in the Subarea Plan. Criteria for panel selection included:

- Expertise in the ecology or population biology key Covered Species.
- Expertise in species biology and its application to conservation planning.
- No direct affiliation with the City or the Subarea Plan consultants.

The Science Advisor report for Quino checkerspot butterfly and Hermes copper butterfly were completed by AECOM (led by Michael Klein) in 2009. A Science Advisor report for the western spadefoot toad was completed by the USGS Western Ecological Research Center (led by Carlton Rochester and Robert Fisher) in 2017. Copies of the Science Advisors' final reports are included as Appendix F, *Science Advisor Reports*.

1.5.1.3 Consultant Team

The Subarea Plan was prepared by a consultant team under the guidance and direction of the City. The consultant team consisted of scientific, planning, legal, and other technical staff from ICF International (formerly Jones & Stokes) in San Diego. Ebbin Moser + Skaggs, LLP (EMS) provided legal review and input of the Subarea Plan and was responsible for development of the Implementing Agreement.

1.5.1.4 Wildlife Agency Technical Coordination

Representatives of the City, consultants, and the Wildlife Agencies held frequent meetings to address project coordination and technical issues during the preparation of the Subarea Plan. Members of the Wildlife Agencies provided review and guidance of a number of key elements of the Plan.

1.6 Public Outreach and Involvement

Public outreach and involvement has been addressed through public workshops with the City Council during the preparation of the Subarea Plan and in conjunction with the public review of the EIR/EIS. The following items were managed through the public forum for the City.

- Access to information by all interested and affected parties, groups, and agencies.
- Clear and understandable information about the Subarea Plan and its potential impacts on the physical, biological, economic, and social environment.
- Meaningful opportunities for the public and agencies to actively engage interested parties in the development and evaluation of proposed conservation measures and strategies.
- Identification of key issues that must be addressed in the CEQA/NEPA review process.

The City has developed the Subarea Plan in compliance with USFWS's public involvement guidelines (USFWS 2016) and the requirements of the NCCPA. Public workshops were held to receive public input on the Subarea Plan and EIR/EIS.

1.7 Document Organization

The Subarea Plan and supporting information are presented in the chapters and appendices listed below.

Chapter 1, *Introduction and Overview*, discusses the background, Subarea Plan goals, purpose and need, consistency with the MSCP Subregional Plan, and scope of the Subarea Plan; reviews the regulatory setting; and summarizes the Subarea Plan planning process.

Chapter 2, *Existing Conditions*, describes the existing physical setting, land use, and biological resource conditions of the Subarea Plan Area.

Chapter 3, *Covered Species*, describes the Covered Species list and includes species profiles.

Chapter 4, *Covered Activities and Impact Assessment*, provides an inventory of the Covered Activities and includes an analysis of estimated impacts.

Chapter 5, *Conservation Strategy*, summarizes the Subarea Plan Biological Goals and Objectives and describes the Conservation Strategy that includes establishment of a Preserve System, management and enhancement of the Preserve System, and avoidance, minimization, and mitigation of impacts.

Chapter 6, *Conservation Analysis*, analyzes whether the Conservation Strategy achieves the Subarea Plan goals and objectives.

Chapter 7, *Management and Monitoring*, discusses the monitoring requirements and adaptive management procedures associated with implementing Preserve management.

Chapter 8, *Plan Implementation*, details the roles and responsibilities of the entities responsible for Plan implementation, including descriptions of Plan funding, annual reporting requirements, steps for amending the Plan, and requirements for addressing changed and unforeseen circumstances.

Chapter 9, *List of Preparers*, identifies the individuals involved in the preparation of the Plan.

Chapter 10, *Literature Cited*, provides a comprehensive bibliography of references cited in the text.

Appendix A, *Implementing Agreement*, outlines the conditions, duties, and responsibilities of the City and Wildlife Agencies under this Subarea Plan.

Appendix B, *MSCP Subregional Plan Tables*, includes copies of key tables that identify the targets for conservation in the Santee Subarea Plan Area.

Appendix C, *NCCP Act of 1991 and Relevant Sections of S.B. 107*, includes copies of the NCCPA.

Appendix D, *Protected Land Inventory*, provides a detailed inventory for the status, ownership, legal land protection mechanisms, and level of management for each property of currently protected open space in Santee.

Appendix E, *Vegetation Communities Descriptions,* contains descriptions of the vegetation community types that occur within the Subarea Plan Area.

Appendix F, *Science Advisor Reports*, contains the following sub-appendices:

Appendix F.1, *Revised Final Independent Scientific Advisory Report for the Conservation Strategy for Quino Checkerspot Butterfly in the City of Santee*.

Appendix F.2, *Revised Final Independent Scientific Advisory Report for the Conservation Strategy for Hermes Copper Butterfly in the City of Santee*.

Appendix F.3, *Draft Final Western Spadefoot (Spea hammondii): Independent Scientific Advisor Report for the City of Santee Multiple Species Conservation Plan (MSCP) Subarea Plan*.

Appendix G, *Vernal Pool Conservation Standards*, includes details on the requirements for vernal pool avoidance, protection, enhancement, mitigation, management, and monitoring.

Appendix H, *General Plan, Zoning and Land Use Regulation Implementation Actions*, provides details of how the City will amend the General Plan, Zoning Ordinance, and other land use regulations to incorporate the Subarea Plan by reference and adapt resource management goals and policies.

Appendix I, *Covered Activities Impact Analysis Calculations,* includes tables of the impacts on biological resources for each individual Covered Activity.

Appendix J, *Subarea Plan Funding Calculations*, includes assumptions and tables used to determined funding requirements for the Subarea Plan implementation.

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Chapter 2
Existing Conditions

2.1 Regional Location

The City of Santee (Subarea Plan Area) is located approximately 18 miles east of downtown San Diego (Figure 1-1). Santee is bordered on the east by primarily residential development in the unincorporated San Diego County communities of Lakeside and Eucalyptus Hills and to the northeast by vacant land and active mining operations in Slaughterhouse Canyon (Figure 2-1). To the south, Santee is bordered by the City of El Cajon, unincorporated areas of the County of San Diego and the Gillespie Field Airport and further to the southwest by Mission Trails Regional Park property located in the City of San Diego.

2.2 Physical Setting

This section describes the physical setting of the Subarea Plan Area, including physical geography, soils, hydrology, and climate.

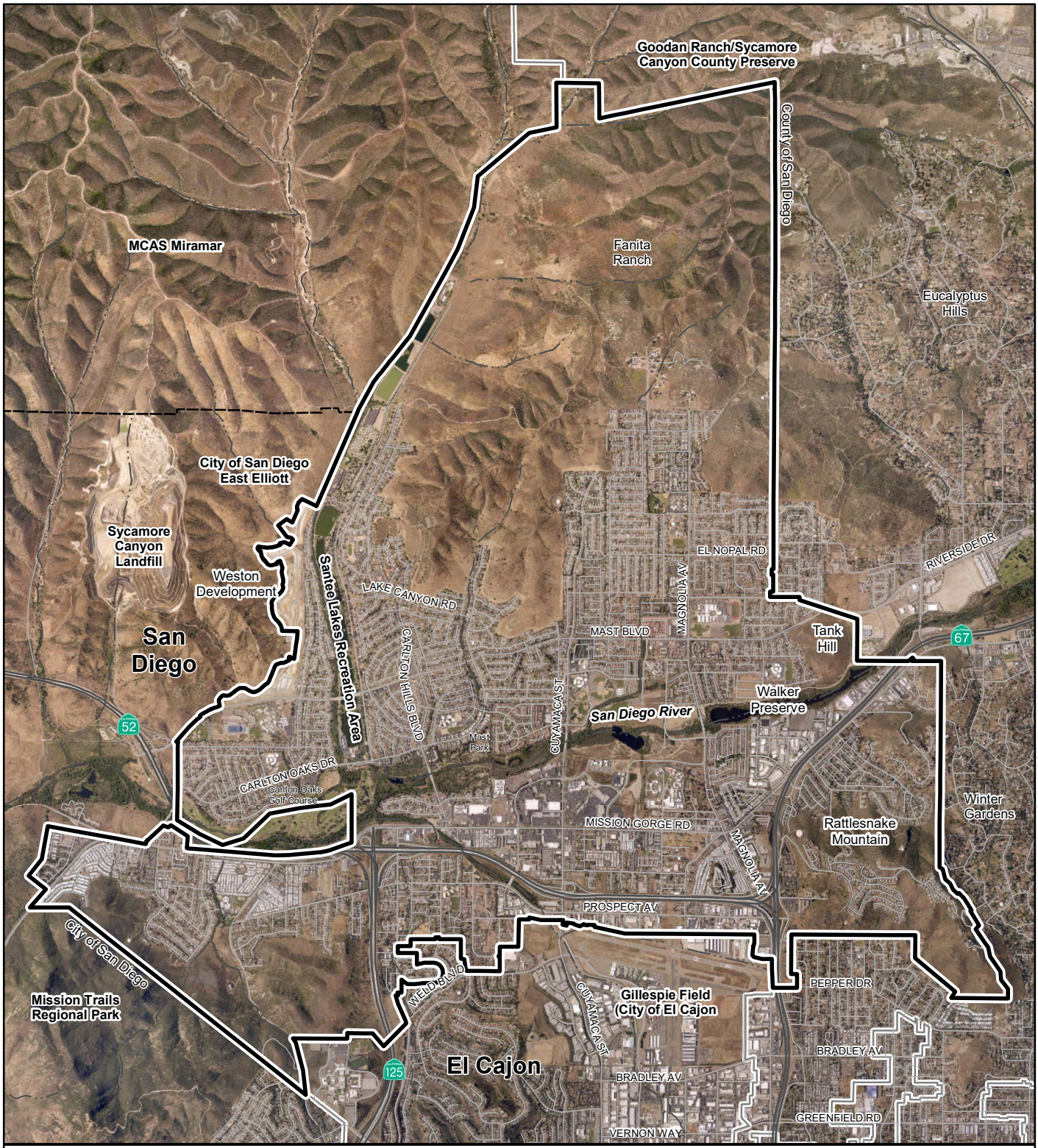
2.2.1 Geography and Topography

The Subarea Plan Area encompasses about 16.7 square miles (approximately 10,710 acres) in eastern San Diego County. Two main topographic features exist within the City of Santee: the coastal plain of the Coastal Province, and the foothills of the Peninsular Range Province (Santee 2003). The narrow coastal plain, which is dominated by terraces or mesas and dissected by the San Diego River, occupies the majority of the City. This area, which is found in the center of the City, is characterized by relatively flat topography. Within the north and southeastern portions of the City are the foothills of the Peninsular Range. Topography is generally steeper in the far northern areas of the City, including the Carlton Hills and Fanita Ranch areas, and in the south including the Rattlesnake Mountain, Mission Trails, and Grossmont Mesa areas. Topographic elevations range from approximately 300 to 1,200 feet within the City (Figure 2-2).

Biological resources (plants and wildlife) are often distributed based on the topographic characteristics. To further define and categorize the landforms within the Subarea Plan Area, a topographic position index approach (Weiss 2001, Jenness et al. 2013) was used to classify the landscape into broad topographic positions, namely mesas, ridges, slope-top, slope-middle, slope-bottom, and valley floor (Figure 2-3).

2.2.2 Hydrology and Drainages

The Subarea Plan Area has six major drainage courses (Figure 2-4), including the San Diego River and its tributaries: Forester Creek, Sycamore Creek, Woodglen Vista Creek, Fanita Creek, and Big Rock Creek, which parallels Big Rock Road. All of the creeks have their own watersheds in addition to lying within the larger San Diego River watershed. Forester Creek drains the runoff from the north facing slopes of hills within the City of El Cajon. Sycamore Creek drains the runoff from Sycamore Canyon, Quail Creek Canyon through the Weston development, and from Carlton Hills, and the creeks running parallel to Fanita Drive and Big Rock Road drain the runoff from Cowles



Legend

- Subarea Plan Area
- MCAS Miramar

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Feet

Basemap Source: SANDAG Imagery 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-1 Plan Area Overview.mxd Date: 12/19/2018 34153

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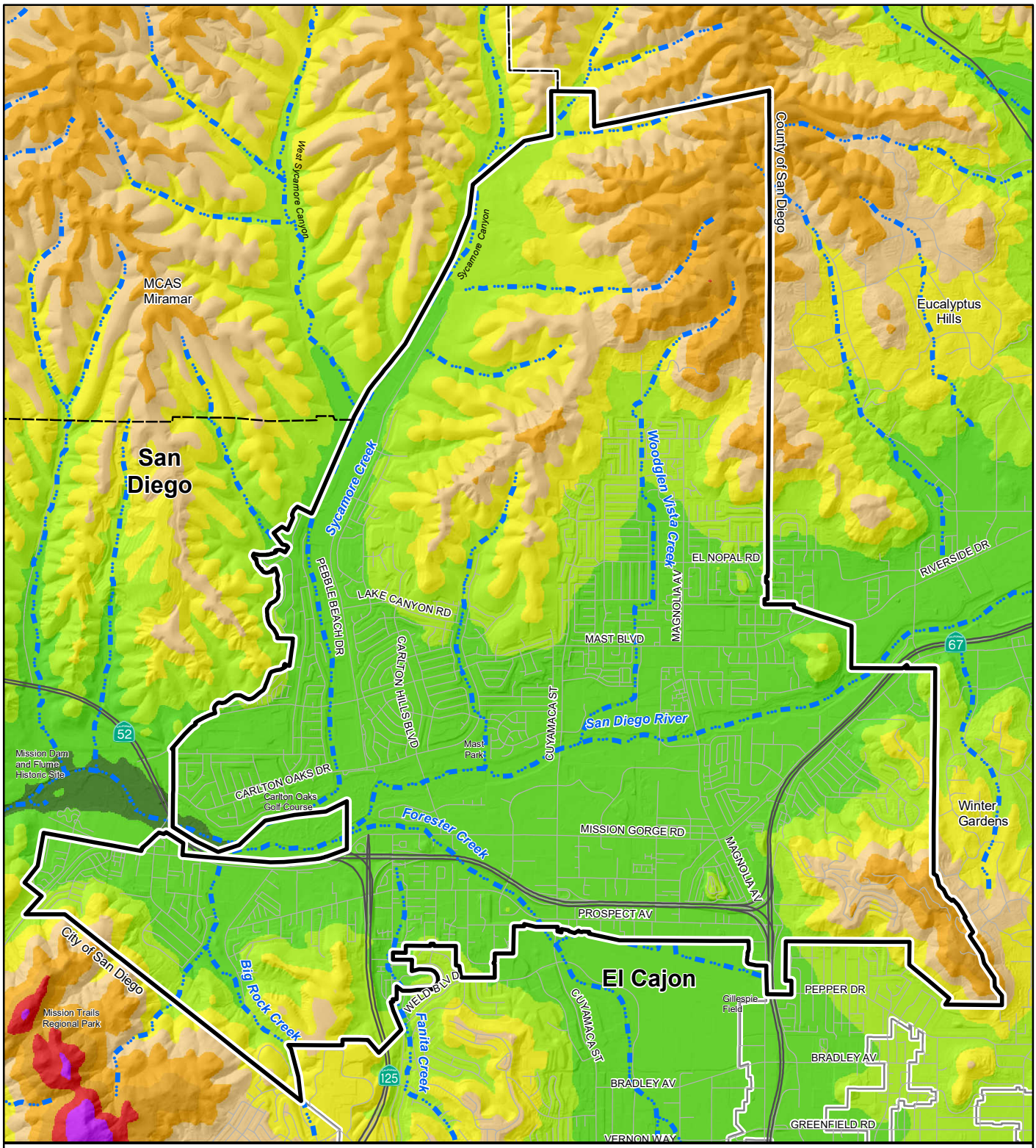
Figure 2-1
Subarea Plan Area Overview
Santee MSCP Subarea Plan



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-2 Topography.mxd Date: 12/19/2018 34153

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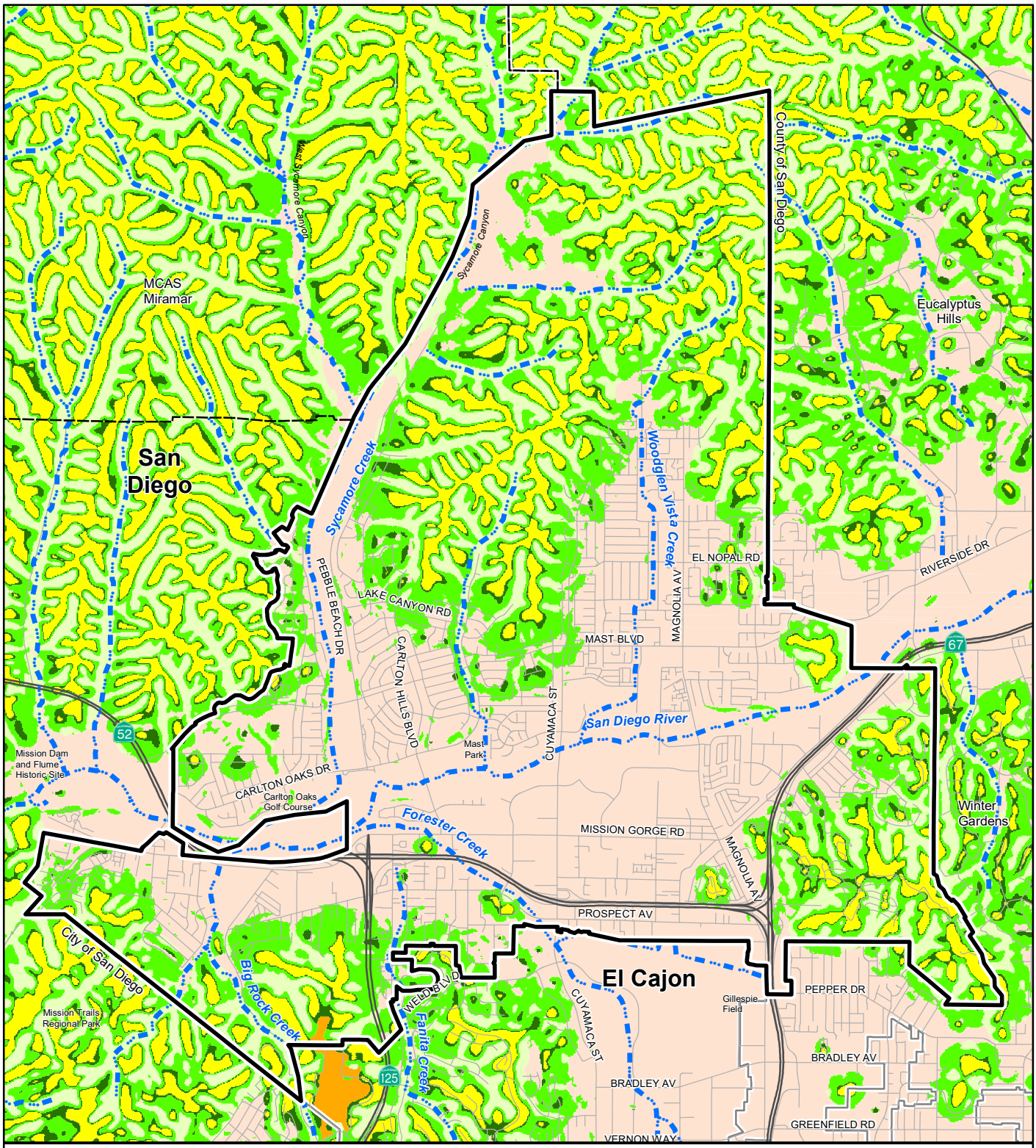
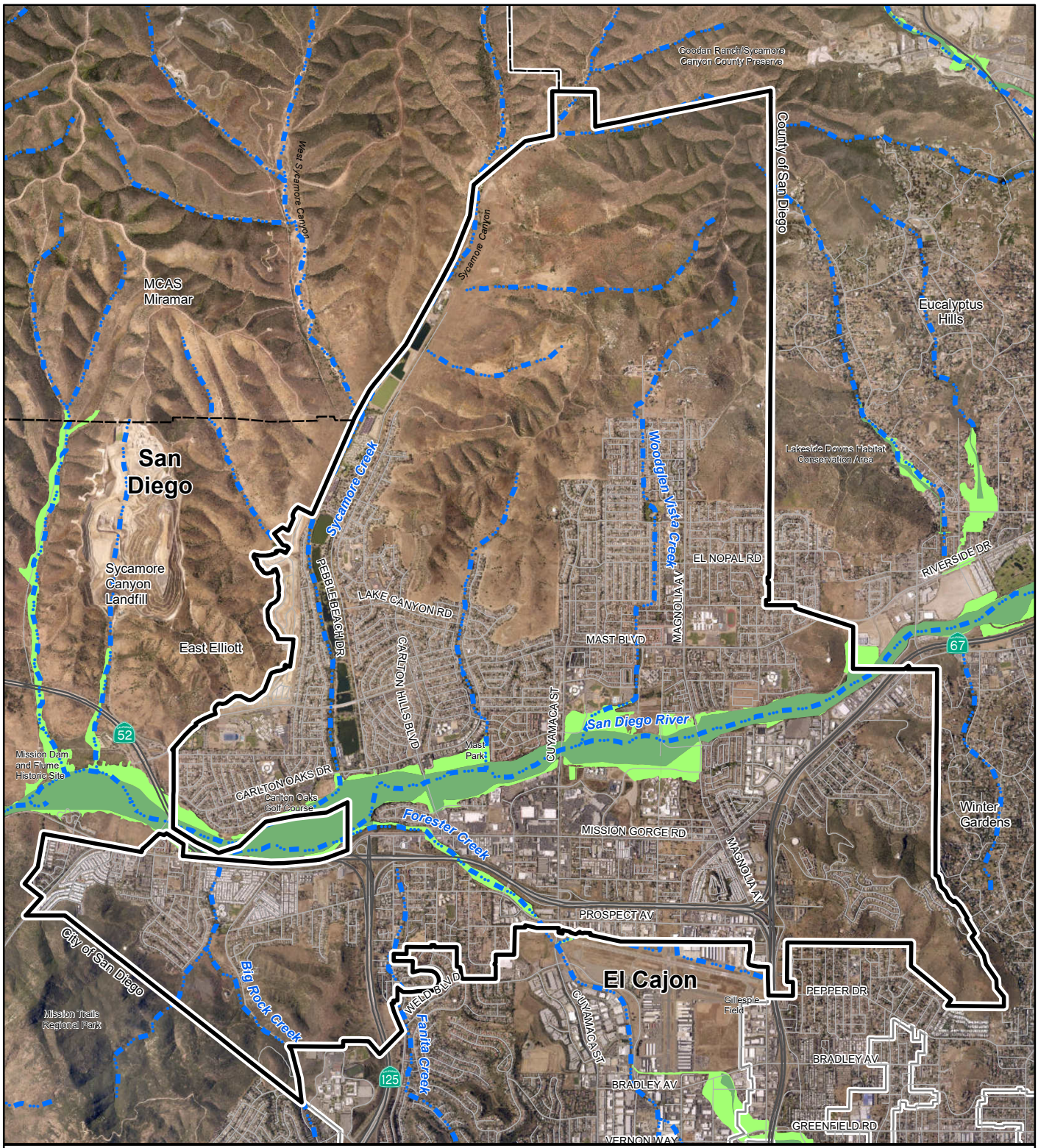
Figure 2-2
Topography
Santee MSCP Subarea Plan



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-3 Landforms Based on Topographic Position Index.mxd Date: 12/19/2018 34153

Figure 2-3
Landforms Based on Topographic Position Index
Santee MSCP Subarea Plan



Legend

- Subarea Plan Area
- 100-Year Floodway
- 100-Year Floodplain
- Drainages
- MCAS Miramar

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Feet

Sources: Floodplain – FEMA 2017; Drainages - USGS NHD

Basemap Source: SANDAG Imagery 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-4 Hydrology and Drainages.mxd Date: 12/19/2018 34153

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Figure 2-4
Hydrology and Drainages
Santee MSCP Subarea Plan

Mountain and Fanita Hills located within the City of El Cajon. All of these watersheds empty into the San Diego River, which flows westward into the Pacific Ocean.

Although none of these waterways have been fully improved, portions of the San Diego River and Forester Creek have been partially improved to mitigate potential flood hazards or prevent localized erosion. Even with these flood control measures, portions of Santee would be inundated by a 100-year flood event (FEMA 2016) (Figure 2-4). The lower portions of Sycamore Creek have not been mapped by FEMA for 100-year floodplain boundaries but have experienced flooding events.

The Padre Dam Municipal Water District (PDMWD) has been operating the wastewater reclamation facility at the Santee Lakes Recreation Area since 1961. This facility includes a plant which processes and treats approximately two million gallons of sewage per day that is currently utilized within the seven recreational lakes and for irrigation at the Santee Recreational Lakes Regional Park, freeway rights-of-way, City medians and parks, schools, and other applications City-wide.

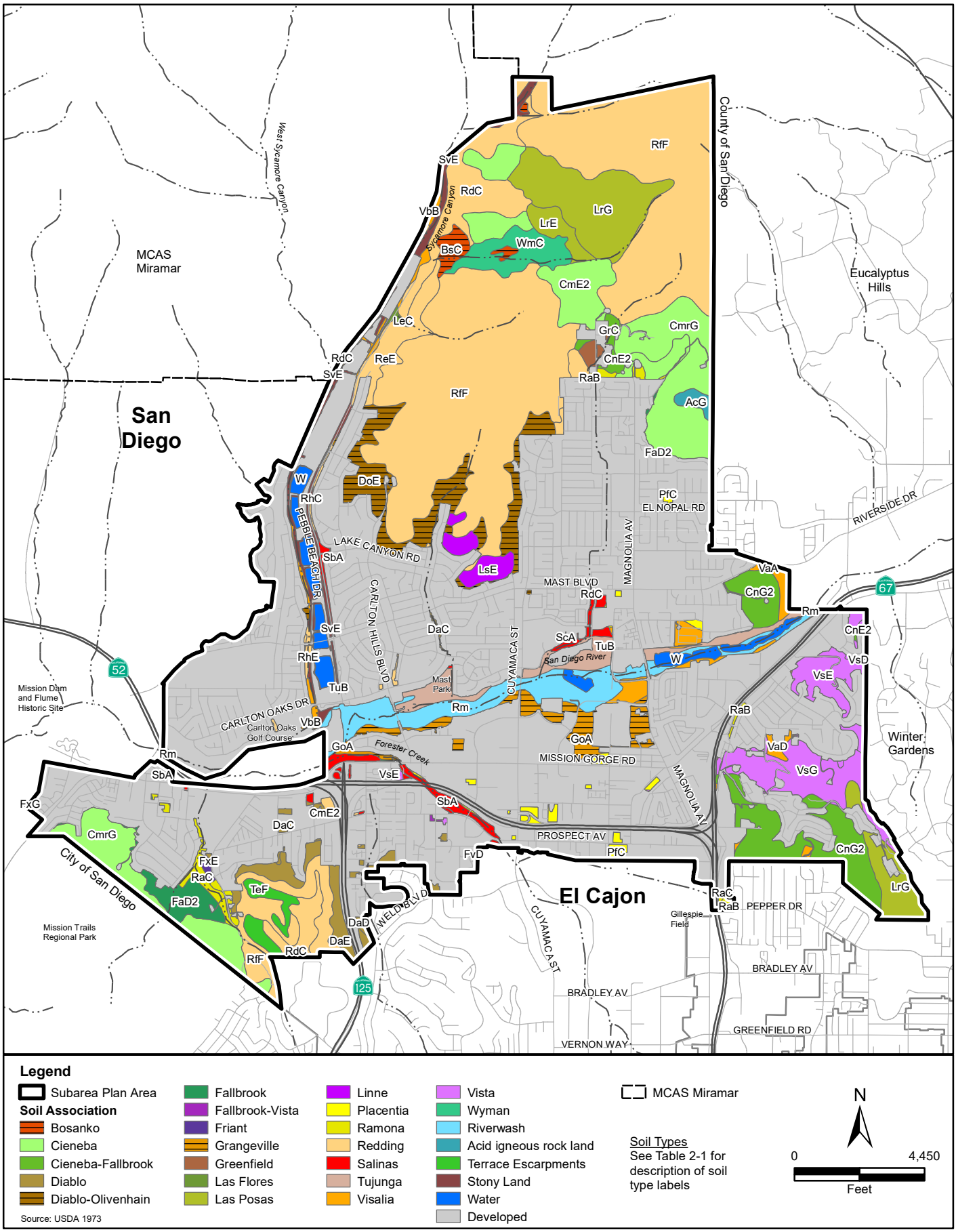
2.2.3 Geology and Soils

The geology and subsurface formations of Santee include Eocene Age sediments of the Friars Formation and Stadium Conglomerate, which comprise the marine terraces of the coastal plain landform. These sediments are generally underlain by granitic rock, which comprises the primary subsurface formation of the Peninsular Range. The rock strata underlying Santee were created as a result of the compaction of various rock sediments over thousands of years, thus its sedimentary designation. Alluvium and colluvium surficial deposits occur in the drainage bottoms and lower slopes within the City.

Soils vary across the Subarea Plan Area. Soil differences arise from a variety of factors, including physical and mineral composition of soil parent material, relief or slope of the land, climate, biological activity, and length of time the forces of formation have acted on the soil material (USDA 1973). Soil type and texture is often a factor in determining the distribution of Covered Species. As background information, a generalized map of the soils for undeveloped portions of the Subarea Plan Area is included as Figure 2-5, in which the information from the soil survey for San Diego County (USDA 1973) is aggregated into 20 soil associations; more detailed soil types are listed in Table 2-1.

Table 2-1. Soils Types within Undeveloped Areas of Subarea Plan Area

Soil Association	Soil Type Label	Soil Type Description	Acres
Acid igneous rock land	AcG	Acid igneous rock land	17.8
Bosanko	BsC	Bosanko clay, 2 to 9 percent slopes	33.6
Cieneba	CmE2	Cieneba rocky coarse sandy loam, 9 to 30 percent slopes, eroded	197.5
Cieneba	CmrG	Cieneba very rocky coarse sandy loam, 30 to 75 percent slopes	400.6
Cieneba-Fallbrook	CnE2	Cieneba-Fallbrook rocky sandy loams, 9 to 30 percent slopes, eroded	20.9
Cieneba-Fallbrook	CnG2	Cieneba-Fallbrook rocky sandy loams, 30 to 65 percent slopes, eroded	230.6
Diablo	DaC	Diablo clay, 2 to 9 percent slopes	12.0



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-5 Soils.mxd Date: 12/19/2018 34153

Figure 2-5
Soils
Santee MSCP Subarea Plan

Soil Association	Soil Type Label	Soil Type Description	Acres
Diablo	DaD	Diablo clay, 9 to 15 percent slopes	7.9
Diablo	DaE	Diablo clay, 15 to 30 percent slopes	80.2
Diablo-Olivenhain	DoE	Diablo-Olivenhain complex, 9 to 30 percent slopes	195.3
Fallbrook	FaB	Fallbrook sandy loam, 2 to 5 percent slopes	0.8
Fallbrook	FaC	Fallbrook sandy loam, 5 to 9 percent slopes	0.1
Fallbrook	FaD2	Fallbrook sandy loam, 9 to 15 percent slopes, eroded	61.0
Fallbrook-Vista	FvD	Fallbrook-Vista sandy loams, 9 to 15 percent slopes	1.7
Friant	FxE	Friant rocky fine sandy loam, 9 to 30 percent slopes	5.3
Friant	FxG	Friant rocky fine sandy loam, 30 to 70 percent slopes	0.5
Grangeville	GoA	Grangeville fine sandy loam, 0 to 2 percent slopes	92.9
Greenfield	GrC	Greenfield sandy loam, 5 to 9 percent slopes	11.9
Las Flores	LeC	Las Flores loamy fine sand, 2 to 9 percent slopes	5.4
Las Posas	LrE	Las Posas stony fine sandy loam, 9 to 30 percent slopes	40.2
Las Posas	LrG	Las Posas stony fine sandy loam, 30 to 65 percent slopes	313.8
Linne	LsE	Linne clay loam, 9 to 30 percent slopes	51.9
Placentia	PfC	Placentia sandy loam, thick surface, 2 to 9 percent slopes	34.9
Ramona	RaB	Ramona sandy loam, 2 to 5 percent slopes	20.5
Ramona	RaC	Ramona sandy loam, 5 to 9 percent slopes	26.8
Redding	RdC	Redding gravelly loam, 2 to 9 percent slopes	224.3
Redding	ReE	Redding cobbly loam, 9 to 30 percent slopes	92.7
Redding	RfF	Redding cobbly loam, dissected, 15 to 50 percent slopes	1,835.9
Redding	RhC	Redding-Urban land complex, 2 to 9 percent slopes	7.6
Redding	RhE	Redding-Urban land complex, 9 to 30 percent slopes	6.2
Riverwash	Rm	Riverwash	206.9
Salinas	SbA	Salinas clay loam, 0 to 2 percent slopes	48.2
Salinas	ScA	Salinas clay, 0 to 2 percent slopes	15.5
Stony Land	SvE	Stony land	86.6
Terrace Escarpments	TeF	Terrace escarpments	43.3
Tujunga	TuB	Tujunga sand, 0 to 5 percent slopes	102.4
Visalia	VaA	Visalia sandy loam, 0 to 2 percent slopes	59.6
Visalia	VaD	Visalia sandy loam, 9 to 15 percent slopes	13.5
Visalia	VbB	Visalia gravelly sandy loam, 2 to 5 percent slopes	27.9
Vista	VsD	Vista coarse sandy loam, 9 to 15 percent slopes	5.3
Vista	VsE	Vista coarse sandy loam, 15 to 30 percent slopes	79.2
Vista	VsG	Vista coarse sandy loam, 30 to 65 percent slopes	153.4
Water	W	Water	104.3
Wyman	WmC	Wyman loam, 5 to 9 percent slopes	89.7
Developed		Developed	5,643.4
		Subarea Plan Area Total:	**10,710.0**

Source: USDA 1973.

2.2.4 Climate

Southern California is known for its generally mild weather and Mediterranean climate, typically characterized by relatively small changes in seasonal temperature, a dry summer, and a rainy winter. The dry summer season is maintained by the semipermanent eastern Pacific high pressure area, triggering warm dry air from above to come in contact with the cool ocean air under an inversion below. This pattern creates a blanket of low, heavy clouds known as the marine layer, which is a dominant feature in the coastal areas and foothills of southern California, including San Diego County. The marine layer develops and extends inland most nights and dissipates by mid- to late morning, depending on variations in the Pacific high pressure that affect the thickness of the marine layer. While occasional Santa Ana winds from the east bring higher summer temperatures, the marine layer typically keeps temperatures from the 70s to 80s (degrees [°] Fahrenheit [F]) in summer months (Table 2-2). The annual maximum temperatures in Santee average approximately 6° F higher than temperatures near the coast.

Significant precipitation is rare between May and October, primarily because of the effect of the stable marine layer. When rain does occur during the summer season, it typically is associated with subtropical moisture and isolated thundershowers. During the rainy season (November through April), the northern hemisphere polar jet stream displaces the eastern Pacific high pressure ridge over Orange County. The colder air brought by the jet stream prevents the marine layer from forming as often, and Pacific storms and cold fronts move across California from northwest to southeast, dropping the majority of the precipitation received in San Diego County. The average annual precipitation for the county is variable and terrain-dependent, ranging from approximately 10 inches at the ocean to about 15 to 20 inches in parts of the eastern foothills. At the Gillespie Field weather station, the average seasonal rainfall is 12.09 inches, the annual average high temperature is 76.5°F, and the annual average low is 50.3°F (Table 2-2).

Table 2-2. Monthly Climate Summary for Gillespie Field Weather Station, California[1]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	67.2	68.8	69.9	72.1	75.5	82.4	86.9	86.9	84.3	80.1	70.1	67.2	76.2
Average Min. Temperature (°F)	40.1	41.5	45.2	48.4	53.8	57.7	61.6	62.6	60.5	53.5	42.9	39.1	50.7
Average Total Precipitation (in.)	2.39	2.15	2.10	0.83	0.40	0.10	0.00	0.29	0.35	0.70	1.13	1.65	12.09

Source: Western Regional Climate Center 2000.

1 Period of Record: 1971 – 2000 Monthly Climate Summary.

The following summarizes projections of future climate for the Subarea Plan Area that have been developed for the City's Sustainability Action Plan (City of Santee 2018). Studies show that California will experience warmer temperatures, increased drought, and more extreme weather events (California Natural Resources Agency and California Energy Commission 2012). The impacts to the Subarea Plan Area will be similar.

- **Increased temperatures**—By the end of this century, the average United States temperatures are predicted to increase by 3°F to 12°F, depending upon the amount of future emissions and how the earth responds to those emissions (U.S. Global Change Research Program 2014). For California, the average annual temperature is expected to rise by 2.7°F by 2050 and 4.1 to 8.6°F

by the end of the century (California Natural Resources Agency and California Energy Commission 2012). For the Subarea Plan Area, average temperatures are expected to increase between about 5°F and 10°F by the end of the century, depending on the emission scenario (Scripps Institution of Oceanography 2017).

- **Variable precipitation**— Globally, future precipitation is highly variable, and California is no exception. Annual precipitation in California is expected to increase by more than 12 percent through the end of the 21st century. Most of this increase is expected in Northern and Central California; precipitation in Southern California is expected to decrease by 3.3 percent. All regions of California are expected experience wetter winters, with Southern California rain increasing by 11 percent during the rainy months of December, January, and February (Allen and Luptowitz 2017).
- **Increase in extreme weather events**—The historical number of extreme heat days (days over 99.9°F) has averaged approximately four days per year in Santee. By 2050, the number of extreme heat days in the Subarea Plan Area could increase to more than 12 days per year, and by the end of the century, the number of extreme heat days could exceed 40 per year (Scripps Institution of Oceanography 2017). In addition, the length of extremely hot days will increase. Historically, the maximum duration of heat waves in the city has been four, but may increase to 10 by mid-century and 20 to 45 by the end of the century.

2.3 Land Use

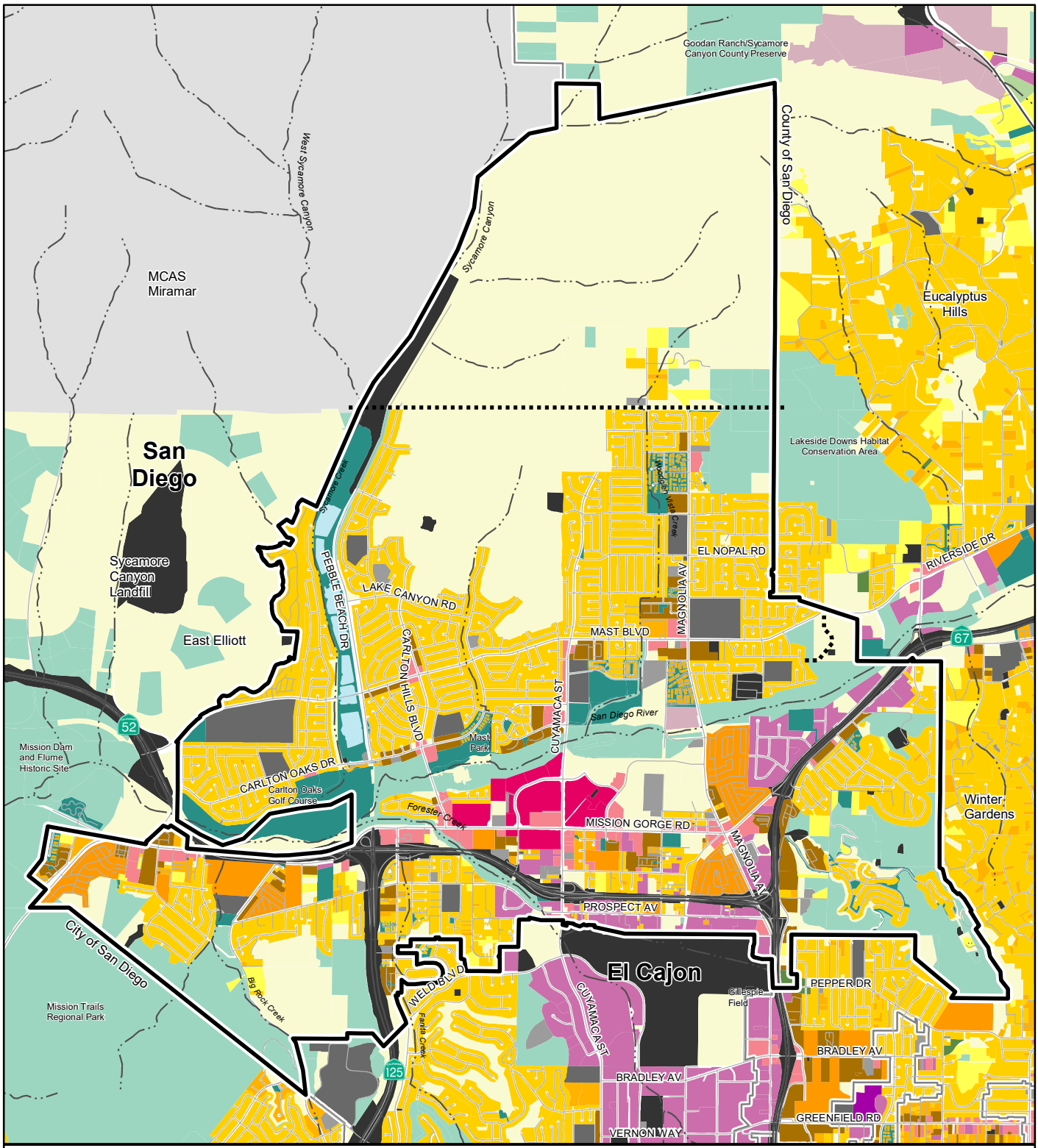
This section describes the existing land uses, planned land uses (General Plan), and protected open space within and surrounding the Subarea Plan Area.

2.3.1 Existing Land Use

Information on existing land use is based on mapping by the San Diego Association of Governments (SANDAG) (SANDAG 2015a) with updates to reflect recent development and adjustments to make the mapping of Open Space/Preserves to be consistent with mapping of protected open space lands (see Section 2.3.4, "Protected Open Space"). Approximately 55% of the City is developed with residential, commercial, industrial, and transportation areas (Table 2-3, Figure 2-6). Section 2.3.4, "Protected Open Space" provides more details of how much of the 45% of the City that is remains undeveloped is currently protected open space.

Table 2-3. Existing Land Uses within Santee

Existing Land Use Description	Total Acres	Percent of Total
Residential		
Spaced Rural Residential	114.8	1.1%
Single Family Detached	2,257.8	21.1%
Single Family Attached	122.9	1.1%
Mobile Homes	295.5	2.8%
Multiple Family	269.0	2.5%
Commercial and Office		
Shopping Centers	145.1	1.4%
Commercial and Office	179.4	1.7%



Legend

- Subarea Plan Area
- SDG&E Transmission Line

RESIDENTIAL
- Spaced Rural Residential
- Single Family Detached
- Single Family Attached
- Mobile Homes
- Multiple Family

COMMERCIAL AND OFFICE
- Shopping Centers
- Commercial and Office

INDUSTRIAL
- Heavy Industry
- Light Industry
- Extractive Industry

PUBLIC FACILITIES AND UTILITIES
- Transportation/Communications/Utilities
- Education
- Institutions
- Military

PARKS AND RECREATION
- Recreation
- Designated Open Space/Preserves

AGRICULTURE
- Intensive Agriculture
- Extensive Agriculture

UNDEVELOPED
- Undeveloped
- Water

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Source: SANDAG 2015a

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Figure 2-6
Existing Land Use
Santee MSCP Subarea Plan

Existing Land Use Description	Total Acres	Percent of Total
Industrial		
Light Industry	265.2	2.5%
Extractive Industry	15.7	0.1%
Public Facilities and Utilities		
Road Right of Way	992.7	9.3%
Transportation/Communications/Utilities	443.3	4.1%
Education	231.1	2.2%
Institutions	95.5	0.9%
Parks and Recreation		
Recreation	425.1	4.0%
Open Space Parks/Preserve	1,228.4	11.5%
Agriculture		
Intensive Agriculture	4.7	0.0%
Undeveloped		
Undeveloped	3,557.9	33.2%
Water	66.3	0.6%
Total	**10,710.0**	**100.0%**

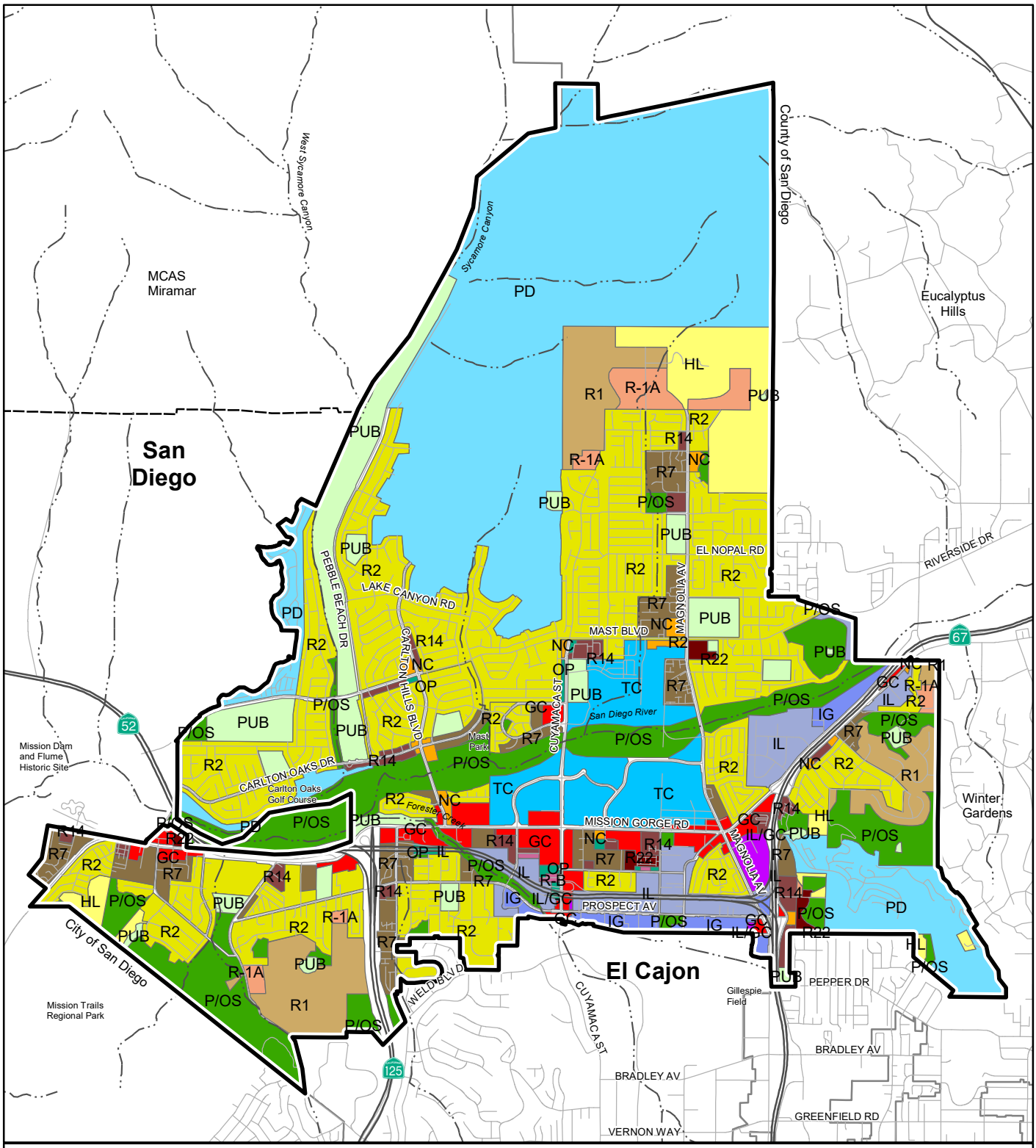
Source: SANDAG 2015a. Existing Land Use GIS data with updates made by ICF to reflect current development and consistency with protected open space mapping.

2.3.2 Planned Land Use

The City of Santee General Plan (adopted by the City Council on August 27, 2003) serves as a long-term policy guide for physical, economic, and environmental growth. It is a statement of the community's vision for ultimate growth. State law requires that every city prepare and adopt a comprehensive long-range plan to serve as a guide for the development of the community. City actions, such as those relating to land use allocations, annexations, zoning, subdivision and design review, redevelopment, and capital improvements must be consistent with the General Plan. The General Plan designates land use categories for the entire city. Each land use category is identified and defined within the General Plan and includes information on the general uses, development, intensity, siting, and compatibility uses. The General Plan Land Use Map is shown in Figure 2-7 and a summary of the acreage of each planned land use category in Santee is included in Table 2-4.

Table 2-4. Planned Land Uses within Santee

Planned Land Use Description	Title	Total Acres	Percent of Total
Hillside/Limited Residential (0 - 1 du/ac)	HL	374.1	3.5%
Low Density Residential (1 - 2 du/ac)	R1	502.1	4.7%
Low - Medium Density Residential (2 - 4 du/ac)	R-1A	127.4	1.2%
Low - Medium Density Residential (2 - 5 du/ac)	R2	2,801.4	26.2%
Medium Density Residential (7 - 14 du/ac)	R7	393.2	3.7%
Medium - High Density Residential (14 - 22 du/ac)	R14	135.7	1.3%
High Density Residential (22 - 30 du/ac)	R22	38.5	0.4%
Residential - Business	R-B	6.5	0.1%
Office Professional	OP	23.5	0.2%
Neighborhood Commercial	NC	49.4	0.5%



Legend

- Subarea Plan Area
- MCAS Miramar

Planned Land Use

- HL — Hillside/Limited Residential (0 - 1 du/ac)
- R1 — Low Density Residential (1 - 2 du/ac)
- R-1A — Low - Medium Density Residential (2 - 4 du/ac)
- R2 — Low - Medium Density Residential (2 - 5 du/ac)
- R7 — Medium Density Residential (7 - 14 du/ac)
- R14 — Medium - High Density Residential (14 - 22 du/ac)
- R22 — High Density Residential (22 - 30 du/ac)
- R-B — Residential - Business
- OP — Office Professional
- NC — Neighborhood Commercial
- GC — General Commercial
- IL/GC — Light Industrial/ General Commercial
- IL — Light Industrial
- IG — General Industrial
- TC — Town Center
- PD — Planned Development
- P/OS — Designated Open Space / Preserves
- PUB — Public

Source: Planned Land Use - Santee 2003

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Figure 2-7
Planned Land Use
Santee MSCP Subarea Plan

Planned Land Use Description	Title	Total Acres	Percent of Total
General Commercial	GC	220.3	2.1%
Light Industrial/General Commercial	IL/GC	38.7	0.4%
Light Industrial	IL	305.4	2.9%
General Industrial	IG	113.4	1.1%
Town Center	TC	451.6	4.2%
Planned Development	PD	3,477.7	32.5%
Park/Open Space	P/OS	1,098.8	10.3%
Public	PUB	552.3	5.2%
Total		10,710.0	100.0%

Source: City of Santee General Plan 2020 (City of Santee 2003).

2.3.3 Transportation and Utility Corridors

Major transportation corridors, roads, utility corridors, and utility facilities are relevant to conservation planning in the City as a result of the way they bisect the landscape and can act as impediments to wildlife movement. Major transportation corridors and surface streets may create barriers to habitat connectivity, while utility corridors may provide some connectivity between otherwise fragmented habitat patches. Several major arterial roadways within the City are key landscape features relevant to the Subarea Plan.

Freeways. State Route (SR) 52 crosses the San Diego River corridor at the western edge of Santee and connects to SR 125. These freeways separate natural habitat located in the southwestern portions of the City adjacent to Mission Trails Regional Park from habitat in the northern and eastern portions of the City. SR 67 crosses the eastern portion of the City, separating Rattlesnake Mountain from other areas of natural habitat. The presence of these major roadways contributes to the fragmentation of potential north-south habitat linkages across the City.

Utility Corridors. As shown in Figure 2-6, a major power line easement (SDG&E) runs east-west through the North Magnolia and Fanita Ranch areas of the City north of the intersection of Summit Avenue and Princess Joann Road. A second easement within the City is associated with the Santee Substation on Mast Boulevard. Transmission facilities are within a 20-foot wide easement located behind existing residences on Ramsgate Drive. At Ramsgate Way, the transmission line facility traverses hilly terrain and natural habitat on 'tank hill', which is located adjacent to the Walker Preserve.

2.3.4 Protected Open Space

The intent of the Santee Subarea Plan is to build upon and connect with currently protected open space within and surrounding the City of Santee (see Chapter 1, "Introduction" and Chapter 5, "Conservation Strategy"). The following sections provide a description of the currently protected open space.

2.3.4.1 Protected Open Space within Santee

Approximately 25.3% (see Table 2-5) of the remaining natural habitat within the Subarea Plan Area is within properties currently protected as open space. These properties form the foundation of the Subarea Plan Preserve System to be established under this Subarea Plan. City staff has compiled a

detailed inventory (see Appendix D, *Protected Lands Inventory*) of each property of currently protected open space. This inventory includes information on the property name, acres, property owner, land management entity, land management status, general history, land protection mechanism, description of key biological resources, acres of natural communities, known occurrences of Covered Species, site photos, and location map.

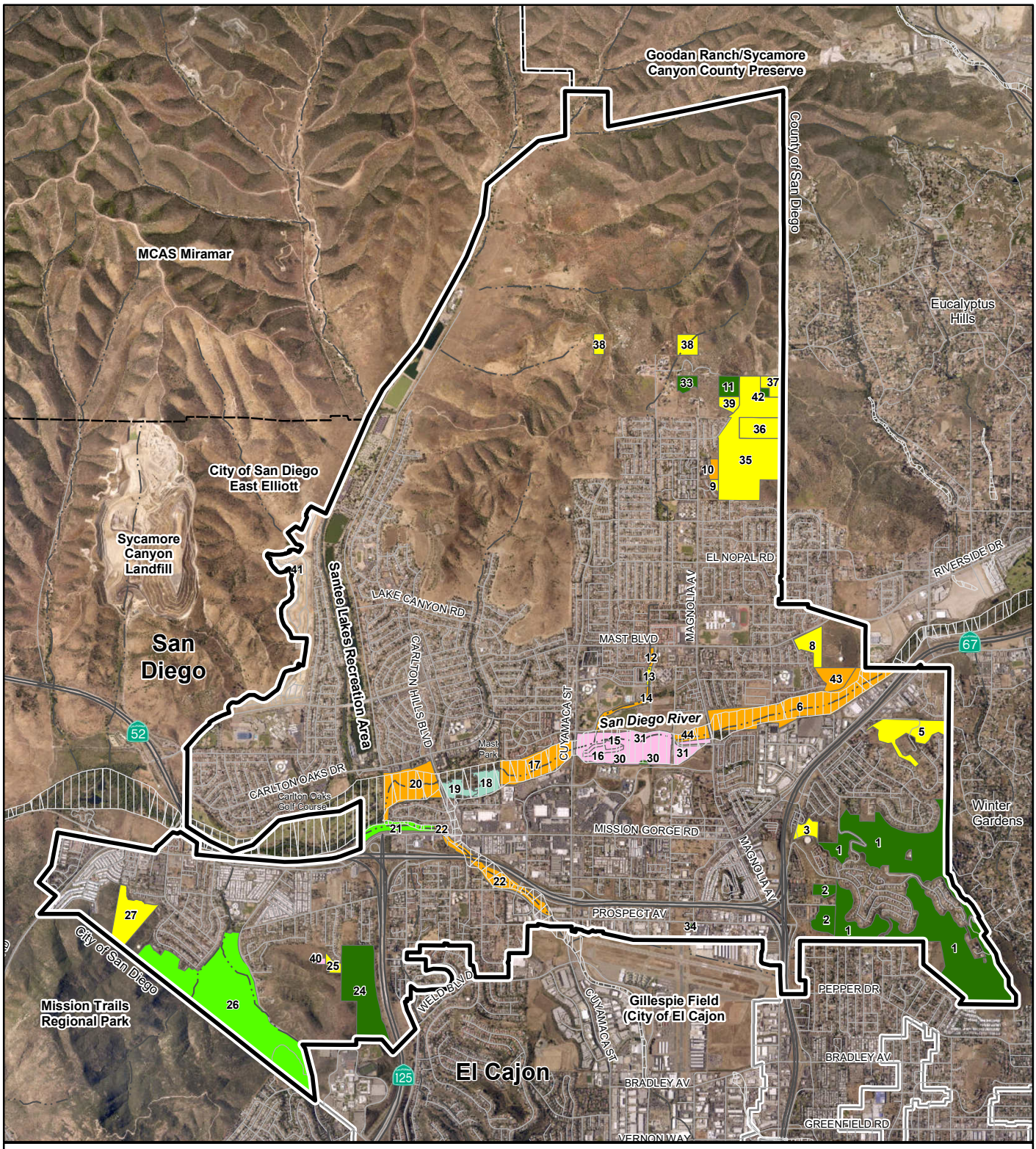
The currently protected open space properties within the City of Santee are shown in Figure 2-8. The properties have been organized based on generalized ownership (City of Santee, other public/semi-public, and private) and level of management. Properties listed as **fully managed** fulfill each of the following:

- Managed for protection of wildlife.
- Irrevocable land protection (conservation easement, Restrictive Covenant, or equivalent land protection mechanism).
- Approved habitat management plan.
- Conducts management and monitoring including, but not limited to, general stewardship, control of public access, monitoring of wildlife species, management of sensitive biological resources, and control of invasive species.
- Secure permanent funding for long-term management and monitoring.
- Provides annual reports to the City and Wildlife Agencies.

Properties listed as **currently protected, not fully managed** are protected from land development but do not meet one or more of the criteria listed above. A summary of the currently protected open space in the City of Santee is included in Table 2-5 and a description of each individual property included in Table 2-6. More detailed inventory of the currently protected lands is included in Appendix D.

Table 2-5. Summary of Currently Protected Open Space within Santee

Level of Management	Generalized Ownership	Total Acres of Natural Vegetation	Percent of Total
Currently Protected			
Currently Protected, Fully Managed			
	City of Santee	21.9	0.5%
	Public / Semi-Public	205.2	4.5%
	Private	532.0	11.6%
Fully Managed Subtotals:		759.1	16.6%
Currently Protected, Not Fully Managed			
	City of Santee	210.4	4.6%
	Public / Semi-Public	65.6	1.4%
	Private	120.5	2.6%
Not Fully Managed Subtotals:		396.5	8.7%
Currently Protected Subtotals:		1,155.6	25.3%
Not Currently Protected		**3,420.7**	**74.7%**
Subarea Plan Area Totals		4,575.6	100.0%



Legend

- Subarea Plan Area
- 100-year Floodway Overlay (Map ID – 45)
- MCAS Miramar

Protected Open Space

- Existing Preserves and Fully Managed - City of Santee
- Existing Preserves and Fully Managed - Other Public / Semi-Public
- Existing Preserves and Fully Managed - Private
- Currently Protected Open Space and Not Fully Managed - City of Santee
- Currently Protected Open Space and Not Fully Managed - Other Public / Semi-Public
- Currently Protected Open Space and Not Fully Managed - Private

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Feet

Basemap Source: SANDAG Imagery 2017

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Figure 2-8
Protected Open Space Within Santee
Santee MSCP Subarea Plan

Table 2-6. Protected Open Space Properties within Santee

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Existing Preserves, Fully Managed				
City-owned	18	Mast Park Wetland Restoration Project / Preserve	12.4	The Mast Park Wetland Restoration Project is being conducted as mitigation for impacts to jurisdictional habitat resulting from six development projects (Sky Ranch, Riverwalk, Grossmont Trolley Court Apartments, Riverview, SR 163/Friars, and Sycamore Canyon Landfill). Mitigation is being implemented in accordance with Wetland Mitigation Plan for Mast Park (Helix 2013) and Sycamore Canyon Landfill Wetland Habitat Restoration Plan (Helix 2014a). The Mast Park site was previously disturbed habitat and included abandoned ballfields. This restoration project included the creation, enhancement, and/or preservation of 12.7 acres of wetland habitat and grading to return the site as a functional floodplain for the San Diego River. Installation of the mitigation site was completed February 2016 and five-year monitoring of restoration success criteria was initiated in 2016/2017. At the end of the restoration success monitoring, this property will be managed as a preserve by the San Diego Habitat Conservancy (in conjunction with the adjacent Lowes Preserve) in accordance with Mast Park Wetland Restoration Area Project Habitat Management Plan (Helix 2014b). The project was approved under City Resolution No. 073-2007 granting a Conditional Use Permit (P07-02) for establishment of a biological habitat preserve. Recording of a Restrictive Covenant is pending. This property is shown in the Santee General Plan as Park/Open Space (P/OS).
City-owned	19	Lowes Preserve	9.4	A conservation easement was recorded August 23, 2004 to establish the Lowes Preserve as compensatory mitigation of streambed and riparian habitat as a result of the development of a Lowe's Home Improvement Store. This preserve is managed by the San Diego Habitat Conservancy. Annual reports are submitted to the City of Santee. The site includes southern riparian forest and southern willow scrub habitat that is connected to the San Diego river corridor. This property is shown in the Santee General Plan as Park/Open Space (P/OS).

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Other Public / Semi-Public				
Other Public / Semi-Public	21	Caltrans Forester Creek Mitigation Site	14.9	The Forester Creek Mitigation Site was established by Caltrans as mitigation for wetland impacts from projects including I-15 Managed Lanes Project, SR-52 Extension Project, San Diego Culvert Rehabilitation Project, and I-805 Culvert Replacement Project. The mitigation plan included riparian habitat establishment and enhancement, freshwater enhancement, coastal sage scrub/native grass establishment, and transplanting of San Diego ambrosia. Approval from the resource agencies was received in Winter 2010/2011 for the 5-year maintenance and monitoring requirements of restoration activities. Caltrans is currently the property owner and is seeking a long-term management entity. Caltrans will transfer title to a qualified Property Owner Manager (POM) to manage the property in perpetuity in accordance with the Long Term Management Plan prepared by Caltrans in August 2013 (Caltrans 2013). The primary goals of this LTMP are to (1) preserve and maintain the existing riparian habitat; (2) maintain suitable habitat for the least Bell's vireo; (3) control invasive exotic plant and animal species; (4) maintain and protect translocated populations of the federally listed San Diego ambrosia. This property is shown in the Santee General Plan as Public (PUB).
Other Public / Semi-Public	26	Mission Trails Regional Park	185.3	A portion of the Mission Trails Regional Park (MTRP) (north side of the Cowles Mountain area) extends into the City of Santee. The City of San Diego Planning Department, Park Planning Section, initiated a formal Master Plan Update (MPU) process for MTRP. As part of the MPU process, a Natural Resource Management Plan (NRMP) has also been prepared (San Diego 2017a). The NRMP, a requirement of the City of San Diego MSCP Subarea Plan, has been developed concurrently with the MPU to ensure that protection and management concerns for both environmental and cultural resources have been fully assessed and integrated into the MPU. Approximately half of this area is owned solely by the County of San Diego and the other half owned jointly between the County and City of San Diego. Existing hiking and biking trails initiate from trailheads in Santee (Big Rock, Mesa) and extend towards Cowles Mountain. This area includes primarily chaparral habitat with smaller patches of grassland and coastal sage scrub. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Private	1	CNLM Rattlesnake Mountain (Blackhorse Estates and Sky Ranch) Habitat Conservation Area (HCA)	296.0	A preserve on Rattlesnake Mountain was dedicated in fee to CNLM and conservation easements were recorded as mitigation for the Blackhorse Estates development (in 2007) and Sky Ranch Development (in 2011). Because of their similar habitat types and conservation values and their proximity to one another, the management and annual reports for these two conservation areas have been combined. An endowment has been established to provide funding for CNLM to implement long-term management and monitoring. The property includes coastal sage scrub that supports coastal California gnatcatchers, Blainville's horned lizards, and Belding's orange-throat whiptails. The preserve areas for Blackhorse Estates mitigation are currently shown as Park/Open Space (P/OS) in the Santee General Plan and the Sky Ranch Development still shows as Planned Development (PD). The Sky Ranch preserve areas will be updated to P/OS in a future amendment/update to the General Plan.
Private	2	Lantern Crest	18.8	An onsite preserve was established in 2013 as mitigation for the Lantern Crest development. Ongoing management has been occurring in accordance with a Habitat Management Plan prepared in 2010 (Helix 2010). An endowment was established for the long-term management and monitoring of the preserve. The property is managed by Urban Corps of San Diego County. The property supports coastal sage scrub that is occupied by coastal California gnatcatchers, Blainville's horned lizards, and Belding's orange-throat whiptails. Annual reports are submitted to the City of Santee. This preserve area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	11	CNLM Santee Hills (Boys and Girls Club Parcel) HCA	9.9	A 9.9-acre offsite preserve was established as mitigation of the Sky Ranch development in 2011. The property was dedicated in fee to CNLM and a conservation easement was recorded. An endowment has been established for CNLM to provide long-term management and monitoring of this property. This property includes coastal sage scrub and is adjacent to the Cheyenne Preserve (see Map ID #35 described below). The Santee Hills HCA currently shows as Hillside/Limited Residential (HL) and will be updated to Park/Open Space (P/OS) in a future amendment/update to the General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Private	24	CNLM East Mesa (Hagenmaier and Gross Parcels) HCA	68.1	A 68.1-acre offsite preserve was established as mitigation of the Sky Ranch development in 2011. The property was dedicated in fee to CNLM and a conservation easement was recorded. An endowment has been established for CNLM to provide long-term management and monitoring of this property. This property includes coastal sage scrub that supports coastal California gnatcatchers. Other Covered Species noted on this preserve include San Diego goldenstar, Blainville's horned lizard, and Belding's orange-throated whiptail. A restoration project to restore and enhance 6.7 acres of coastal sage scrub has been implemented at this preserve. The East Mesa HCA is currently shown partially as Low Density Residential (R1) and Park/Open Space (P/OS). This location will be updated to show the entire site as Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	30	Ryan Company Smooth Tarplant Preserve	1.4	The Ryan Company Smooth Tarplant Preserve consists of 2 individual mitigation sites located along the San Diego River corridor. A conservation easement has been recorded for the 1.44-acre preserve. San Diego Habitat Conservancy will commence active management of the sites in 2019 after a 5-year restoration program is completed by Helix Environmental. The preserve will protect occurrences of smooth tarplant as well as other native plant species such as shooting star, dove weed, slender buckwheat, and blue-eyed grass. This preserve area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	33	Cutri Onsite Preserve	7.0	For the Cutri single-family residential project, a low-effect HCP was prepared in 2015 that included a mitigation measure for the in-perpetuity conservation, management, and monitoring of 7.0 acres of coastal California gnatcatcher habitat to offset 2.92 acres of impact to occupied habitat. A conservation easement for the preserve area was recorded in November 2016. The Endangered Habitats Conservancy (EHC) will be the land management entity and will conduct long-term management and monitoring based on the Resource Management Plan (RMP) included in the HCP. The RMP was prepared to detail the tasks and goals of the long-term management of the onsite preserve for the benefit of the coastal California gnatcatcher and its habitat. Other covered species noted at this location include Belding's orange-throat whiptail. The Cutri onsite preserve is currently shown as Hillside/Limited Residential (0-1 du/ac) (HL). This location will be updated to Park/Open Space (P/OS) in a future amendment/update to the General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Private	34	Railroad Avenue Ambrosia Conservation Easement	0.5	A habitat preserve was established near the intersection of Railroad and Prospect Avenues near Gillespie Field. This preserve has been designed to support, in perpetuity, thousands of transplanted specimens of San Diego ambrosia within a matrix of native grassland vegetation. The translocation was mitigation for the Grant-Renzulli Multifamily Project. A long-term management plan was prepared and conservation easement recorded for the property. The Habitat Manager is Mitigation Credit Services. This preserve area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	42	Calvary Chapel Offsite Mitigation Site	1.8	A 1.8-acre portion of the Brown property (See Map ID #37 described below) acquired by EHC has been set aside as offsite mitigation for the Calvary Chapel project within the City of Santee. The mitigation site will be preserved and managed in perpetuity by EHC according to the Calvary Chapel Santee Habitat Conservation Plan and RMP dated October 2017. The initial financial means for management will be provided through a three-year management fund provided to the EHC by Calvary Chapel Santee. By the end of three years, the 1.76 acres will have been incorporated into the larger EHC LDCA management strategy and will be managed in perpetuity in association with other adjacent EHC properties. A conservation easement was recorded on November 15, 2017. The site contains coastal sage scrub habitat and provides high quality habitat for coastal California gnatcatcher. The mitigation site is currently shown as Hillside/Limited Residential (0-1 du/ac) (HL). This location will be updated to show the preserve locations as Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	41	Weston Vernal Pool Complex	0.9	An area was preserved within the Weston development area to preserve five existing vernal pools and provide suitable mitigation areas for creation of restored vernal pools. The Weston development project is listed as a covered project under the City of San Diego Vernal Pool HCP (San Diego 2017b), and a vernal pool mitigation plan was approved under project approvals and USFWS Biological Opinion No. 15B0240-15F0536. The long-term management, monitoring, and reporting of the Weston vernal pool preserve and mitigation plan will remain the responsibility of the City of San Diego under the San Diego Vernal Pool HCP. This location will be updated to show the preserve locations as Park/Open Space (P/OS) in a future amendment/update to the General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Protected Open Space, Not Fully Managed				
City-owned	6	Walker Preserve	75.1	The City of Santee acquired the Walker Preserve in 2011 through a grant provided by the Coastal Conservancy using Proposition 84 funding. The Walker Preserve, with over 1.3 miles of riparian frontage along the San Diego River, provides an opportunity to complete a segment of the San Diego River Trail, restore the River's natural hydrology and habitat, and support continued recovery of riparian habitat important for least Bell's vireo and southwestern willow flycatcher. The property is protected through Restrictive Covenants recorded December 17, 2012. The City of Santee currently manages the property. A Habitat Management Plan was prepared in 2014 (April) (Dokken Engineering 2014). Management actions include control of public access, trail maintenance, trash pickup, and invasive species control. No monitoring of sensitive species is currently included as part of the ongoing management. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
City-owned	10	City Hall Open Space	3.9	The hillside behind the Santee City Hall was set aside as open space. It includes coastal sage scrub. There is no active management of the property and no legal land protection mechanism. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
City-owned	12	Woodglen Vista Creek North	1.8	As part of the Town Center Community Park development in 2001, the tributary creek through the middle of the site was restored with riparian scrub habitat and set aside as open space. A restoration plan was developed and fully implemented per permits with USACE. The creek is managed by the City of Santee. There is no legal land protection mechanism. This area is shown as Town Center (TC) in the current Santee General Plan and will be updated to Park/Open Space (P/OS) in a future amendment/update to the General Plan.
City-owned	14	Woodglen Vista Creek South	7.4	As part of the Town Center Community Park development in 2001, the tributary creek through the middle of the site was restored with riparian scrub habitat and set aside as open space. A restoration plan was developed and fully implemented per permits with USACE. The creek is managed by the City of Santee. There is no legal land protection mechanism. This area is shown as Town Center (TC) in the current Santee General Plan and will be updated to Park/Open Space (P/OS) in a future amendment/update to the General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
City-owned	17	Mast Park East (Mission Creek)	36.5	Mast Park East includes a segment of the San Diego River corridor with riparian habitat west of Cuyumaca Street bridge. It was deeded to the City of Santee as part of the Town Center development. The City of Santee conducts general stewardship of the property. There is no legal land protection mechanism currently recorded for this site. It is within the existing 100-year floodway and is protected from future land development based on Santee ordinance. This area is shown as Park/Open Space (P/OS) in the Santee General Plan. There are existing hiking/biking trails following the northern and southern borders of the property between the riparian habitat and residential/commercial development.
City-owned	20	Mast Park West	42.6	Mast Park West includes a segment of the San Diego River corridor between Carlton Oaks Golf Course and Carlton Hills Blvd. This property was previously owned by The Environmental Trust (TET) and transferred the City of Santee through bankruptcy proceedings in coordination with the State of California Natural Resources Agency. This property is protected through a Conservation Easement Deed recorded in 2009 (Doc # 2009-0694057) and Memorandum of Unrecorded Grant Agreement recorded (Doc # 2011-0221985) recorded in 2011. There is currently no habitat management plan or active management for this property. An existing hiking/biking trail extends through the property that is currently planned to be improved (see Chapter 4, "Covered Activities"). This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
City-owned	22	Forester Creek Restoration	28.6	The City of Santee, in collaboration with Caltrans, completed an extensive restoration for Forester Creek from the confluence with the San Diego River and into the City of El Cajon in 2009. This project involved the removal of concrete-lined channel to a more natural soft bottom channel and stream ecology. This project won the American Public Works Associations National 2009 Environmental Project of the Year. The restored area is maintained by the City of Santee. A restrictive covenant is pending approval by USACE and recordation. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
City-owned	43	City Property near Walker Preserve	14.4	As part of the acquisition of the Walker Preserve (#6), the City of Santee acquired an adjoining parcel of upland habitat that is adjacent to San Diego River. This parcel is to be protected as open space. It is managed by the City of Santee separately from the Walker Preserve. There is currently no habitat management plan for this property. It includes coastal sage scrub and is part of block of habitat known to support coastal California gnatcatcher. The location is currently shown partially as Low-Medium Density Residential (R2) and Park/Open Space (P/OS). This location will be updated to show the entire site as P/OS in a future amendment/update to the General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
City-owned	44	Walker Trails Open Space Component (RCP Site)	5.5	The Walker Trails development of the former RCP sand mining site along Magnolia Avenue includes an open space component on the southerly portion of the project site, comprising the San Diego River floodway and a floodway buffer zone. The floodway buffer zone will include a public 14-foot wide multi-use trail, two river outlook connections, and fuel-modified defensible space. The floodway portion of the floodplain will be contoured and revegetated with implementation of the approved Reclamation Plan RP88-01 with the cessation of sand mining operations. The Open Space lots will be conveyed to the City of Santee in fee title, reserving an easement for management of the fuel-modified defensible space and trail landscaping by the subdivision's homeowners association. There is no funding for long-term management and monitoring after the implementation of the habitat restoration. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Other Public / Semi-Public	15	MTS Restoration Site	4.5	This restoration project site within the San Diego River that is owned by the San Diego County Metropolitan Systems (MTS), formerly Metropolitan Transit Development Board (MTDB). The site restoration was completed. The restoration project was mitigation for impacts resulting for project(s) implemented by MTS. Long-term management of the property is unknown. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Other Public / Semi-Public	16	MTS Restoration Site	4.5	This restoration project site within the San Diego River is owned by the San Diego County MTS. The site restoration was completed. The restoration project was mitigation for impacts resulting for project(s) implemented by MTS. Long-term management of the property is unknown. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Other Public / Semi-Public	31	County of San Diego San Diego River	55.8	The portion of the San Diego River corridor between the Magnolia Avenue and Cuyamaca Street crossings is primarily owned by the County of San Diego (excluding the MTS restoration sites and Ryan Company Smooth Tarplant Preserve). This area is within the 100-year floodway and protected from development based on City of Santee ordinance. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Other Public / Semi-Public	40	PDMWD Mesa Reservoir Conservation Easement	0.9	As part of the PDMWD Mesa Road Reservoir Project, PDMWD has acquired coastal sage scrub mitigation easement on properties adjoining their proposed location of the tank site. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Private	35	Cheyenne EHC Preserve	116.6	The Cheyenne properties, which had been planned for development, were acquired by the EHC in 2016 using funding through USFWS Section 6 and California Wildlife Conservation Board (WCB) grant programs. The grant agreements stipulate the property be maintained as open space and essentially function as a conservation easement. The Cheyenne preserve area is located between the protected open space behind the Santee City Hall and the Bella Vida HOA and the Lakeside Downs Conservation Area (LDCA) in the County of San Diego. The development of an RMP is pending and/or long-term funding for management and monitoring has not been secured. It is anticipated this preserve will be managed by the EHC in conjunction with management of the adjacent LDCA. The Cheyenne preserve area has been documented to have occupied coastal California gnatcatcher habitat and potentially suitable habitat for Quino checkerspot butterfly and Hermes copper butterfly. The Cheyenne preserve area is currently shown as Hillside/Limited Residential (0-1 du/ac) (HL). This location will be updated to be shown as Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	36	Capralis EHC Preserve	20.5	The Capralis properties were acquired by the EHC in 2016 using funding through USFWS Section 6 and California WCB grant programs. The grant agreements stipulate the property be maintained as open space and essentially function as a conservation easement. The Capralis properties is located between the Cheyenne and the LDCA. The development of an RMP is pending and/or long-term funding for management and monitoring has not been secured. It is anticipated this preserve will be managed by the EHC in conjunction with other adjacent preserves. The Capralis preserve area has coastal sage scrub and potentially suitable coastal California gnatcatcher habitat. The Capralis preserve area is currently shown as Hillside/Limited Residential (0-1 du/ac) (HL). This location will be updated to be shown as Park/Open Space (P/OS) in a future amendment/update to the General Plan.

Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Private	37	Brown	7.2	EHC has acquired this property with the goal to protect it as biological open space. A portion of the original property acquisition has been set aside as the Calvary Church Offsite Mitigation Site (#42). The property was acquired with federal Section 6 and WCB funding. The grant agreements stipulate the property be maintained as open space and essentially functions as a conservation easement. The development of an RMP is pending and/or long-term funding for management and monitoring has not been secured. It is anticipated this property will be managed in conjunction with the other adjacent properties owned by EHC. This location is currently shown as Hillside/Limited Residential (0-1 du/ac) (HL) and will be updated to be shown as Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	38	B. Bailey	14.3	EHC has agreements to acquire these properties to protect as biological open space as funding becomes available. The acquisition and recording of a conservation easement or equivalent land protection mechanism is pending. The westernmost parcel (378-21-002) is currently shown as Low Density Residential (1-2 du/ac) (R1) and the easternmost parcel (378-18-002) is shown as Hillside/Limited Residential (0-1 du/ac) (HL). Both properties will be updated to be shown as Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	39	Gallagher	6.0	EHC has acquired these properties with the goal to protect them as biological open space. The properties were acquired with a special acquisition fund related to the Crestridge Ecological Reserve. There is currently no conservation easement or equivalent land protection mechanism recorded for these properties. It is anticipated these properties will be managed in conjunction with the other adjacent properties owned by EHC, but a formal habitat conservation plan and long-term funding for management and monitoring have not been secured. These properties are currently shown partially as Low Density Residential (R1) and Hillside/Limited Residential (HL). These properties will be updated to be Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	3	Altair	7.7	As part of previous residential development, this area was set aside as open space. There is no active management and no land protection mechanism recorded for this location. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	5	Santee Environmental Inc.	31.9	As part of previous residential development, this area was set aside as open space. There is no active management and no land protection mechanism recorded for this location. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.

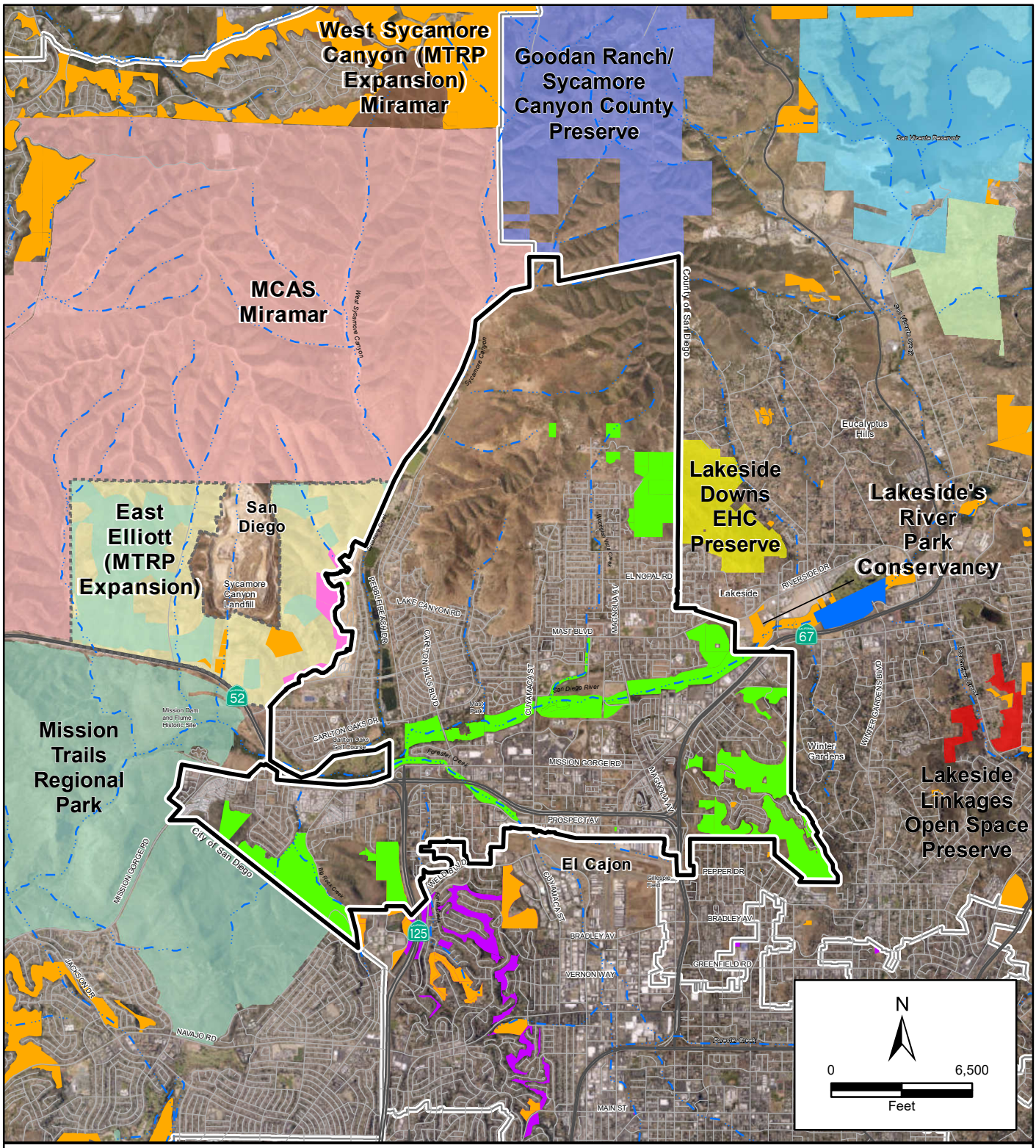
Generalized Ownership	Map ID	Property Name	Acres of Natural Habitat [1]	Summary Description
Private	8	Deerpark Santee Unit #3	14.1	As part of Deerpark Santee Unit #3 residential development in 1976, an open space easement was recorded covering 14.6 acres. The open space easement covers an entire lot (lot 231) excepting existing easements for Padre Dam Municipal Water District (PDMWD) and San Diego Gas & Electric (SDG&E) for access roads to nearby facilities. The property is currently privately owned and there is no active habitat management. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	9	Bella Vida HOA	1.2	As part of previous residential development, this area was set aside as open space. There is no active management and no land protection mechanism recorded for this location. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	13	Woodglen Vista Creek (Center)	1.6	As part of the Town Center Community Park development in 2001, the tributary creek through the middle of the site was restored with riparian scrub habitat and set aside as open space. A restoration plan was developed and fully implemented per permits with USACE. A middle portion of the creek remains in private ownership and maintenance is the responsibility of the property owners. There is no legal land protection mechanism. This area is shown as Town Center (TC) in the current Santee General Plan and will be updated to Park/Open Space (P/OS) in a future amendment/update to the General Plan.
Private	25	Prospect Hills Open Space	3.5	As part of the Prospect Hills development in 1996 (City resolution No. 82-97), an onsite open space easement was granted over a portion of the property to protect coastal sage scrub vegetation and to prohibit the construction of residential development. The open space easement does not prohibit PDMWD to construct and use an access road to a future tank site on an adjoining parcel. This location is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	27	Mission View Estates by Concordia	31.8	As part of previous residential development, this area was set aside as open space. There is no active management and no land protection mechanism recorded for this location. This area is shown as Park/Open Space (P/OS) in the Santee General Plan.
Private	45	Floodway Protection Overlay	20.9	It is the policy of the City of Santee that development within the FEMA 100-year floodway zone is excluded. There are portions of the San Diego River that are protected from development based on the 100-year floodway designation.

[1] Acreage is based on current GIS mapping of property boundary with vegetation data. Acreage may be slightly different from amounts recorded in other management documents.

2.3.4.2 Protected Open Space Surrounding Santee

The City of Santee is connected to open space areas outside of its jurisdictional boundaries, including areas along the San Diego River and surrounding hillsides. These connections are important for the habitat connectivity with open space areas within the Subarea Plan Area. Figure 2-9 identifies major blocks of protected open space surrounding the City. These include:

- *Mission Trails Regional Park* - The Mission Trails Regional Park (MTRP) is adjacent to the south and southwestern portion of the City. Originally approximately 5,830 acres, MTRP is one of the largest urban parks of its kind in the west (San Diego 2016). The park is expanding to 9,780 acres with the additional acquisition in the East Elliot area and the inclusion of the West Sycamore area. The park is subdivided into separate areas based on significant features of each:
    - *Original Park Boundary (including Cowles Mountain, Mission Gorge, Fortuna Mountain, and Lake Murray Areas)*—Although largely surrounded by residential development, the original MTRP area contains mountains, valleys, two lakes, a major river and scenic gorge, historical landmarks, wildlife habitats, and cultural resources. This "close-in" park provides varied wilderness, interpretive, and passive and active recreational opportunities. The Cowles Mountain, Mission Gorge, and Fortuna Mountain areas encompass a large area of protected open space immediately adjacent to southwestern boundary of Santee. Portions of the Cowles Mountain area extend into the Santee jurisdiction. The original park boundaries support a variety of habitats including upland habitats (chaparral, coastal sage scrub, grasslands) and riparian vegetation along the San Diego River. It supports populations of coastal California gnatcatchers, least Bell's vireo, and San Diego ambrosia.
    - *East Elliot Expansion Area*—The City of San Diego East Elliot Community Plan Area is located adjacent to the western boundary of Santee. The vast majority of the East Elliott Community Plan Area is planned for open space as part of the City of San Diego MSCP Subarea Plan. All public and privately owned land is targeted for at least 75 percent preservation except for the parcels zoned for the Sycamore Landfill. The City of San Diego, along with other federal, state, local, private, and non-profit land conservation partners, is actively pursuing the acquisition of land in this area. Whether directly acquired or dedicated as part of the permitting process for land development, at least 75 percent of this area will be managed for habitat conservation purposes. As land is acquired or dedicated in fee or by easement, it will become part of MTRP. East Elliott is dominated by coastal sage scrub, chaparral, and grasslands. There are also a few areas of oak woodland and willow riparian. It supports populations of coastal California gnatcatchers, San Diego barrel cactus, willowy monardella, and San Diego goldenstar.
    - *West Sycamore Expansion Area*—West Sycamore area is approximately 1,360 acres immediately north of MCAS Miramar and west of Goodan Ranch/Sycamore Canyon County Preserve. The West Sycamore area was acquired through an agreement in 2001 between the City of San Diego and the developer for the Rancho Encantada Precise Plan. This obligated the developer to convey land for the purposes of habitat conservation to the City of San Diego. While not immediately adjacent to the City of Santee, it is part of a block of protected open space north of the Santee. West Sycamore is dominated by chaparral and coastal sage scrub with additional areas of oak woodland and grassland. It supports populations of coastal California gnatcatchers, cactus wren, Blainville's horned lizard, Belding's orange-throated whiptail, San Diego barrel cactus, and willowy monardella.



Legend

- Subarea Plan Area
- Currently Protected Lands within Santee

Protected Open Space Surrounding Santee

- Mission Trails Regional Park (MTRP)
- West Sycamore Canyon (MTRP Expansion Area)
- Goodan Ranch/Sycamore Canyon County Preserve
- Lakeside Downs EHC Preserve
- Lakeside Linkages Open Space Preserve
- San Vicente Reservoir Cornerstone Lands
- Lakeside Ranch EHC Preserve
- East Elliot Community Plan Area Planned Open Space
- MCAS Miramar
- Castle Rock Open Space
- Hillsides Designated as Open Space in El Cajon General Plan
- Planned and Protected Open Space along San Diego River
- Other Protected Open Space

Sources: Protected Open Space – SanGIS Protected Lands GIS 2017; Planned Open Space – SANDAG Generalized Planned Land Use 2016; Basemap Source: SANDAG Imagery 2017.

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-9 Protected Open Space Surrounding Santee.mxd Date: 12/19/2018 34153

Figure 2-9
Planned and Protected Open Space Surrounding Santee
Santee MSCP Subarea Plan

- *Marine Corps Air Station (MCAS) Miramar*—The military base MCAS Miramar is located adjacent to the western edge of Santee. An Integrated Natural Resources Management Plan (INRMP) has been prepared that provides guidance for the implementation of the natural resources program on MCAS Miramar (MCAS Miramar INRMP 2011; MCAS Miramar Natural Resource Division 2018). The INRMP integrates current and future land-use activities at MCAS Miramar with natural resources management and conservation. The eastern portion of MCAS Miramar has been designated mostly as Level II (non-vernal pool threatened/ endangered species) and Level III (habitat linkages/riparian vegetation) Management Areas. It is anticipated that the eastern portion of MCAS Miramar will largely remain as a block of natural habitat and is known to currently support important populations of coastal California gnatcatchers and willowy monardella,
- *Goodan Ranch/Sycamore Canyon County Preserve*—The 2,572-acre Goodan Ranch/Sycamore Canyon County Preserve is located adjacent and north of Santee. Sycamore Canyon Preserve was acquired by the County during the time period 1964–2004. Goodan Ranch was acquired jointly by the CDFW, County of San Diego Department of Parks and Recreation, and the Cities of Poway and Santee in 1991. An additional 140 acres were acquired in 2015. The County preserve is included in the South County MSCP preserve system. The preserve consists of very high to medium quality native habitats, as well as areas that have been marginally impacted by human activities including two staging areas, ranger station, and trail system.
- *Lakeside Downs Conservation Area (LDCA)*—Collaboration between the EHC, SANDAG, and the U.S. Department of Defense resulted in the preservation of the 410-acre Lakeside Downs property along the eastern edge of Santee (SANDAG 2015b). Previously proposed for a 140-home development, Lakeside Downs contains high-value coastal sage scrub habitat and extensive stands of spiny redberry, host plant for the rare Hermes copper butterfly. The property is strategically located, helping to close gaps between lands that are conserved or proposed for conservation. SANDAG, through its TransNet Environmental Mitigation Program (EMP), contributed half of the funds for acquisition and the U.S. Department of Defense (DOD), under its Readiness and Environmental Protection Integration (REPI) Program, contributed the other half. EHC is the owner and manager of the land. SANDAG and the Department of the Navy, on behalf of the U.S. Marine Corps, hold conservation easements over the property, ensuring long-term preservation (SANDAG 2015b).
- *Lakeside's River Park Conservancy*—Immediately adjacent to the eastern border of Santee along the San Diego River, Lakeside's River Park Conservancy has acquired properties with the goal to create a river park through Lakeside. Formed in 2001 as a nonprofit entity, Lakeside's River Park Conservancy has acquired previously sand mined properties and implemented ambitious restoration programs to restore natural floodplain hydrology, remove constrictions, and enhance natural riparian habitat.
- *Lakeside Linkage County Open Space Preserve*—Lakeside Linkage County Preserve consists of approximately 134 acres located in the hills just north of the City of El Cajon and west of Lake Jennings Reservoir, in southwestern San Diego County, California. The Preserve is comprised of three non-contiguous properties, located approximately 2 miles from the Sky Ranch open space and LDCA. This preserve supports significant stands of coastal sage scrub, southern mixed chaparral, and oak woodland habitat and represents a regionally important habitat linkage between the Crestridge Conservation Bank south of I-8 to the protected open space to the north along the San Diego River. The Lakeside Linkage preserve is essential to the South County MSCP because it functions as a 'stepping-stone' corridor linkage for coastal California gnatcatcher from

conserved lands to the south of I-8 to conserved lands to the north, including protected lands in Santee.

2.4 Biological Resources

Information on existing biological resources in the Subarea Plan Area have been compiled through biological inventories, vegetation mapping, monitoring reports, archive research, and general scientific research. The results of the biological resources data compilation are described in the following sections.

2.4.1 Vegetation Communities

Vegetation community composition directly and indirectly influences habitat quality for Covered Species within the Subarea Plan Area. Vegetation mapping is a primary input factor for species habitat suitability models.

A comprehensive vegetation database has been developed for the Subarea Plan Area and surrounding areas using multiple data sources. The Holland (1986) vegetation classification system, as updated by Oberbauer et al. (2008), was used consistently across the entire study area. In areas that were also mapped using the Vegetation Classification Manual for Western San Diego County (SANDAG 2011), that information was also retained. Though both systems provide methods to classify vegetation, Holland communities are described at a landscape scale and are currently used by the MSCP to plan conservation and mitigation throughout the area, while the SANDAG system provides a high-resolution view into the specific vegetative components of communities and changes within communities over time.

The data sources for vegetation mapping included, in order of preference, the following:

1. **Field Mapping for Proposed Projects**—Vegetation mapping information for pending or past development projects was collected either in hard copy or GIS format.
    - **Fanita Ranch**—An Biological Resources Technical Report for Fanita Ranch was prepared in 2018 that includes a summary of vegetation mapping methods and results (Dudek 2018). Initial mapping for the project was conducted by Dudek in 1996, with some modifications in 1997. Approximately 60% of this mapping was field checked in May 2003 and conditions were found to be generally consistent. Modifications consisted primarily of updating previous vegetation classifications to reflect onsite succession since the initial mapping. The site was assessed again in the spring of 2004 to address potential changes in vegetation resulting from the October 2003 Cedar Fire which burned nearly all of the site. The exact status of the vegetation communities could not be accurately determined, due to the early successional stage of the recently burned vegetation. Consequently, no updates to the resource mapping were completed during the 2004 field check, with the exception of modifications to jurisdictional waters and wetlands. Dudek revisited the site in 2014 to update the vegetation mapping, and additional vegetation mapping was completed in 2017 to cover offsite road improvement areas associated with the Fanita Ranch project. The vegetation mapping information was provided in GIS format.
    - **Other Development Projects**—Vegetation mapping included in biological resources technical reports for other proposed development projects within the City of Santee were reviewed and updates made to the vegetation database as appropriate. These projects

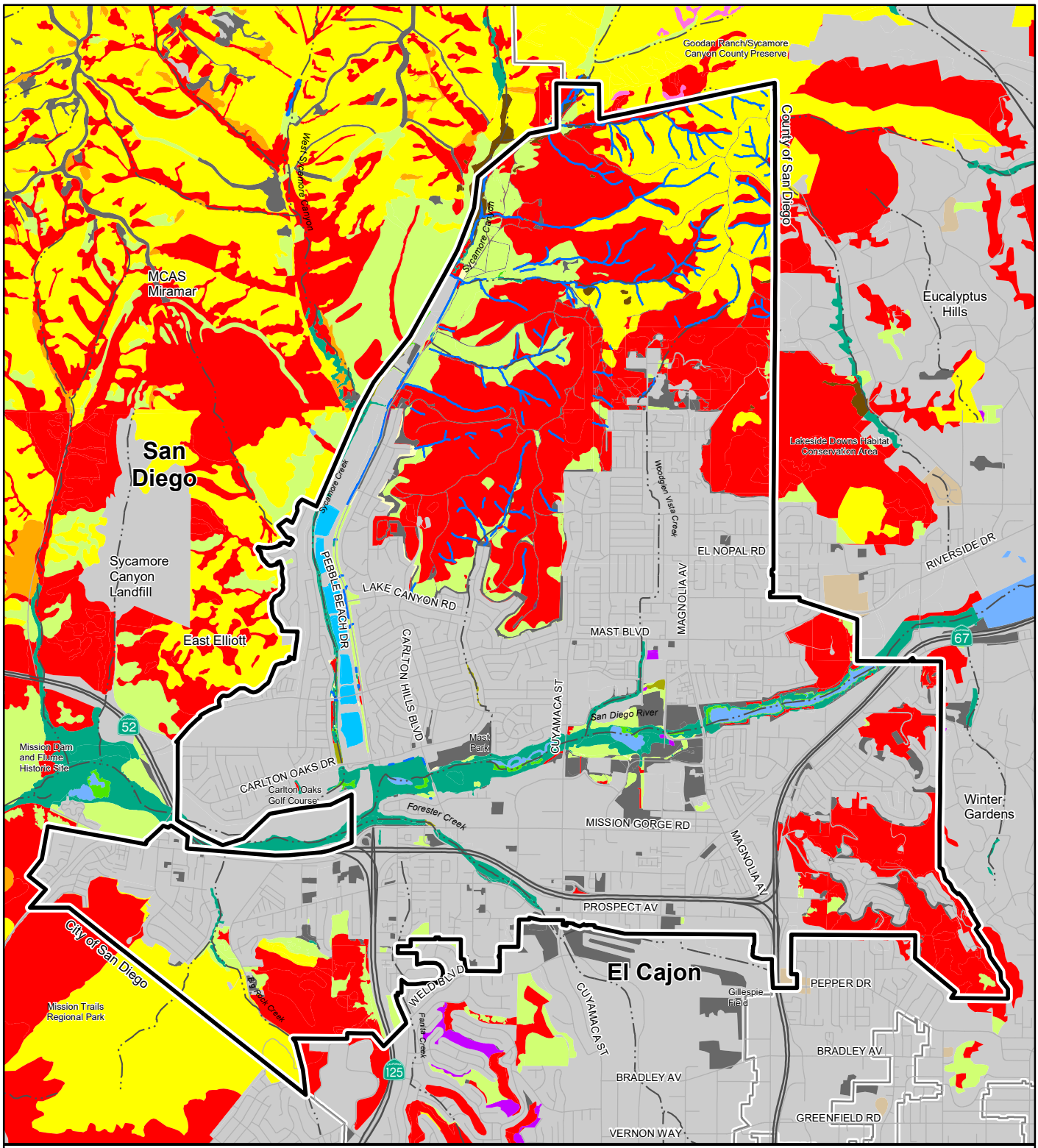
included the Tyler Street Residential Development (Blue Consulting Group 2016), Lantern Crest Ridge II (Scheidt Biological Consultant 2017), Weston (formerly Castlerock) (Natural Resource Consultants 2014), Cheyenne (RECON 2015), Woodside Terraces (PSBS 2004), San Diego River Trail Carlton Oaks Golf Course Segment Project (Helix 2017), and Parkside Development (formerly known as Hillside Meadows) (Scheidt Biological Consultant 2013).

2. **Field Mapping on Habitat Preserves**—Baseline biological surveys have been completed at some of existing habitat preserves within Santee. Vegetation mapping information was collected either in hard copy or GIS format for the following:
   - **CNLM Rattlesnake Mountain, East Mesa, and Santee Hills HCAs**—Vegetation on the CNLM Rattlesnake Mountain, East Mesa, and Santee Hills HCAs was mapped in 2011 using the Holland and SANDAG vegetation classifications. The data was provided in GIS format.
   - **Lantern Crest Preserve** (Helix 2010).
   - **Walker Preserve** (Dokken Engineering 2014).
   - **Mission Trails Regional Park** (San Diego 2017a).
3. **SANDAG Regional Vegetation Mapping of Western San Diego County**—For areas not covered by field mapping for projects and habitat preserves, the SANDAG regional vegetation of western San Diego County completed in 2012 was utilized, if available. This dataset was mapped using the Vegetation Classification Manual for Western San Diego County (SANDAG 2011) and cross-walked to the Holland classification.
4. **MSCP Vegetation Data**—For areas not covered by field mapping or the SANDAG vegetation mapping, the vegetation data from the MSCP Subregional Plan was used to fill in any remaining areas.
5. **Aerial Photo Interpretation Updates**—A reconnaissance-level review of current aerial imagery was completed to update the vegetation and land cover information to reflect current development.

The results of the vegetation database compilation are shown in Figure 2-10, and a summary of the acres of vegetation communities within Santee is included in Table 2-7. Approximately 42.1% of the City of Santee remains as natural habitat.

Table 2-7. Vegetation Communities within Subarea Plan Area

Vegetation Communities	Acres	Percent of Remaining Natural Habitat	Percent of Santee Subarea Plan Area
Natural Communities			
Coastal Sage Scrub	2,689.0	59.7%	25.1%
Chaparral	813.8	18.1%	7.6%
Grassland	583.3	12.9%	5.4%
Coast Live Oak Woodland	36.8	0.8%	0.3%
Riparian	293.9	6.5%	2.7%
Freshwater Marsh	19.8	0.4%	0.2%
Vernal Pool	0.8	<0.1%	<0.1%
Disturbed Wetland	10.8	0.2%	0.1%
Freshwater (Open Water)	48.8	1.1%	0.5%



Legend

- Subarea Plan Area
- MCAS Miramar

Vegetation Communities

- Maritime Succulent Scrub
- Coastal Sage Scrub
- Coastal Sage-Chaparral Transition
- Chaparral
- Grassland
- Coast Live Oak Woodland
- Riparian
- Freshwater Marsh
- Vernal Pool
- Disturbed Wetland
- Freshwater
- Non-Vegetated Channel or Floodway
- Eucalyptus Woodland
- Non-Native Vegetation
- Disturbed Habitat
- Agriculture
- Open Water/Recreation
- Urban/Developed

N

0 4,450 Feet

Sources: Multiple sources combined using best available information

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Figure 2-10
Vegetation Communities
Santee MSCP Subarea Plan

Vegetation Communities	Acres	Percent of Remaining Natural Habitat	Percent of Santee Subarea Plan Area
Non-Vegetated Channel or Floodway	10.2	0.2%	0.1%
Natural Habitat Subtotals	4,507.2	100.0%	42.1%
Developed / Non-native Land Cover			
Eucalyptus Woodland	4.5	-	<0.1%
Non-Native Vegetation	12.1	-	0.1%
Disturbed Habitat	454.5	-	4.2%
Agriculture	5.6	-	0.1%
Open Water/Recreation	69.4	-	0.6%
Urban/Developed	5,656.7	-	52.8%
Developed / Non-native Subtotals:	6,202.8	-	57.9%
Totals:	**10,710.0**	**-**	**100.0%**

2.4.2 Vernal Pools

Vernal pools are 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 (San Diego 2017b). The features occur most often on level ground and are often associated with hillocks known as mima mounds; however, sometimes these wetlands can occur on former landslide areas and are then referred to as "slump" pools. Vernal pools are primarily associated with clay soil series, and the basins are sealed either by subsurface layers of impervious hardpan, or clay that expands to seal the basin when saturated (Greenwood and Abbot 1980).

These ecosystems are defined by seasonal hydrologic extremes: desiccated pool basins during the dry months followed by variable lengths of saturation and inundation during the rainy season. In southern California, the interannual variation in precipitation augments the inconsistent moisture conditions. This drastic change between vegetated wetland and dry basin defines a vernal pool and separates them from other wetland ecosystems (Zedler 1987).

The Santee MSCP Subarea Plan considers a seasonally flooded depression to be a vernal pool if it includes one or more of the vernal pool indicator species, based on the species identified by the U.S. Army Corps of Engineers (USACE 1997). Depressions which are man-made, such as tire tracks or road ruts, may still be considered vernal pools if they contain at least one indicator plant species. Road ruts and other seasonal depressions which are not vernal pools may contain wildlife associated with vernal pools, such as San Diego fairy shrimp or western spadefoot toad, but will not contain vernal pool plant indicator species. The Santee MSCP Subarea Plan also applies vernal pool policies to these man-made road ruts and other seasonal depressions if they contain one or more of the covered wildlife species.

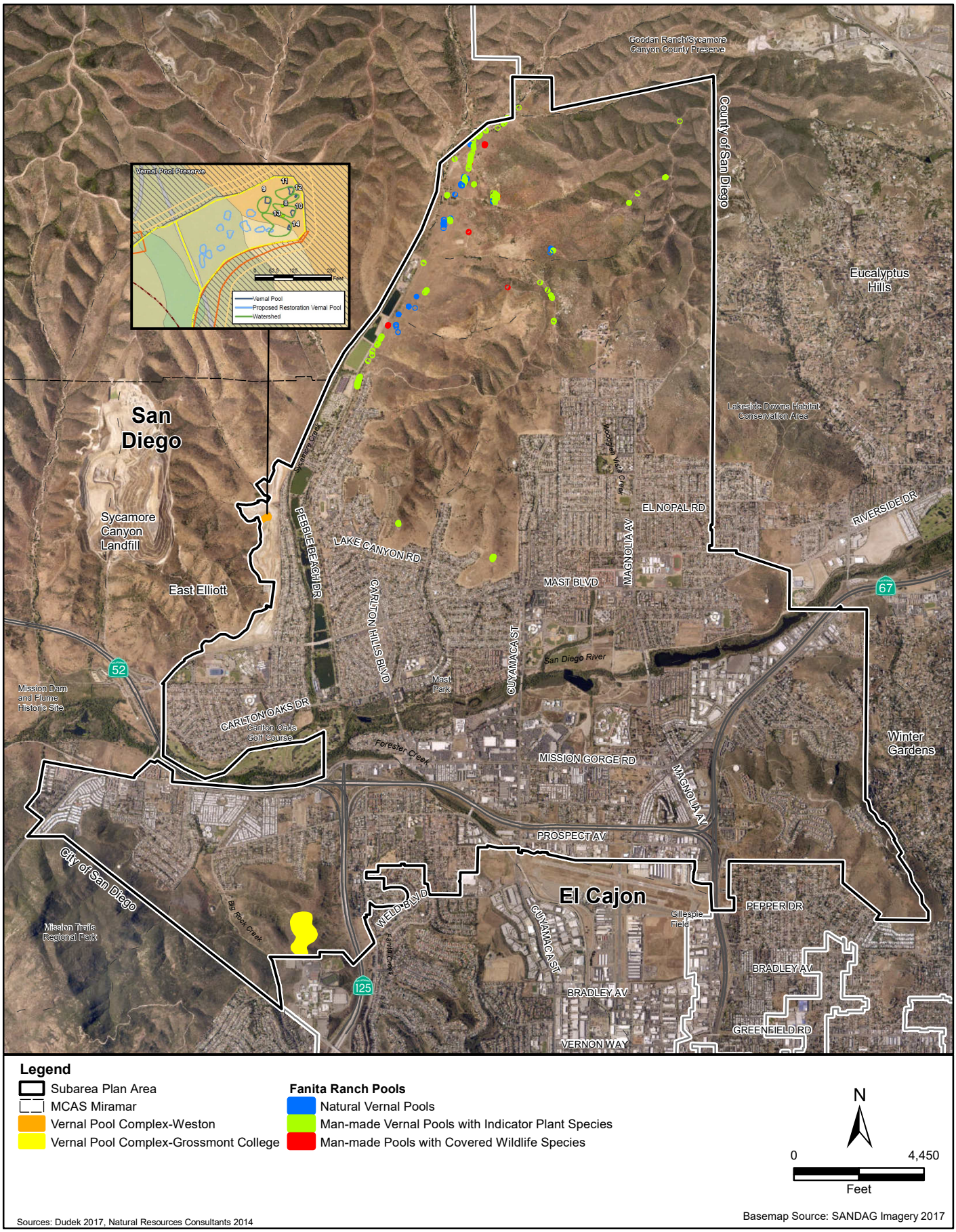
For convenience of reference, groups of vernal pools are sometimes referred to as vernal pool complexes that may include two to several hundred individual vernal pools (Keeler-Wolf et al. 1998). Vernal pool complexes are defined as a series of similarly situated pools that have a similar influence on the physical, chemical, and biological integrity of downstream waters and are similarly situated on the landscape (USACE/EPA 2015). They may have hydrologic (surface or subsurface) or

ecological connection between pools, from processes including overflow, animal vectors, or wind dispersal. They often have soils, topography, and landscape positions that are similar. The uses of complexes area a helpful tool for planning and management, but it is recognized that a complex can be subjective.

While vernal pools have not been comprehensively mapped across the City of Santee, known vernal pools and vernal pool complexes within the City of Santee are shown in Figure 2-11, including:

- *Fanita Ranch*—Focused surveys within the Fanita Ranch property were completed during the 2003/2004, 2004/2005, and 2015/2016 wet survey seasons to identify vernal pools and sensitive species associated with vernal pools (Dudek 2018). Table 2-8 summarizes the number and type of vernal pool resources on Fanita Ranch.
- *Grossmont College Complex*—A vernal pool complex is known to exist on private land on the plateau north of Grossmont College based on aerial photo interpretation. Focused surveys to determine the number and type of vernal pools have not been completed at this location.
- *Weston*—The Weston development project (formerly called Castlerock) was originally approved by the City of San Diego and then subsequently annexed into the City of Santee. A portion of the Weston area annexed into the City of Santee includes 1.9 acres set aside to preserve five existing vernal pools and provide suitable mitigation area for impacts to approximately 420 square feet within the four man-made features inhabited by San Diego fairy shrimp. To compensate for impacts to fairy shrimp, approximately 1,260 square feet of restored basins (vernal pools) are being created within the vernal pool preserve. The Weston development project is listed as a covered project under the City of San Diego Vernal Pool HCP (San Diego 2017b), and the vernal pool mitigation plan was approved under project approvals and USFWS Biological Opinion No. 15B0240-15F0536. The long-term management, monitoring, and reporting of the Weston vernal pool preserve and mitigation plan will remain the responsibility of the City of San Diego under the San Diego Vernal Pool HCP.

Additional vernal pool and vernal pool complexes may be identified within the City of Santee as part of field surveys are completed for future development projects.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-11 Vernal Pools.mxd Date: 12/19/2018 34153

Figure 2-11
Known Vernal Pools and Complexes within Santee
Santee MSCP Subarea Plan

Table 2-8. Vernal Pool Features within Fanita Ranch

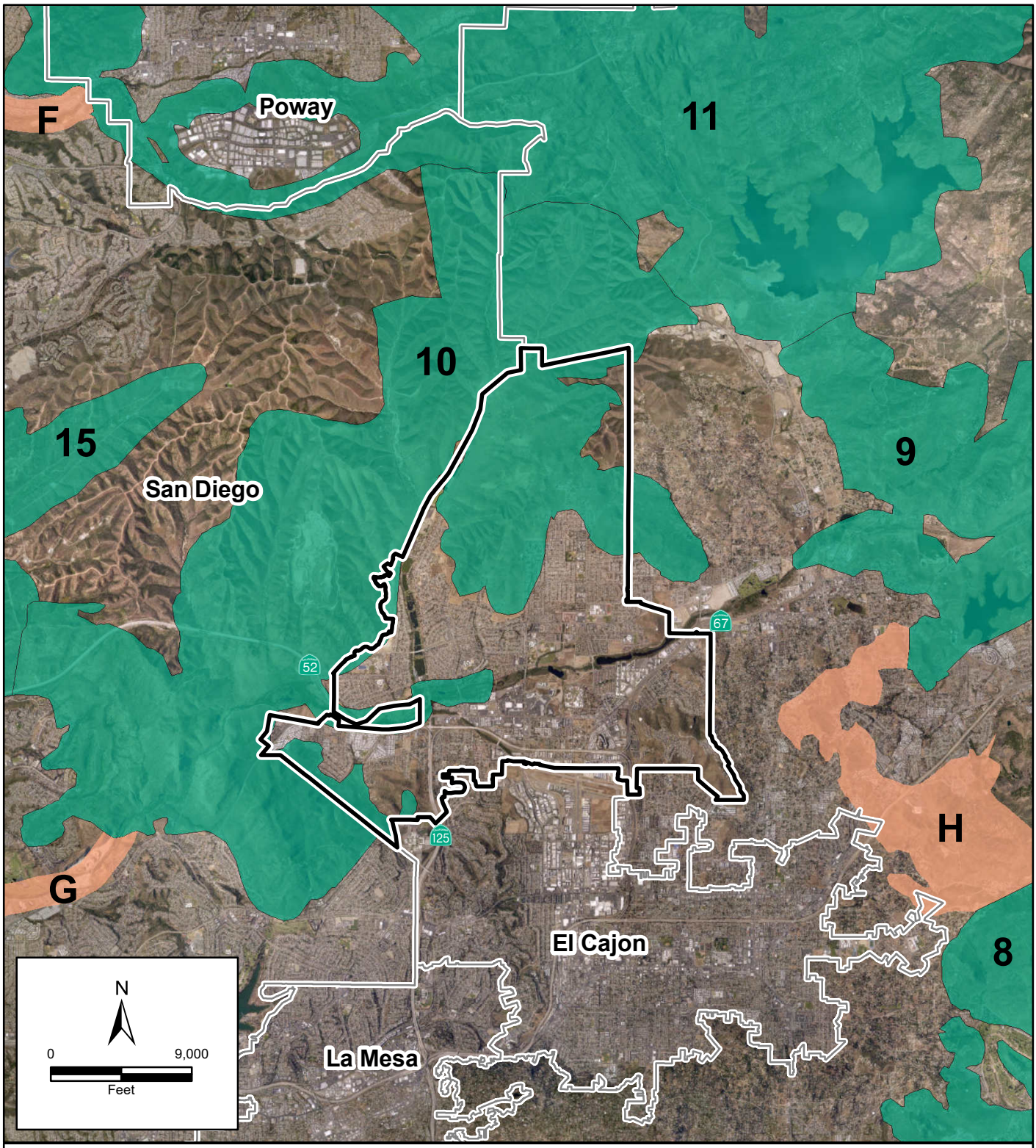
Vernal Pool Features	Number of Pools	Total Square Feet	Total Acres	Indicator Plant Species	San Diego Fairy Shrimp	Western Spadefoot Toad
Natural Vernal Pools	25	5,173.6	0.119	25	6	6
Man-made Vernal Pools with Indicator Plant Species	70	30,211.5	0.694	70	64	27
Man-made Pools Supporting Covered Wildlife Species	7	1,181.4	0.027	0	2	5
Totals	**102**	**36,566.5**	**0.840**	**95**	**72**	**38**
Other Seasonal Basins Determined Not To Be Vernal Pools or Include Covered Wildlife Species	141	35,382.7	0.812	0	0	0

2.5 Habitat Connectivity

Connectivity refers to the degree to which the landscape facilitates or impedes movement of genes, individuals, propagules, or populations among resource patches (SDMMP 2017). Maintaining connectivity between natural areas is widely regarded as essential to maintaining functional landscapes and evolutionary processes. Connectivity is also viewed as essential to promoting dispersal among habitat patches; maintaining gene flow; facilitating local adaptation; and promoting resilience to many threats, including fire, floods, disease, and climate change.

The following summarizes habitat connectivity studies and mapping in the vicinity of the Subarea Plan Area:

- *MSCP Subregional Plan Biological Core and Linkage Areas (City of San Diego 1998)*. As part of the development of the MSCP Subregional Plan, biological analyses were completed to define regional biological core areas (larger blocks of habitat with relatively high biological value), and landscape linkage areas for wildlife (areas of natural habitat that connect biological core areas so that species can disperse and move among biological cores). The habitat core and linkage maps were prepared as analytical tools to assist with assessing preserve design criteria and levels of species conservation as part of the MSCP Subregional Plan. Figure 2-12 shows the MSCP biological core and linkage areas within the vicinity of the Subarea Plan Area.
- *SDMMP Management Strategic Plan (MSP), Loss of Connectivity Chapter (SDMMP 2017)*. In 2011, SDMMP completed an updated delineation of core and linkage areas for the San Diego region as part of the Connectivity Monitoring Strategic Plan (SDMMP 2011). Figure 2-13 shows the core and linkages as delineated by SDMMP within the vicinity of the Subarea Plan Area. Santee is adjacent to and part of the Gooden Ranch/Sycamore Canyon core area (Core ID 'N'). This core area includes the Gooden Ranch/Sycamore Canyon County Preserve to the north, the eastern



Legend

- Subarea Plan Area
- Biological Core Areas
- Biological Linkages

Core Resource Areas

8 McGinty Mountain/Sequan Peak - Dehesa
9 Lake Jennings/Wildcat Canyon-El Cajon Mountain
10 Mission Trails/Kearny Mesa/East Elliott/Santee
11 Central Poway/SanVicente Reservoir/North Poway
15 Vernal Pools, Kearny Mesa

Linkages between Core Resource Areas

F Los Penasquitos Creek west of Poway
G San Diego River west of Mission Trails
H Interstate 8 at Lakeside

Source: City of San Diego 1998
Basemap Source: SANDAG Imagery 2017

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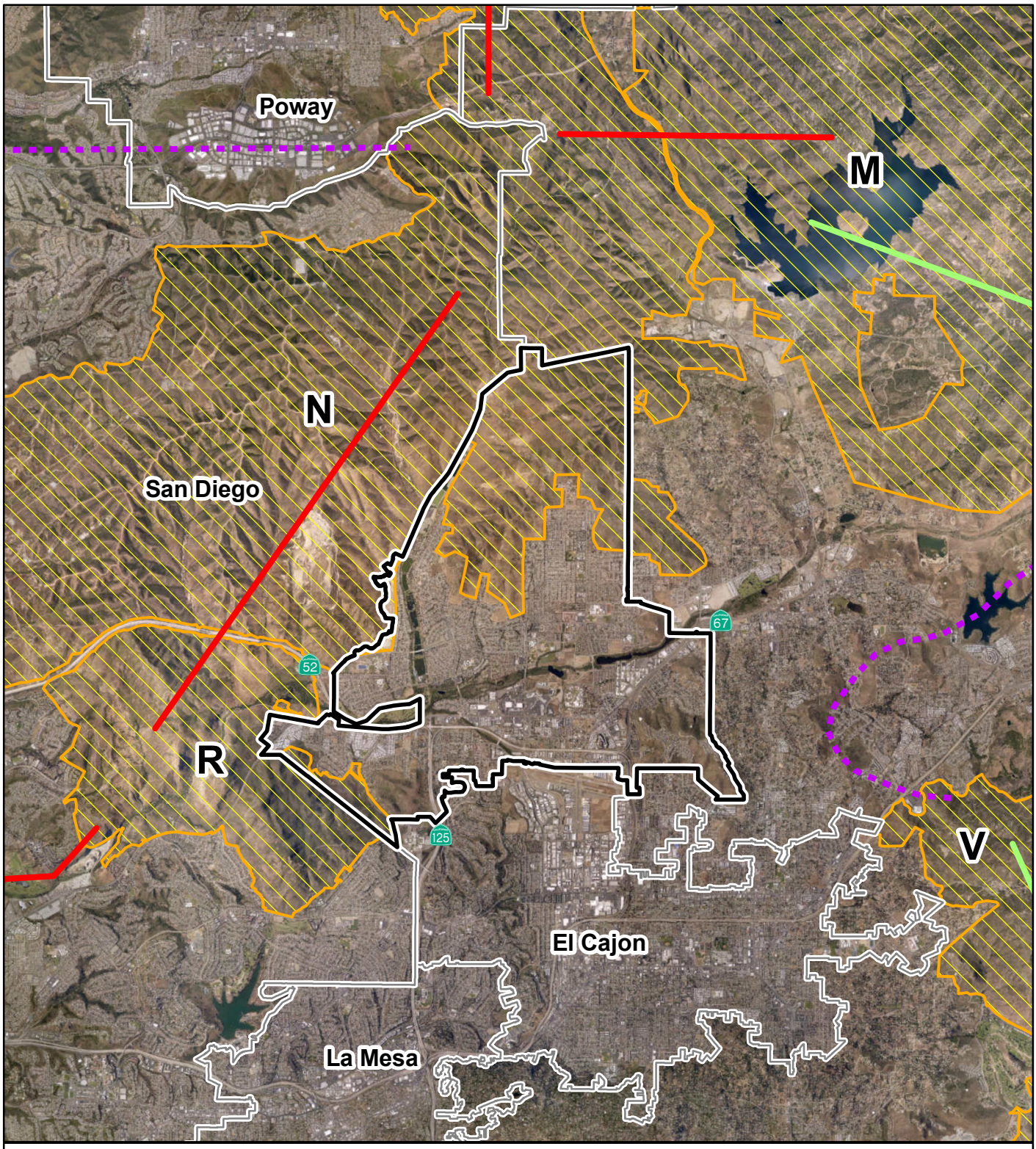
Figure 2-12
MSCP Biological Core and Linkage Areas
Santee MSCP Subarea Plan



Legend

- Subarea Plan Area
- Cores

Link Type

- Between Cores
- Within Cores
- Avian linkages

MSP Core Habitat Areas
R = Mission Trails
N = Goodan Ranch / Sycamore Canyon
M = San Vicente / Iron Mountain
V = Crestridge – Hollenbeck - McGinty

N

0 9,000

Feet

Source: Mitigation and Monitoring Strategic Plan (MSP) 2016

Basemap Source: SANDAG Imagery 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-13 SDMMP MSP Cores and Linkages.mxd Date: 12/19/2018 34153

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Figure 2-13
SDMMP MSP Cores and Linkages
Santee MSCP Subarea Plan

half of MCAS Miramar, and links with the Mission Trails core area (Core ID 'R'). This core area is a relatively solid block of habitat that is only four percent urbanized.

- *Comprehensive Multi-species Connectivity Assessment and Planning for the Highway 67 Region of San Diego County, California (Jennings and Zeller 2017)*. The Institute for Ecological Monitoring and Management at San Diego State University (SDSU) conducted a multifaceted research project to examine connectivity across SR-67 that included a multi-species comprehensive connectivity assessment of a broader study area around the SR-67 corridor. Figure 2-14 shows the results of the multi-species connectivity movement surface (which was organized into connectivity value ranges (isopleths) from high to low) and boundaries of corridor segments that subdivided the study area of this regional analysis into blocks of similar connectivity conditions. Santee is adjacent to and part of Corridor Segment 9 that is described in the report as:

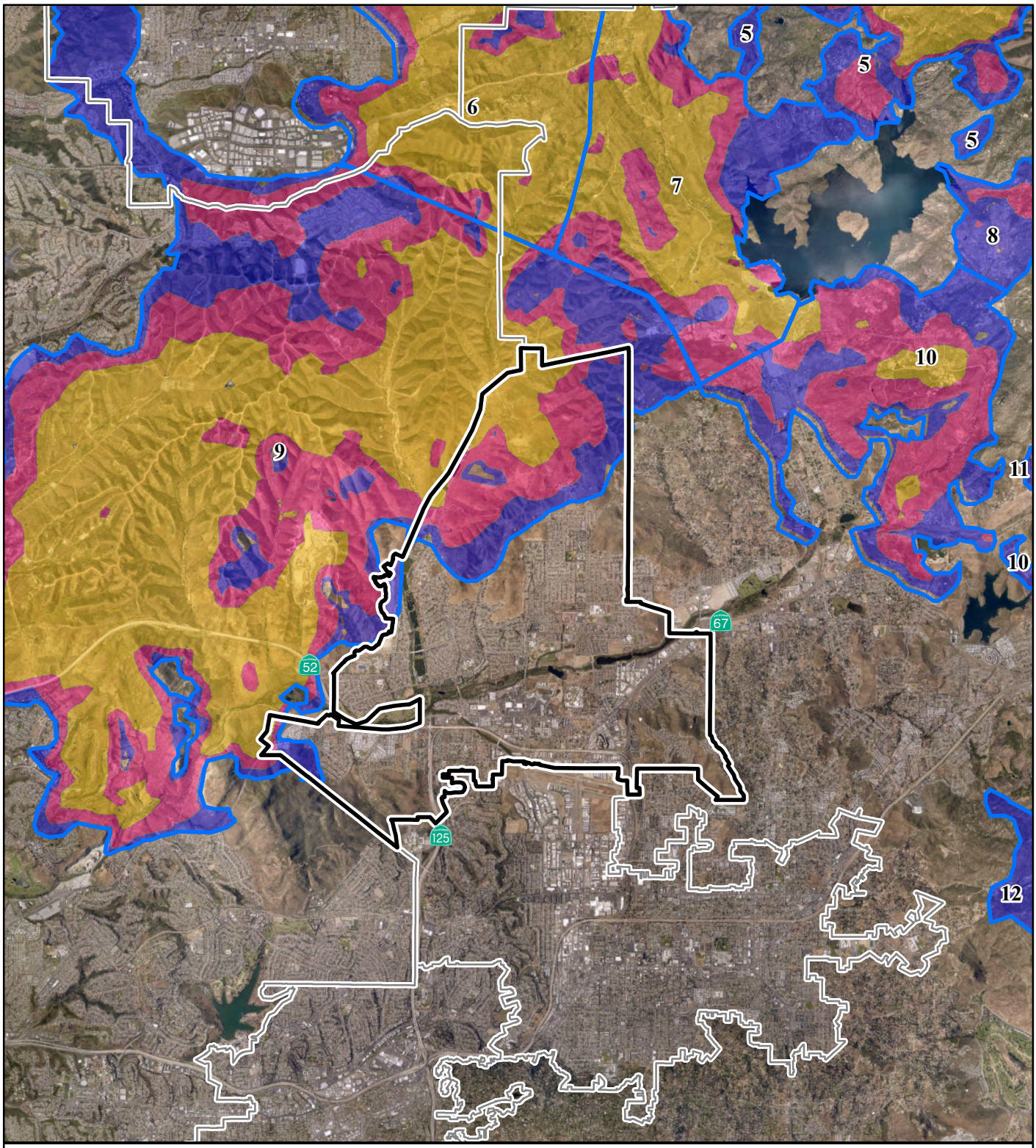
  > … the largest corridor and connects Sycamore Canyon and Goodan Ranch Preserves in the north with Mission Trails Regional Park in the south. Marine Corps Air Station Miramar is a major land owner in this corridor. Corridor 9 contains diffuse flow in the north, but transitions to highly channelized flow in the south. It is mostly comprised of the top two corridor isopleths (top 1-20% of connectivity values). Corridor 9 has one important wildlife road crossing location on Poway Road, one on Scripps-Poway Parkway, and two on SR-52. Land cover types with good connectivity across this corridor include chaparral, coastal sage scrub, and grassland.

- *San Diego River*. The San Diego River extends east to west through the City of Santee and provides a corridor for wildlife movement and connectivity through the urbanized portion of the City of Santee (Figure 2-15). A number of conservation and planning entities are working to protect, enhance, and manage the San Diego River and adjoining habitat for wildlife protection and passive recreational use (hiking and biking trails). These groups include the San Diego River Conservancy, San Diego River Park Foundation, San Diego River Coalition, San Diego River Watershed Workgroup, and Lakeside River Park Conservancy.

- *California Gnatcatcher Stepping Stone Connectivity.* Coastal California gnatcatchers likely prefer to disperse through coastal sage scrub, but will use riparian scrub, riparian woodland, and chaparral as well (SDMMP 2011, Appendix 2). Disjunct patches of sage scrub (stepping-stone corridors) do appear to be used (Bailey and Mock 1998) if within short dispersal distances (1-2 miles). Figure 2-15 highlights areas of remaining patches of coastal sage scrub that are assumed to function as a stepping stone corridor connecting Rattlesnake Mountain to gnatcatcher habitat north of Magnolia Avenue and on the Fanita Ranch property. Gnatcatcher habitat on the Lakeside Linkage County Preserve is within two miles of Rattlesnake Mountain and could provide dispersal opportunities to the southeast of the Subarea Plan Area.

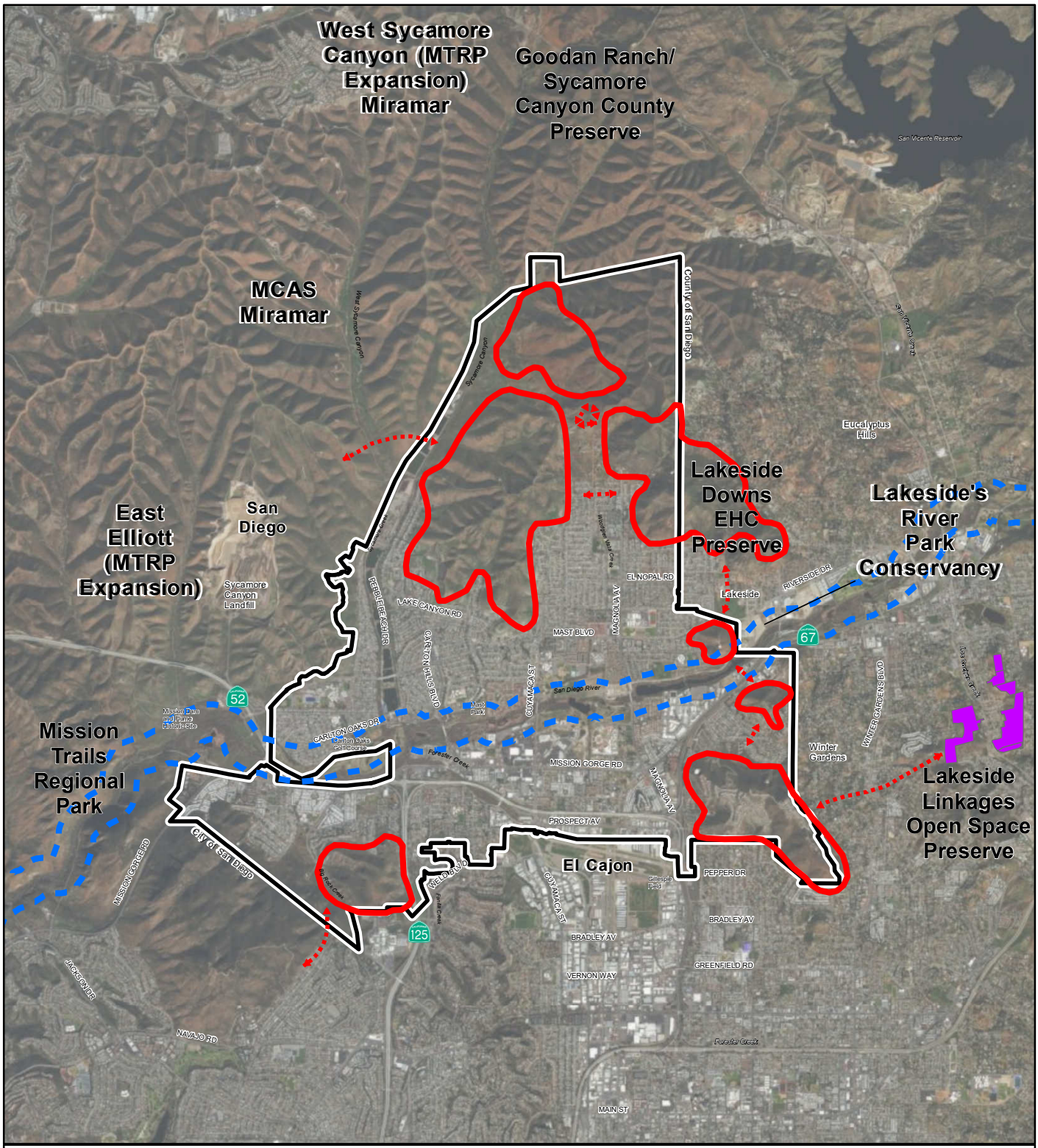
2.6 Fire History

Fire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources, amongst others. The fire history represented herein utilizes the information from the CAL FIRE fire perimeters GIS database (CAL FIRE 2017). CAL FIRE (including contract counties), USDA Forest Service Region 5, USDI Bureau of Land Management & National Park Service, and other agencies jointly maintain a comprehensive fire perimeter GIS layer for public and private lands throughout California. The data covers fires back to 1878 and 10 acres and greater. Within three miles of the City of Santee, there have been 64 fires recorded by CAL FIRE since 1910. A total of 22 fires, ranging from 25 acres (un-named 1974 fire) to 280,278 acres (Cedar



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-14 Multi-Species Connectivity Analysis.mxd Date: 12/19/2018 34153

Figure 2-14
Multi-Species Connectivity Analysis: Corridor Isopleths and Segments
Santee MSCP Subarea Plan



Legend

- Subarea Plan Area
- CSS/Gnatcatcher Habitat Blocks
- Gnatcatcher Stepping Stone Linkages
- Lakeside Linkage County Preserve
- San Diego River Corridor

N

0 6,500

Feet

Basemap Source: ESRI Imagery 2016

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-15 SD River and CAGN Stepping Stones.mxd Date: 12/19/2018 34153

Figure 2-15
San Diego River and Coastal California Gnatcatcher Stepping Stone Corridors
Santee MSCP Subarea Plan

Fire) are noted to have burned within the City of Santee dating back to 1910. Recorded fires within the City of Santee are listed in Table 2-9. The most notable fire (Cedar fire) occurred during October and November 2003, and burned large areas of central San Diego County, including large portions of the northern areas of the City of Santee. The fire's rapid growth was driven by the Santa Ana winds, causing the fire to spread at a rate of 3,600 acres per hour. Figure 2-16 presents a graphical view of the City of Santee recorded fire history.

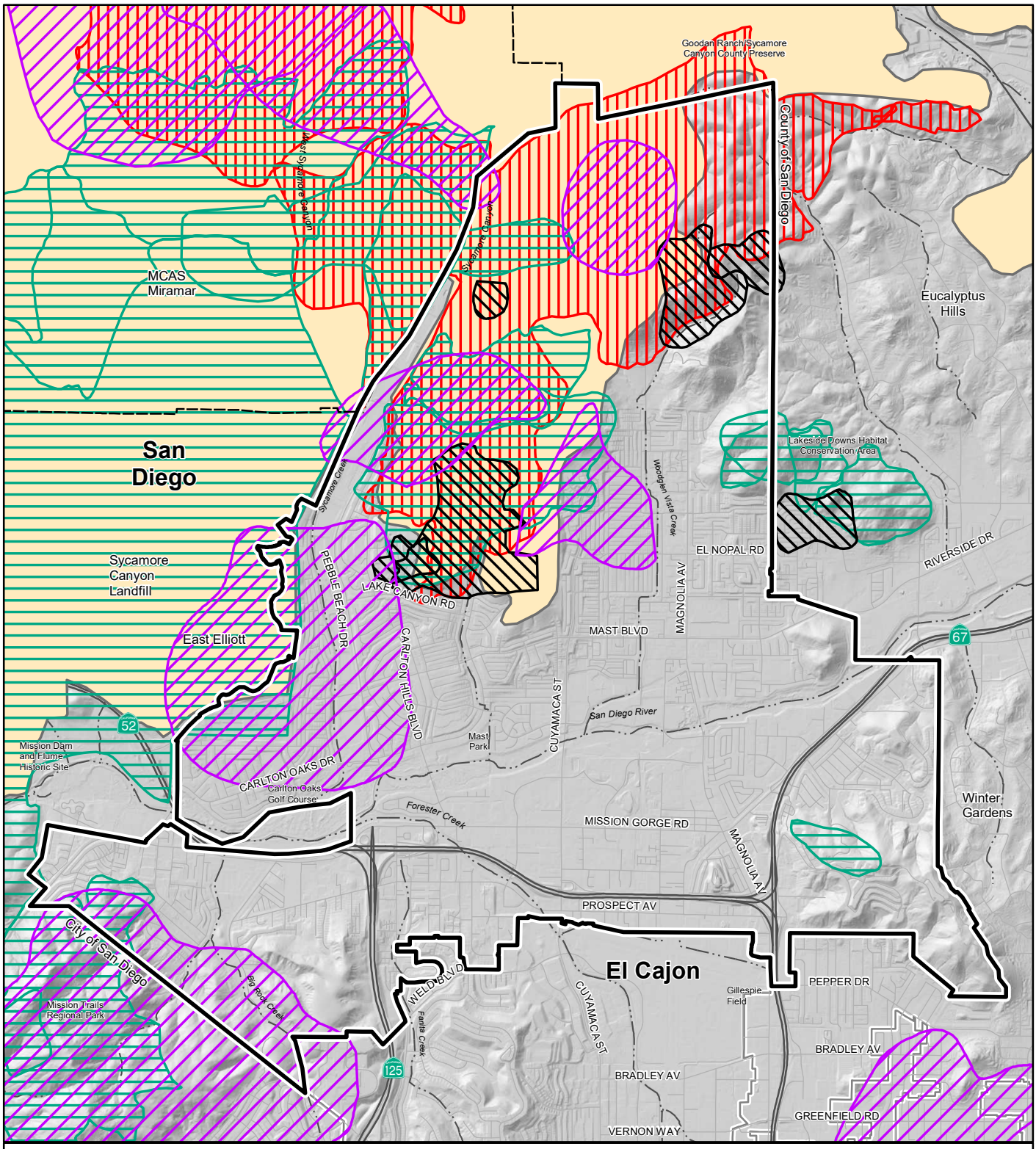
Based on the Santee vicinity fire history data, fire return intervals range between one and 25 years. This indicates that there is significant wildfire potential in the region, and the potential for the City of Santee to be subject to occasional wildfire encroachment, most likely due to the large expanses of natural vegetation to the north and east. Figure 2-17 presents a graphical representation of the fire frequency in the City of Santee and surrounding areas.

Because California is expected to experience increased temperatures and variable precipitation, there will likely be more frequent and intense wildfires and longer fire seasons (City of Santee 2018).

Table 2-9. Fire History within City of Santee

Year of Fire	Fire Name	Total Area Burned (acres)
1910	Un-named	1,315
1941	Un-named	406
1942	Un-named	1,221
1943	Un-named	292
1944	Un-named	6,174
1950	Quarry	281
1966	Carlton Hills	329
1974	Un-named	155
1974	Un-named	68
1974	Un-named	25
1975	Un-named	25
1980	Assist #69	745
1981	Assist #59	7,310
1981	Assist #72	696
1981	Outside Origin #4	56
1984	Assist #21	62
1984	Outside Origin #1	122
1987	Assist #38	380
1988	Assist #78	935
1989	Assist #59/Magnolia	310
1994	Rocoso	3,218
2003	Cedar	75,637

Source: CALFIRE 2017.



Legend

- Subarea Plan Area
- MCAS Miramar

Year Range

- 1900 - 1949
- 1950 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2016 (2003 Cedar Fire)

N

0 4,450 Feet

Source: CalFire 2016

Basemap Source: SANDAG Shaded Relief 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-16 Fire History.mxd Date: 12/19/2018 34153

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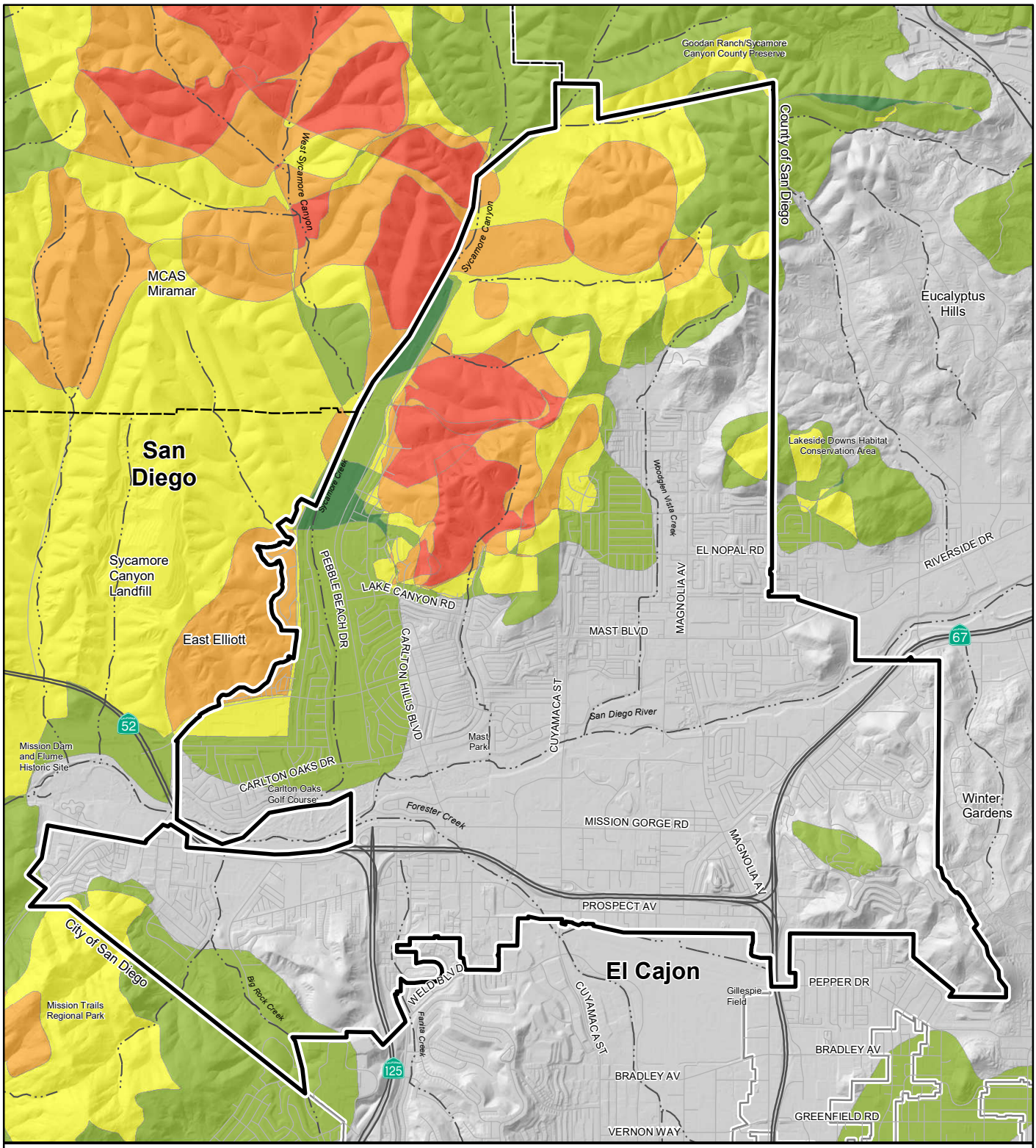
Figure 2-16
Fire History
Santee MSCP Subarea Plan



Legend

Subarea Plan Area

MCAS Miramar

Number of Times Burned

0

1

2

3

4 - 5

N

0 4,450

Feet

Source: CalFire 2016

Basemap Source: SANDAG Shaded Relief 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 2-17 Fire Frequency.mxd Date: 12/19/2018 34153

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Figure 2-17
Fire Frequency
Santee MSCP Subarea Plan

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Chapter 3
Covered Species

This chapter describes the process used to develop the list of Covered Species for the Santee Subarea Plan and includes profiles of the 22 species included on the final Covered Species list.

3.1 Determination of Covered Species List

The following criteria were used to develop the list of Covered Species for the Santee Subarea Plan: occurrence and/or suitable habitat, species status, impact of covered activities, data sufficiency to evaluate impacts, whether the species is a Covered Species under the MSCP, and whether the species is affected by the severability of permits.

Occurrence and/or Suitable Habitat

This criterion specifies that the species is known to occur or has the potential to occur in the Subarea Plan Area (Subarea Plan Area is equivalent to the City of Santee jurisdiction). Occurrence data are based on credible evidence, or the species may not be currently known in the Subarea Plan Area but is expected to occur in the Subarea Plan Area during the permit term (e.g., through range expansion or reintroduction to historic range). Sources used for identifying occurrence data include the CNDDB, the USFWS Carlsbad office species database, and project specific field surveys (Section 3.3.1, *Known Occurrences*). If a species has predicted habitat and/or is known to occur within the Subarea Plan Area based on professional biological knowledge, then it also meets this criterion.

Species Status

This criterion is intended to identify any species that are federally or state-listed or have the potential to become listed during the permit term. Potential for listing during the permit term was based on current listing status, consultation with experts and Wildlife Agency staff, consideration of population trends and threats, and best professional judgment of the biologists working on the Plan. For non-listed plant species, the California Rare Plant Rank (CRPR) and threat rank were also used to assist in determining status and potential for being listed.

Impact of Covered Activities

This criterion is based on the expectation that implementation of proposed Covered Activities will result in take of the species, including take of individuals or modification of habitat (including designated critical habitat). An impact may result from direct removal of habitat associated with a Covered Activity, or from indirect effects such as noise and lighting.

Data Sufficiency

Species coverage determination must be based on the best available data. There must be sufficient data on the species' life history, habitat requirements, and occurrence in the Subarea Plan Area to adequately evaluate impacts on the species and to develop conservation actions to address these impacts. Under this criterion, the amount, type, and quality of species data was evaluated to determine if there was sufficient data to adequately evaluate impacts and conservation.

MSCP Covered Species

Because this is a Subarea Plan to the MSCP Subregional Plan, the conservation and management of species in Santee will be implemented in coordination with the conservation and management for the same Covered Species in other subareas of the regional MSCP. The Santee MSCP Subarea Plan is adjacent to both the City of San Diego MSCP Subarea Plan and the County of San Diego South County MSCP Subarea Plan. Species covered by these and other MSCP Subarea Plans will benefit by the additional conservation and management in the Santee MSCP Subarea Plan. Therefore, under this criterion, the conservation goals and objectives for these species are established to contribute to the overall conservation achieved across the MSCP Subregion. For species that are not covered by the MSCP Subregional Plan, the goals and objectives are focused on achieving a sufficient level of conservation independent of the other MSCP Subarea Plans.

Severability of Permits

For the MSCP Subregional Plan, the Wildlife Agencies assessed the amount of conservation versus take proposed for each Covered Species in each jurisdiction. Based on this assessment, the Wildlife Agencies identified two lists of species, "MSCP Covered Species" and "Covered Species Affected by Severability of Take Authorizations." Table 3-1 includes the Covered Species Affected by Severability of Permits list and represents those species for which the state and federal permit requirements are dependent on approval and implementation of specific jurisdiction's subarea plans. For Santee, there are five plants and four animals affected by this severability provision. These species need to be covered by the City of San Diego, the County of San Diego, or the City of Chula Vista Subarea Plans (one, two, or all three jurisdictions, depending on the species) for Santee to receive take coverage from the Wildlife Agencies. Currently, all three contingent jurisdictions have approved Subarea Plans. *Note that there are no species that Santee must cover in order for other jurisdictions to receive take coverage from the Wildlife Agencies.*

Table 3-1. MSCP Subregional Plan Covered Species Affected by Severability of Permits[a]

Species Common Name	Jurisdictions Needed to Add Species
San Diego ambrosia	City and County of San Diego
Variegated dudleya	City and County of San Diego
San Diego button-celery	City and County of San Diego
San Diego barrel cactus	City and County of San Diego and Chula Vista
San Diego mesa mint	City of San Diego
Orange-throated whiptail	City and County of San Diego
Coastal cactus wren	City and County of San Diego and Chula Vista
California gnatcatcher	City and County of San Diego and Chula Vista
Least Bell's vireo	City and County of San Diego

[a] From Table 3-4b of the MSCP Subregional Plan (City of San Diego 1998).

3.2 Covered Species List

Using the criterion listed discussed in Section 3.1, *Determination of Covered Species List*, the Santee Subarea Plan list of Covered Species is provided in Table 3-2.

Table 3-2. Santee Subarea Plan Covered Species

Common Name[a]	Scientific Name[a]	Status[b] Federal/State/CRPR
Plants		
San Diego ambrosia	*Ambrosia pumila*	FE/-/1B.1
San Diego barrel cactus	*Ferocactus viridescens*	-/-/2B.1
San Diego button-celery	*Eryngium aristulatum* var. *parishii*	FE/SE/1B.1
San Diego goldenstar	*Bloomeria clevelandii*	-/-/1B.1
San Diego mesa mint	*Pogogyne abramsii*	FE/SE/1B.1
San Diego thornmint	*Acanthomintha ilicifolia*	FT/SE/1B.1
Variegated dudleya	*Dudleya variegata*	-/-/1B.2
Willowy monardella	*Monardella viminea*	FE/SE/1B.1
Invertebrates		
Hermes copper butterfly	*Lycaena hermes*	FC/-
Quino checkerspot butterfly	*Euphydryas editha quino*	FE/-
Riverside fairy shrimp	*Streptocephalus woottoni*	FE/-
San Diego fairy shrimp	*Branchinecta sandiegonensis*	FE/-
Reptiles and Amphibians		
Belding's orange-throated whiptail	*Aspidoscelis hyperythra beldingi*	-/WL
Blainville's horned lizard	*Phrynosoma blainvillii*	-/SSC
Southwestern pond turtle	*Actinemys pallida*	-/SSC
Western spadefoot toad	*Spea hammondii*	-/SSC
Birds		
Coastal California gnatcatcher	*Polioptila californica*	FT/SSC
Least Bell's vireo	*Vireo bellii pusillus*	FE/SE
San Diego cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	-/SSC
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE/SE
Tricolored blackbird	*Agelaius tricolor*	-/CSE, SSC
Western burrowing owl	*Athene cunicularia hypugaea*	-/SSC

[a] Species taxonomy and common names are based on the following sources:
Plants: *The Jepson Manual, 2nd edition* (Baldwin et al. 2012).
Invertebrates: California Department of Fish and Wildlife (CDFW) *Special Animals List* July 2017.
Amphibian and reptiles: *Society for the Study of Amphibians and Reptiles (SSAR) North American Species Names Database* (accessed September 1, 2017).
Birds: *USFWS Environmental Conservation Online System* (ECOS) (Accessed September 1, 2017). San Diego cactus wren nomenclature follows ECOS and Rea and Weaver 1990.

[b] Federal – FE: Federally Endangered, FT: Federally Threatened, FC: Federal Candidate.
State – SE: State Endangered, CSE: Candidate for State Endangered, SSC: CDFW Species Special of Concern, WL: CDFW Watch List.
California Rare Plant Ranking (CRPR) – 1B.1: CRPR for Plants Rare, Threatened, or Endangered in California and Elsewhere, and Seriously threatened in California, 1B.2: CRPR for Plants Rare, Threatened, or Endangered in California and Elsewhere, and moderately threatened in California 2B.1: CRPR for Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere, seriously threatened in California . Applicable status as reported in CDFW *Special Animals List* July 2017 and CDFW *Special Vascular Plants, Bryophytes, and Lichens List* July 2017.

3.3 Species Profile Data Sources and Methods

Sections 3.4 through 3.7 consist of species profiles for each of the 22 Covered Species listed in Table 3-2. These profiles summarize the key elements of each Covered Species' life history that are important for habitat conservation planning, monitoring, and adaptive management. These relevant details include a summary of what is understood about their known occurrences, suitable habitat, and USFWS-designated critical habitat in the Subarea Plan Area. The following sections describe the data sources and methods used to collect and/or create information for known occurrences, species habitat suitability models and maps, and critical habitat.

3.3.1 Known Occurrences

Various occurrence data sources were used to provide documentation of known locations for individual species. It is not feasible to conduct comprehensive surveys over the entire Subarea Plan Area, or even within all of the Covered Activity footprints and protected lands. However, the occurrence information does provide the locations of confirmed sightings of a species in a specific area. The occurrence information was used in combination with predicted species models to evaluate and refine the Covered Species list, characterize potential impacts and take, and evaluate the Conservation Strategy to determine if the Subarea Plan conservation actions result in protection of known occupied areas. Occurrence data sources were as follows.

- **California Natural Diversity Database (CNDDB):** A database maintained by CDFW that contains confirmed locations for both plant and wildlife species. Data was accessed from the CNDDB as of January 2017.
- **U.S. Fish and Wildlife Service (USFWS):** A USFWS Carlsbad Fish and Wildlife Office database containing confirmed species points for federally-listed plant and wildlife species. Data was obtained from USFWS as of December 2016.
- **Project or Preserve Specific Data.** Additional occurrence information pertinent to this Subarea Plan was collected from other proposed development projects and/or information collected through monitoring activities on existing Preserves. This information was input and incorporated into the GIS database when available and is listed below.
    - Fanita Ranch—The Fanita Ranch property has been comprehensively field surveyed as part of the project development environmental review and has been summarized in the Biological Technical Report (Dudek 2018). Since the field surveys for this project area are the most recent and are comprehensive, this information was used exclusively for current records of known occurrences on Fanita Ranch.
    - CNLM Annual Reports—As part of CNLM's ongoing management of the Rattlesnake Mountain, Santee Hills, and East Mesa HCAs, CNLM conducts sensitive species surveys of these properties and maintains a GIS database of species occurrence information, CNLM provided a copy of the GIS data in 2017. Species added to the Subarea Plan occurrence database from this source included San Diego barrel cactus, San Diego goldenstar, Belding's orange-throated whiptail, Blainville's horned lizard, coastal California gnatcatcher, and least Bell's vireo.
    - Tyler Street Biological Resources Report—Field surveys for the proposed Tyler Street Residential project were completed in 2013 and 2016 (Blue Consulting Group 2016). Species added to the Subarea Plan occurrence database from this source included coastal

California gnatcatcher and San Diego cactus wren. Covered Species that were confirmed not present at this location included Quino checkerspot butterfly,

- Cutri Development Biological Resources Technical Report—Field surveys for the Cutri Residential project were completed in 2014 (Cummings and Associates 2015). Species added to the Subarea Plan occurrence database from this source included coastal California gnatcatcher and Belding's orange-throated whiptail. Covered Species that were confirmed not present at this location included Quino checkerspot butterfly,
- Woodside Terraces Biological Resources Technical Report—Field surveys for the Woodside Terraces Residential project were completed in 2014 (PSBS 2014). Species added to the Subarea Plan occurrence database from this source included coastal California gnatcatcher,
- Cheyenne Property Biological Resources Technical Reports—Multiple field surveys were completed on the Cheyenne property from 2004 to 2015 in association with a proposed development of this property. The results were summarized in an updated biological report and impact analysis (RECON 2015). Species added to the occurrence database include California gnatcatcher and San Diego barrel cactus. Covered Species that were confirmed not present at this location included Quino checkerspot butterfly, Hermes copper butterfly, and San Diego thornmint.
- Lantern Crest Senior Housing Phases I and II Biological Assessment—Field surveys for the Lantern Crest project were completed in 2008 (PSBS 2008). Species added to the Subarea Plan occurrence database from this source included coastal California gnatcatcher.
- Lantern Crest II Biological Resources Technical Report—Field surveys for the proposed Lantern Crest II project were completed in 2017 (Scheidt Biological Consultant 2017a). Species added to the Subarea Plan occurrence database from this source included coastal California gnatcatcher.
- Parkside (formerly Hillside Meadows) Biological Resources Survey Report—Field surveys for the proposed Parkside residential developed project were completed in 2013 (Scheidt Biological Consultant 2013). Species added to the Subarea Plan occurrence database from this source included coastal California gnatcatcher, Belding's orange-throated whiptail, and San Diego barrel cactus.
- Railroad Avenue Ambrosia Translocation Plan—Translocation of San Diego ambrosia in 2016 to the Railroad Avenue Ambrosia Conservation Preserve (Scheidt Biological Consultant 2016). Species added to the Subarea Plan occurrence database from this source included San Diego ambrosia with an occupied area of 3,222 square feet and roughly estimated having 10,000 stems.

An occurrence is represented as a polygon with information regarding the number of individuals (or population) recorded at that location. If the number of individuals was not recorded, the occurrence was assumed to represent a single individual. In several instances, there was duplication, overlap, and redundancy of occurrence information between the different data sources. To complete the assessment of Plan impacts and conservation analysis, the occurrence information was filtered to remove overlap. A systematic approach was taken to use the most current and detailed occurrences. If there was overlap, the occurrences that were older and/or more general were ignored until no overlap existed. Table 3-3 summarizes known occurrences records by data source collected within the Subarea Plan Area. A more detailed breakdown and description of known occurrences for each species is included in Chapter 6, *Conservation Analysis*.

Table 3-3. Known Occurrences of Covered Species in Subarea Plan Area

	Sources:	CNDDB		USFWS		Fanita Ranch		Other		Totals	
		Occ.[a]	Pop. [a]	Occ. [a]	Pop. [a]	Occ. [a]	Pop. [a]	Occ. [a]	Pop. [a]	Occ. [a]	Pop. [a]
Plants	San Diego ambrosia	4	10,315	-	-	-	-	1	10,000	5	20,315
	San Diego barrel cactus	52	277	-	-	380	4,866	91	193	523	5,336
	San Diego button-celery	-	-	-	-	-	-	-	-	-	-
	San Diego goldenstar	11	2,032	-	-	29	18,314	1	1,000	41	21,346
	San Diego mesa mint	-	-	-	-	-	-	-	-	-	-
	San Diego thornmint	-	-	-	-	-	-	-	-	-	-
	Variegated dudleya	11	357	-	-	82	8,942	-	-	93	9,299
	Willowy monardella	7	3,690	-	-	68	1,622	-	-	75	5,312
Invertebrates	Hermes copper butterfly	-	-	-	-	3	3	-	-	3	3
	Quino checkerspot butterfly	-	-	-	-	1	1	-	-	1	1
	Riverside fairy shrimp	-	-	-	-	-	-	-	-	-	-
	San Diego fairy shrimp	-	-	-	-	72[b]	72[b]	-	-	72[b]	72[b]
Reptiles and Amphibians	Belding's orange-throated whiptail	1	3	-	-	55	55	41	41	97	99
	Blainville's horned lizard	-	-	-	-	27	27	36	36	63	63
	Southwestern pond turtle	-	-	-	-	-	-	-	-	-	-
	Western spadefoot toad	-	-	-	-	38[b]	38[b]	-	-	38[b]	38[b]
Birds	Coastal California gnatcatcher	10	27	155	261	81	120	70	71	316	479
	Least Bell's vireo	3	33	30	36	1	1	1	1	35	101
	San Diego cactus wren	3	18	-	-	5	5	1	1	9	24
	Southwestern willow flycatcher	-	-	-	-	-	-	-	-	-	-
	Tricolored blackbird	2	1,530	-	-	-	-	-	-	2	1,530
	Western burrowing owl	-	-	-	-	-	-	-	-	-	-

[a] Occ. = Occurrence, Pop. = Population; includes both historic and current; [b] Based on occupied features rather than occurrences/population.

3.3.2 Species Habitat Suitability Models and Mapping

The modeling and mapping of species habitat suitability are important tools to utilize to evaluate species effects at a landscape scale, especially because it is not feasible to conduct comprehensive species surveys across the entire Subarea Plan Area. The models tend to be conservative (i.e., over predict), and the results generally overstate the actual effects on species. Not all of the predicted suitable habitat is expected to be occupied by the subject species at any one time due to the population dynamics of species that result in variation of their local distribution over space and time. In addition, there are small-scale habitat features that are not mapped in the GIS database that can affect the suitability of habitat.

The predicted suitable habitat distribution models are one of many tools used in development of the Subarea Plan. The models are helpful in developing the initial estimate of take so that the amount of take can be quantified for the issuance of take permits from the Wildlife Agencies. During implementation of the Subarea Plan, project surveys will be completed to document habitat and species presence on the ground prior to initiation of a Covered Activity to determine appropriate avoidance, minimization, and mitigation measures. Furthermore, management and monitoring decisions are not made based on these habitat distribution models. Instead, the properties within the Subarea Plan Preserve System will be surveyed during baseline surveys and ongoing monitoring as part of Subarea Plan implementation by the Preserve Managers, and specific management and monitoring decisions will be made based on the survey data and on the ground habitat evaluation.

The methods and assumptions used to develop the habitat suitability models and maps are described for each Covered Species in Sections 3.4 through 3.7. The species models are based on biological and physical factors that have been mapped in GIS at a regional scale. Therefore, the most important factor driving the species models is generally the vegetation communities/land cover mapping. For some species, the best available information of habitat suitability were models developed by other entities (e.g., SDMMP) and these models were used for this Subarea Plan. In addition, for some species (e.g. vernal pool obligate species) the mapping of suitable habitat is based on known areas of suitable habitat because modeling of predicted suitable habitat is problematic for species with habitats requirements involving microhabitat features.

Table 3-4. Habitat Suitability and Critical Habitat of Covered Species in Subarea Plan Area

Covered Species	Data Source	Habitat Type	Acres within Subarea Plan Area
Plants			
San Diego ambrosia	Habitat model for Subarea Plan	Suitable habitat	997.5
	USFWS 2010	Critical habitat	0.2
San Diego barrel cactus	Habitat model for Subarea Plan	Suitable habitat	3,231.7
San Diego button-celery	Known vernal pools/seasonal basins (Section 2.4.2)	Vernal pools and seasonal basins (potential features in Fanita Ranch)	1.6
		Vernal pool complexes (Weston and Grossmont College)	19.6

Covered Species	Data Source	Habitat Type	Acres within Subarea Plan Area
San Diego goldenstar	Habitat model for Subarea Plan	Suitable Habitat	3,333.1
San Diego mesa mint	Known vernal pools/seasonal basins (Section 2.4.2)	Vernal pools and seasonal basins (potential features in Fanita Ranch)	1.6
		Vernal pool complexes (Weston and Grossmont College)	19.6
San Diego thornmint	Statistical model developed by SDMMP (CBI 2014)	Higher value (0.75 – 1)	706.8
		Moderately high value (0.5 – 0.75)	1,192.3
		Moderate value (0.25 – 0.5)	1,948.4
		Lower value (0.0 – 0.25)	126.8
		Total:	3,974.3
Variegated dudleya	Habitat model for Subarea Plan	Suitable habitat	3,456.8
Willowy monardella	Habitat model for Subarea Plan	Suitable habitat	345.6
	USFWS 2014	Critical habitat	115.8
Invertebrates			
Hermes copper butterfly	Habitat model for Subarea Plan	Potentially suitable vegetation communities in Subarea Plan Area	3,504.8
	Potentially suitable habitat based on field surveys[a]	Potentially suitable (spiny redberry shrub with California buckwheat within 15 feet)	149.8
Quino checkerspot butterfly	Habitat model for Subarea Plan	Potentially suitable vegetation communities in Subarea Plan Area	3,713.7
	Potentially suitable habitat based on field surveys[a]	High	1,457.7
		Low	41.7
		Total:	1,499.4
Quino checkerspot butterfly	Habitat model for Subarea Plan	Potentially suitable vegetation communities in Subarea Plan Area	3,713.7
Riverside fairy shrimp	Known vernal pools/seasonal basins (Section 2.4.2)	Vernal pools and seasonal basins (potential features in Fanita Ranch)	1.6
		Vernal pool complexes (Weston and Grossmont College)	19.6
San Diego fairy shrimp	Known vernal pools/seasonal basins (Section 2.4.2)	Vernal pools and seasonal basins (potential features in Fanita Ranch)	1.6
		Vernal pool complexes (Weston and Grossmont College)	19.6
Reptiles and Amphibians			
Belding's orange-throated whiptail	Habitat model for Subarea Plan	Suitable habitat	4,375.8
Blainville's horned lizard	Habitat model for Subarea Plan	Suitable habitat	4,412.7
Southwestern pond turtle	Habitat model for Subarea Plan	Suitable breeding habitat	68.7
		Upland habitat buffer	681.8

Covered Species	Data Source	Habitat Type		Acres within Subarea Plan Area
			Total:	750.5
Western spadefoot toad	Habitat model for Subarea Plan	Known breeding habitat		0.3
		Other potentially suitable breeding areas		19.9
		Suitable upland habitat adjacent to areas of known breeding habitat		813.8
		Other suitable upland habitat		2,837.0
			Total:	3,671.0
Birds				
Coastal California Gnatcatcher	MSCP Subregional Plan (City of San Diego 1998), updated for Subarea Plan	Very high		2,039.6
		High		616.4
		Moderate		35.3
			Total:	2,691.3
	USFWS 2007	Critical habitat		3,542.2
Least Bell's vireo	Habitat model for Subarea Plan	Suitable habitat		362.5
	USFWS 2007	Critical habitat		82.9
San Diego cactus wren	Statistical model developed by SDMMP (TNC 2015)	Higher value (0.75 – 1)		1,892.9
		Moderate value (0.5 – 0.75)		635.3
			Total:	2,528.2
Southwestern willow flycatcher	Habitat model for Subarea Plan	Suitable habitat		362.5
Tricolored blackbird	Habitat model for Subarea Plan	Suitable colony habit		30.6
		Suitable foraging habitat (breeding season)		870.2
			Total:	900.8
Western burrowing owl	Habitat model for Subarea Plan	Suitable habitat		1,837.4

[a] Habitat suitability based on field surveys completed for Fanita Ranch (Quino checkerspot butterfly and Hermes copper butterfly) and Cheyenne (Hermes copper butterfly) development project areas.

3.3.3 Critical Habitat

Critical habitat is designated through rulemaking issued by USFWS and National Marine Fisheries Service (NMFS) for specific areas that have the physical and biological features essential to the conservation of federally listed species. Section 7 of ESA prohibits federal agencies from taking actions that are likely to result in the destruction or adverse modification of designated critical habitat.

The Covered Species with designated critical habitat within or nearby the Subarea Plan Area are as follows.

- **Coastal California Gnatcatcher**. Final critical habitat for the coastal California gnatcatcher was designated in October 2000 and revised in December 2007 (USFWS 2007). Thirteen critical

habitat units are established by the designation. Unit 1 encompasses approximately 14,898 acres and includes portions of the City of Santee (covering the Fanita Ranch property, Rattlesnake mountain area, and the southwest portion of Santee near Mission Trails Regional Park). Approximately 3,827 acres of designated coastal California gnatcatcher critical habitat are included within the Subarea Plan Area.

- **Least Bell's Vireo.** In February 1994, final critical habitat for the least Bell's vireo was designated (USFWS 1994). This designation encompasses a total of 38,000 acres at 10 localities in portions of 6 counties in southern California. One critical habitat patch (totaling 929 acres) occurs along the San Diego River from Mission Trails Regional Park (near the intersection of Mission Gorge Road and Jackson Drive) up to where to Carlton Oaks Blvd crosses the river. Approximately 280 acres of designated least Bell's vireo critical habitat are within the Subarea Plan Area.
- **San Diego Ambrosia**. In November 2010, final critical habitat for San Diego ambrosia was designated (USFWS 2010). Critical habitat was designated over 783 acres in 6 units with 13 subunits. Unit 6 includes lands in the vicinity of the intersection of Mission Gorge Road and West Hills Parkway, south of State Route 52. Less than an acre of designated San Diego ambrosia critical habitat extends into Subarea Plan Area.
- **San Diego Thornmint.** In August 2008, final critical habitat for the San Diego thornmint was designated (USFWS 2008). Four critical habitat units are established by the designation, all within San Diego County, that total 671 acres. Within central San Diego County, a total of 498 acres were described as meeting the definition of critical habitat, but were excluded in the final rule, because of protections provided by the City of San Diego and County MSCP subarea plans. No designated San Diego thornmint critical habitat was delineated within the Subarea Plan Area but there is critical habitat within the vicinity of the Subarea Plan Area to the north and east.
- **Willowy Monardella.** Final critical habitat for willowy monardella was designated November 2006 and revised in March 2012 (USFWS 2012). In the revised final critical habitat for willowy monardella, 122 acres was designated within two units, with 118 acres in Unit 1-Sycamore Canyon and 4 acres in Unit 2-West Sycamore Canyon. These two units (122 acres) of critical habitat for willowy monardella are within the Subarea Plan Area.

Mapping of critical habitat is included on the figures for each of these species within this chapter and summarized in Table 3-4. No critical habitat has been designated within the Subarea Plan Area for any other federally listed species.

3.4 Plant Species Profiles

3.4.1 San Diego Ambrosia

Federal: Endangered—2002.

State: None.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: Critical habitat was been designated in 2010 by USFWS for this species (USFWS 2010a).

Recovery Planning: A recovery plan has not been prepared for this species.

3.4.1.1 Species Biology

San Diego ambrosia is a clonal herbaceous perennial plant. It is a wind-pollinated perennial herb (Jepson 2017) but also reproduces asexually by rhizomes. San Diego ambrosia presumably relies on animal vectors, in part, for seed dispersal. This species is possibly tolerant of some soil surface disturbance.

Habitat Requirements

San Diego ambrosia is typically associated with upper terraces of rivers and drainages, where it is associated with open coastal sage scrub, grassland, or disturbed habitats. This species typically occupies low-lying areas where winter and spring soil saturation levels are high, although it generally is not associated with perennial wetlands (CalFlora 2017).

Key Seasonal Periods

Key seasonal periods for San Diego ambrosia are indicated below.

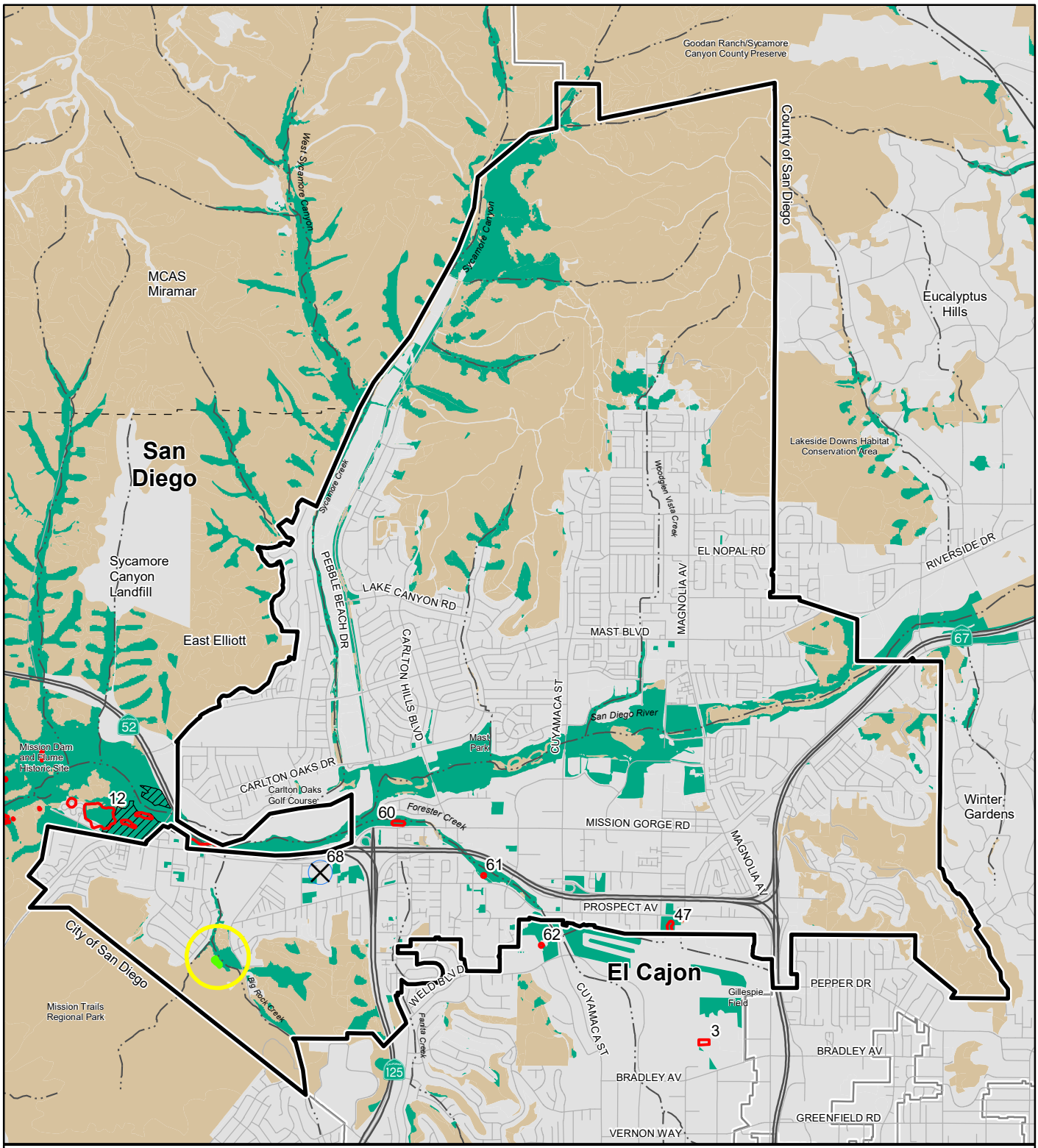
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering				✓	✓	✓	✓	✓	✓	✓		

Source: CNPS 2017.

3.4.1.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego ambrosia is restricted to western Riverside County, southwestern San Diego County, and northern Baja California, Mexico (CNPS 2017; Wiggins 1980; USFWS 2010b). USFWS, in its notice of 90-day petition finding and initiation of status review for this species, provides the following account of historic and current distribution for San Diego ambrosia (USFWS 2010b). Approximately 53 historic and extant populations of San Diego ambrosia have been documented throughout the species' range. Of this total, 48 populations have been reported from San Diego County, 2 populations occur in Riverside County, and 3 populations are known from Baja California. Of the 48



Legend

- Subarea Plan Area
- Suitable Habitat
- Final Critical Habitat (USFWS 2010a)

Species Occurrence Locations*

- Current (post-1999)
- Historic (pre-2000)
- CNDDB 2010 #36
- Proposed Transplantation Area
- Translocated

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

* CNDDB occurrence number

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-1 San Diego Ambrosia-Unique.mxd Date: 12/19/2018 34153

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Figure 3-1
San Diego Ambrosia - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

San Diego County populations, 23 are extirpated, 11 have been recently determined to be misidentifications, and 14 are extant. Two of the extant populations, however, were transplanted from donor sites, and their long-term viability is considered questionable. Of the remaining 12 populations, 11 have been verified recently as extant, and the other is considered (but not verified) as extant. The long-term viability of 5 of the 11 verified extant populations is considered questionable due to one or more factors, including small population size; habitat loss, degradation, or fragmentation; current land use practices; and land ownership. (USFWS 2010b.)

In San Diego County, the species has been reported from scattered locations along or adjacent to the San Luis Rey, San Diego, and Sweetwater Rivers. Several localities have been documented in close proximity to Santee, including the Mission Trails Regional Park river areas (City of San Diego 2017).

Current Distribution: Subarea Plan Area

There are four known extant occurrences of San Diego ambrosia (Figure 3-1), all within currently protected open space.

- A translocated population of San Diego ambrosia has been re-established at the Railroad Avenue Ambrosia Conservation Preserve (RAACP). A patch of San Diego ambrosia covering 3,222 square feet (CNDDB EO# 68) was translocated from the Prospect Estates project site (Figure 3-1) and moved in 2016 (Scheidt Biological Consultant 2017). Based on the size of this translocation area, an estimate of 10,000 stems has been roughly determined to compare with other occurrences that have reported a population size. The RAACP is available for additional translocation opportunities (Mitigation Credit Services 2017).
- An existing population of San Diego ambrosia is found in an open, grassy field north of Gillespie Field Airport Runway, beginning approximately 250 feet to the west of the RAACP within the boundaries of Gillespie Field. This consists of what is now known as California Natural Diversity Data Base (CNDDB) Elemental Occurrence (EO) #47. EO #47 was established in 1993 for the salvage and transplanting of EO #3 and EO #31, which were transplanted to the EO #47 site from other areas on the Gillespie Field Airport between 1993 and 2001. A Conditional Use Permit for EO #47 was approved by the Santee City Council in 2001, designating EO #47 as a 0.92-acre Biological Habitat Open Space Preserve (APN 348-240-16). Although it is unmanaged, EO #47 appears to be thriving and expanding (Scheidt Biological Consultant 2017).
- Within the Caltrans Forester Creek Mitigation Site, populations of San Diego ambrosia (CNDDB EO# 60) have been translocated to this location from impacts resulting from freeway and local development projects. Approximately 10,000 stems observed in 2010 and noted as “doing very well” in 2012 (CNDDB 2017).
- A translocation site along the Forester Creek Restoration Project (CNDDB EO# 61) was established in 2009 on City owned property that is zoned as Park/Open Space.

In addition to these extant occurrences, a historically occupied area (CNDDB EO#36) is located within the Cowles Mountain area of the Mission Trails Regional Park in the southwestern portion of the City of Santee. Originally reported in the 1980s, no plants have been found during surveys conducted in 1996, 1997, 1998, 2006, and 2010 (CNDDB 2017). This area has been identified as a potential receptor site for San Diego ambrosia transplantation as part of the Natural Resources Management Plan for Mission Trails Regional Park (City of San Diego 2017).

There is a low degree of potential habitat for San Diego ambrosia in the Fanita Ranch property. Rare plant surveys conducted within the Fanita Ranch property were negative for San Diego ambrosia (Dudek 2018).

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-1) for San Diego ambrosia has been developed based on where all of the following factors exist.

- Vegetative cover: areas of coastal sage scrub, grassland, riparian, or disturbed habitat.
- Topography: areas of flat topography (less than 10 percent slope).
- Proximity to rivers and drainages: within 1,000 feet of 'blue-line' streams.
- Elevation: below 600 feet.

3.4.1.3 Threats and Other Management Considerations

Threats to this species are primarily in the form of direct loss and degradation of habitat from agriculture and development. San Diego ambrosia may be adversely affected by fire and competition from other plants and appears vulnerable to random environmental or demographic events (USFWS 2010b).

Transplantation/reintroduction of rhizomes may be an effective method of protecting and enhancing populations.

3.4.1.4 References Cited for San Diego Ambrosia

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

California Natural Diversity Data Base (CNDDB). 2017. Element Occurrence Reports for *Ambrosia pumila.* Based on data obtained January 2017.

City of San Diego. 2017. Natural Resources Management Plan for the Mission Trail Regional Park, San Diego, California. Prepared by RECON Environmental Inc. January 17.

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USFWS. 2010a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the *Ambrosia pumila* (San Diego ambrosia); Final Rule. *Federal Register* 75 (229): 74546-74604. Washington, D.C.: USFWS. November.

USFWS. 2010b. *Ambrosia pumila* (San Diego Ambrosia) 5-Year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office. July.

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3.4.2 San Diego Barrel Cactus

Federal: None.

State: None.

California Rare Plant Ranking (CRPR): 2B.1.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: A recovery plan has not yet been drafted for this species.

3.4.2.1 Species Biology

San Diego barrel cactus is a small, stout barrel cactus, generally not taller than wide (Parfitt 2017). Species has stout red, pink, or yellow spines. Flowers yellow to red, occasionally with red-brown mid-stripes. They can reproduce vegetatively by producing clonal stems.

Habitat Requirements

Optimal habitat for this species appears to be hillsides in the coastal slope dominated by Diegan coastal sage scrub (Reiser 2001). San Diego barrel cactus often grows along slopes, within cobbles, and in the periphery of mima mound complexes. It is known from 3–450 meters in elevation (CNPS 2017).

Key Seasonal Periods

Key seasonal periods for San Diego barrel cactus are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering					✓	✓						

Source: CNPS 2017.

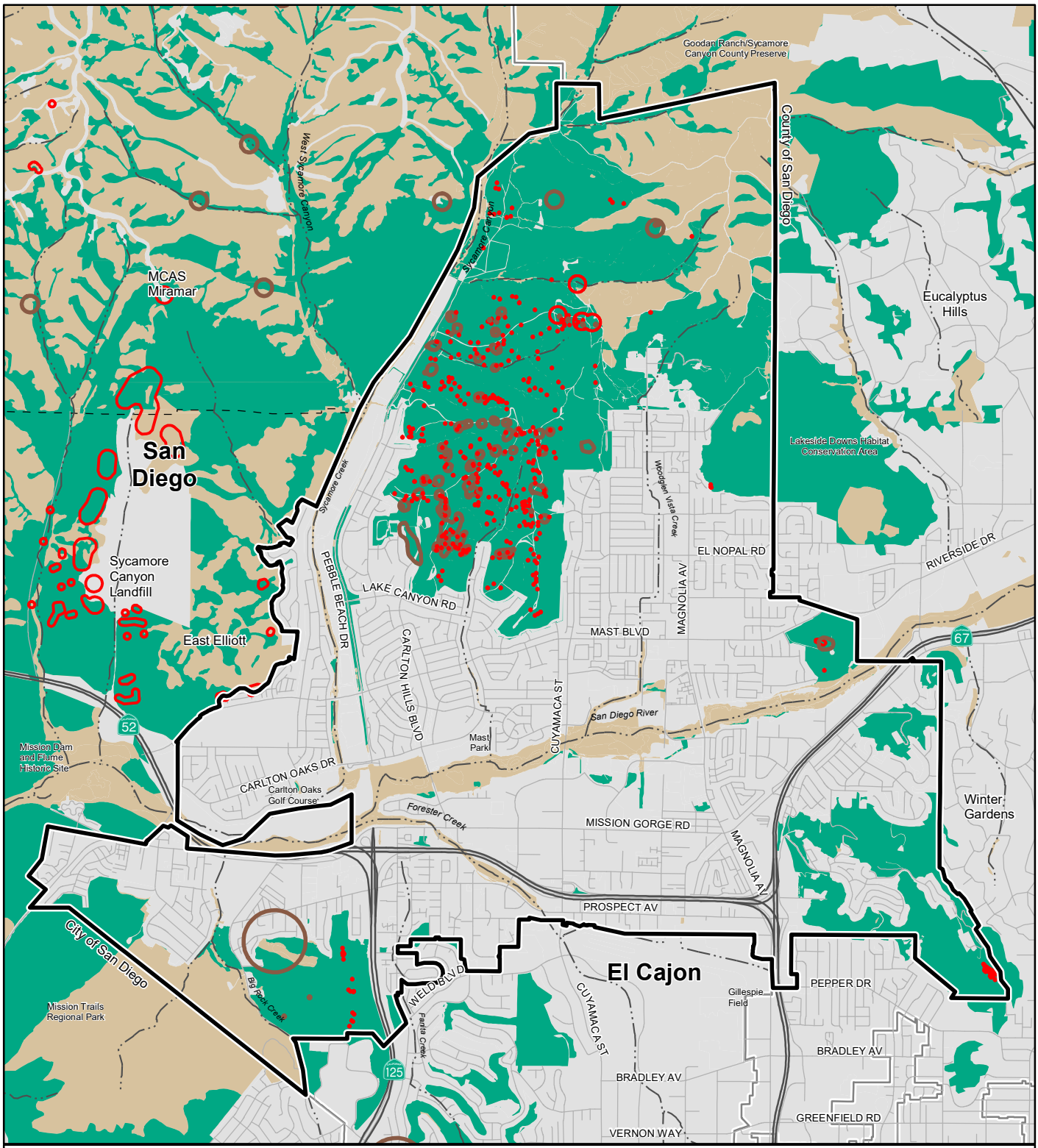
3.4.2.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego barrel cactus ranges from Camp Pendleton, near Oceanside, CA, south through the San Diego County coastal slope and into northern Baja California, Mexico (CNPS 2017). This species is locally common in appropriate habitat, but large amounts of potential habitat have been lost to urban expansion (Reiser 2001). Many populations of San Diego barrel cactus have been observed in nearby open space areas of MCAS Miramar and the Fortuna Mountain, East Elliott, and West Sycamore areas of Mission Trails Regional Park (City of San Diego 2016) (Figure 3-2).

Current Distribution: Subarea Plan Area

This species has been recorded throughout the Subarea Plan Area (Figure 3-2). A total of 4,866 San Diego barrel cactus were observed on the Fanita Ranch property and within rights-of-way of the



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-2 San Diego Barrel Cactus-Unique.mxd Date: 12/19/2018 34153

Figure 3-2
San Diego Barrel Cactus - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

extensions of Magnolia Avenue and Cuyamaca Street (Dudek 2018). Occurrences have also been recorded within the Cheyenne property, CNLM Rattlesnake Mountain HCA, and CNLM East Mesa HCA.

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-2) for San Diego barrel cactus has been developed based on where all of the following factors exist.

- Vegetative cover: areas of coastal sage scrub, grassland, or vernal pool habitat.
- Soils: not on Riverwash or Tujunga sands soil types.
- Elevation: below 1,500 feet.

3.4.2.3 Threats and Other Management Considerations

Threats to San Diego barrel cactus include habitat loss and fragmentation, damage by vehicles, horticultural collection, agriculture, and nonnative plants (CNPS 2017). Frequent or intense fires can also damage this species.

As this species is a stem succulent that can be reliability translocated, it is recommended that populations within development areas be collected and transplanted into suitable receptor sites within preserve lands. When species are collected, the north side of each salvaged cactus should be marked, so it can be planted with the same aspect orientation (County of San Diego 2010).

3.4.2.4 References Cited for San Diego Barrel Cactus

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

City of San Diego. 2016. Natural Resource Management Plan for Mission Trails Regional Park, San Diego, California. Prepared for City of San Diego Parks & Recreation Department by RECON Environmental. January 17.

County of San Diego. 2010. Appendix C. Guidelines for Cactus Salvage. In County of San Diego Report Format and Content Requirements Biological Resources. Fourth Revision. September 15.

Reiser, C. 2001. *Rare Plants of San Diego County*. Aquafir Press. San Diego, CA.

Parfitt, B.D. 2017. *Ferocactus viridescens*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=25772, accessed on October 24, 2017.

3.4.3 San Diego Button-celery

Federal: Endangered—1993.

State: Endangered—1979.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: No critical habitat rules have been published.

Recovery Planning: San Diego button-celery is included in the Recovery Plan for Vernal Pools of Southern California (USFWS 1998).

3.4.3.1 Species Biology

San Diego button-celery is a biennial or longer-lived or perennial herb in the carrot family (Apiacea) (USFWS 2010). It has long, light-green leaves that often protrude from pools, which develop into highly toothed gray-green mature leaves. The distinctive spiny inflorescences form on short stalks with few to many-flowered heads (USFWS 1998). It is presumably insect pollinated (USFWS 2010). It is specifically adapted to surviving in vernally wet conditions due to the presence of aerenchyma tissue (air channels in the roots) that facilitates necessary gas exchange in submerged plants (USFWS 2010).

Habitat Requirements

This species occurs nearly exclusively in or adjacent to vernal pool wetlands; it was listed by the USACE as an indicator of vernal pools (USACE 1997) and is considered a vernal pool obligate (USFWS 2010). This species is more tolerant of peripheral mesic vernal pool habitat than most vernal pool species with which it grows (Reiser 2001). It is able to tolerate the seasonal inundation of vernal pools and blooms after pools have dried.

Key Seasonal Periods

Key seasonal periods for San Diego button-celery are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering				✓	✓	✓						
Typical Pool Inundation	✓	✓	✓	✓								✓

Source: CNPS 2017.

3.4.3.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego button-celery ranges from Camp Pendleton, near Oceanside, California, south through the San Diego County coastal slope and into northern Baja California, Mexico (CNPS 2017). Additionally, two northern populations exist in inland vernal pool complexes on the Santa Rosa Plateau in Western Riverside County. San Diego button celery has been recorded as occurring at 14 geographic areas in Riverside and San Diego Counties (USFWS 2010). The majority of the occupied range of the

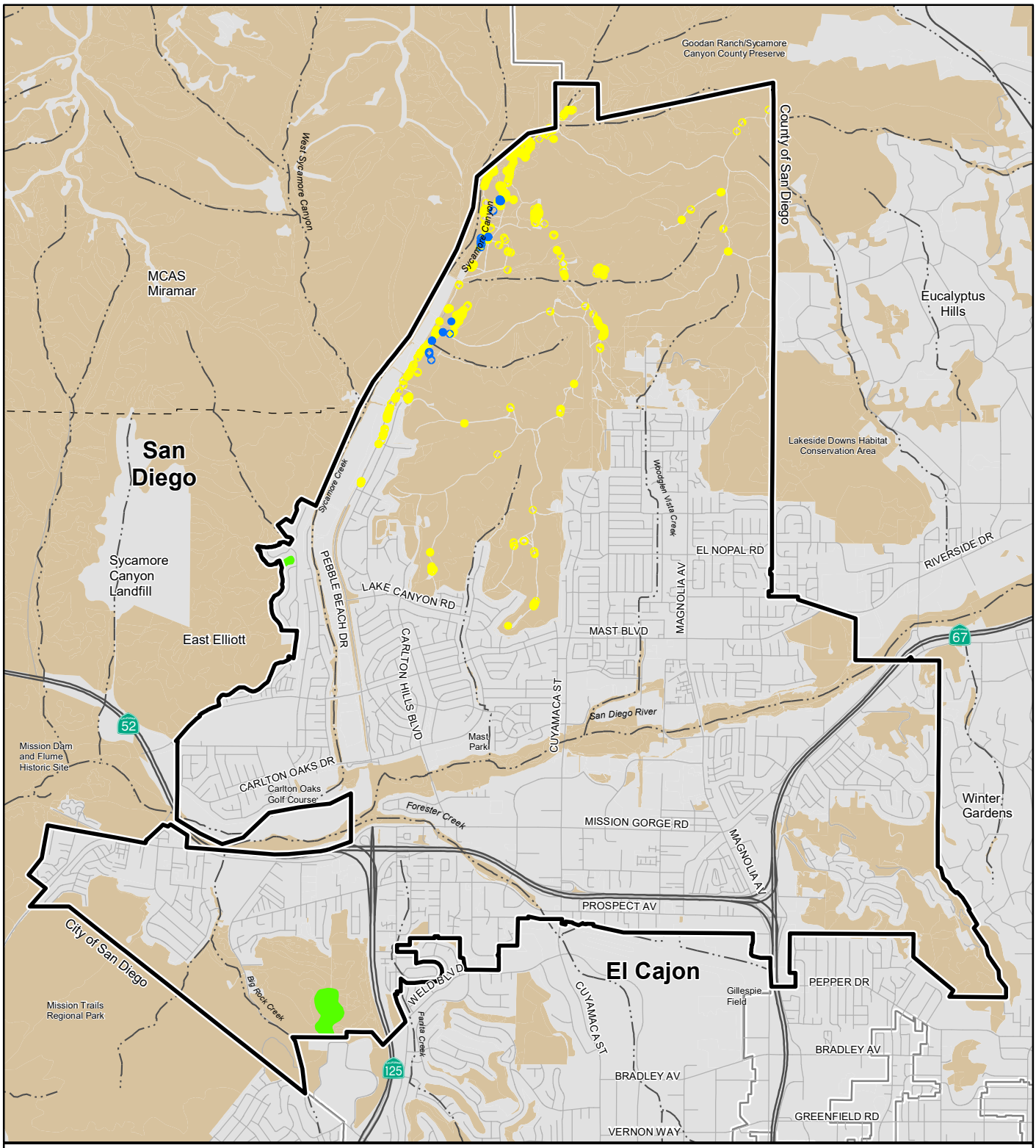


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Figure 3-3
San Diego Button-Celery - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

taxon in the United States occurs in ten regional locations in San Diego County including Camp Pendleton, Carlsbad, San Marcos, Ramona, Del Mar Mesa, Carmel Mountain, Mira Mesa, MCAS Miramar, Otay Lakes, and Otay Mesa. San Diego button-celery can be locally common in vernal pool complexes, but most of this habitat type has been lost in San Diego County (USFWS 2010).

Current Distribution: Subarea Plan Area

This species is not currently known from the Subarea Plan Area but has potential to occur within seasonally inundated depressions within the Subarea Plan Area (Figure 3-3). Rare plant surveys conducted within the Fanita Ranch property were negative for San Diego button-celery (Dudek 2018).

Habitat Suitability Mapping

Areas of suitable habitat for San Diego button celery is closely associated with vernal pools and seasonal basins. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-3.

3.4.3.3 Threats and Other Management Considerations

Threats to San Diego button-celery include habitat loss, fragmentation and degradation due to urban and agricultural development, livestock grazing, off-road vehicle use, trampling, invasion from weedy nonnative plants, altered hydrology, and other factors (USFWS 1998).

Climate change and the resulting increases in drought and temperatures may affect vernal pools through excessive drying, shorter inundation periods, and crowding of pool species by exotic upland species. Suitable pool habitat within preserved lands should have a goal of maintaining a diversity of pool depths and watersheds to be able to provide differing habitat conditions given variable and changing precipitation and climate. Pools and watersheds may be maintained free of weeds and recontoured to provide proper hydrologic function.

This species would benefit from introduction into suitable habitat within preserved lands in the Subarea Plan Area. Vernal pools and other seasonally inundated depressions within the Subarea Plan Area could serve as receptors for seed or translocated plants. The Subarea Plan Area is entirely within the range of this species and introduction of San Diego button celery within the Subarea Plan Area would help to provide connectivity between populations to the northwest, northeast, south and west.

3.4.3.4 References Cited for San Diego Button-Celery

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Reiser, C. 2001. *Rare Plants of San Diego County.* Aquafir Press. San Diego, CA.

US Army Corps of Engineers (USACE). 1997. Indicator Species for Vernal Pool. Los Angeles District, Regulatory Branch. November.

USFWS. 1998. Vernal Pools of Southern California Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

USFWS. 2010. *Eryngium aristulatum* var. *parishii* San Diego button celery 5-year: Summary Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. September 1.

3.4.4 San Diego Goldenstar

Federal: None.

State: None.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: A recovery plan has not yet been drafted for this species.

3.4.4.1 Species Biology

San Diego goldenstar is a perennial monocot in the brodiaea family (Themidaceae). This species spends most of the year obscured as a corm, is only readily observable when in bloom and may exhibit few flowers in drought years. This species typically flowers in April and May and has yellow umbel of flowers on a scape, 15–70 centimeters in height. This species has a resemblance to the more widespread common goldenstar (*Bloomeria crocea*) but generally has smaller flowers and has filaments that lean away from the style, not forming a cup around the ovary as in common goldenstar (Pires 2012).

Habitat Requirements

This species typically occurs in grasslands, sparse coastal sage scrub, and in peripheries of vernal pools or mima mound topography. It has also been observed in openings in southern mixed chaparral (Dudek 2018). Clay soils with good shrink/swell potential are preferred by this species and it has been found associated with stockpen gravelly clay loam and Redding cobbly loams (Reiser 2001).

Key Seasonal Periods

Key seasonal periods for San Diego goldenstar are indicated below.

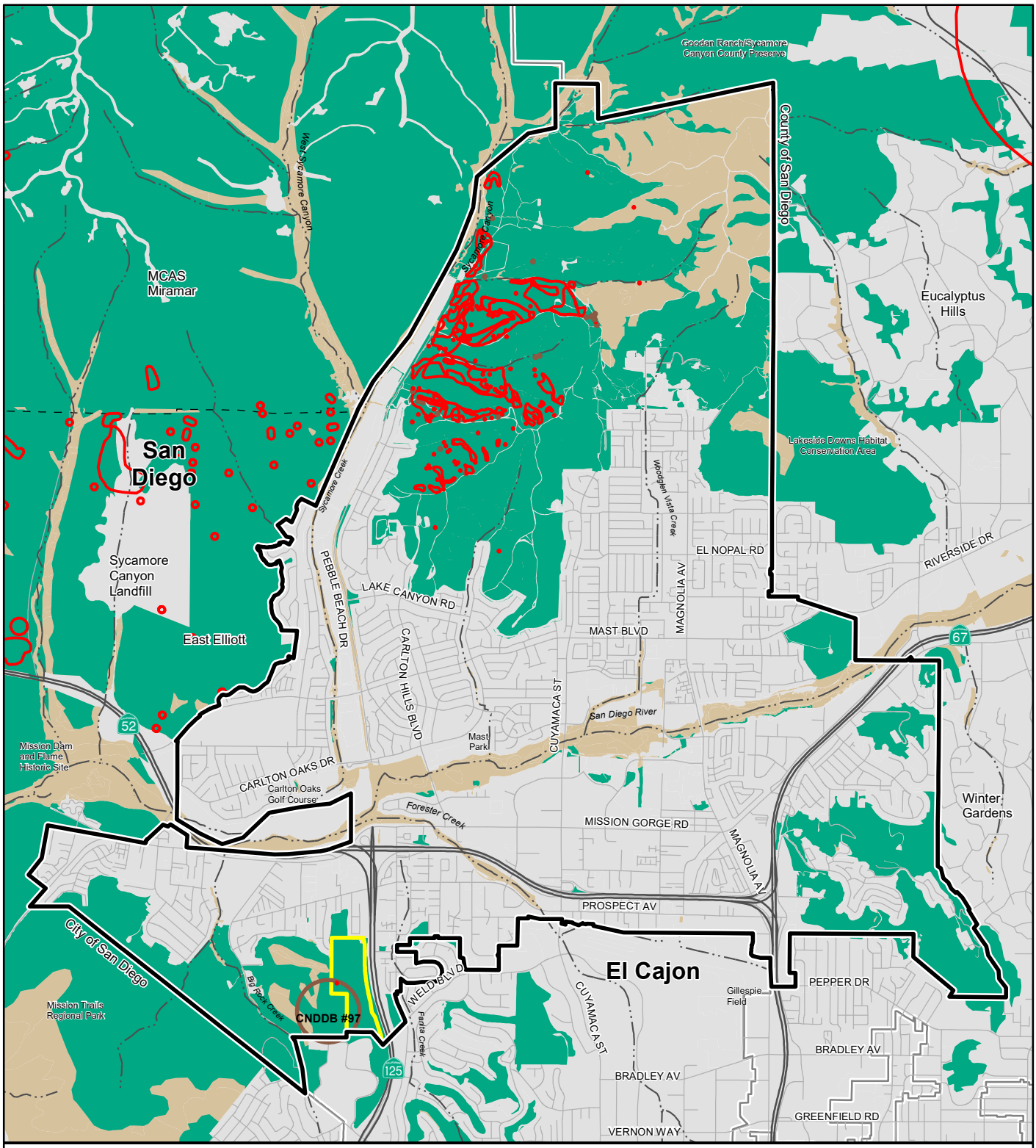
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering				✓	✓							

Source: CNPS 2017.

3.4.4.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego goldenstar occurs from Camp Pendleton, south along the San Diego coastal slope and foothills to northern Baja California Mexico (CNPS 2017). It is common near the Subarea Plan Area on the eastern portions of MCAS Miramar and a large meta-population within the East Elliot area (City of San Diego 2017). Impacts to populations of San Diego goldenstar located within the Weston



Legend

- Subarea Plan Area
- Suitable Habitat

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat
- CNLM East Mesa (Hagenmaier and Gross parcels) HCA Preserve

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-4 San Diego Goldenstar-Unique.mxd Date: 12/19/2018 34153

Figure 3-4
San Diego Goldenstar - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

development were mitigated through a translocation into the habitat preserve areas within the East Elliot area (Natural Resource Consultants 2014).

Current Distribution: Subarea Plan Area

A substantial number of San Diego goldenstar observations have been recorded within the Subarea Plan Area. Approximately 18,314 San Diego goldenstar plants were observed during field surveys on the Fanita Ranch property, primarily in the central portion of the Fanita Ranch property within Diegan coastal sage scrub, grassland, southern mixed chaparral, and disturbed habitats (Dudek 2018). Within the CNLM East Mesa (Hagenmaier and Gross parcels) HCA, "many thousands" of San Diego goldenstar have been observed within the preserve (CNLM 2017). In 2016, CNLM established four index plots on a subset of the population to assess population trends and habitat conditions (CNLM 2017). Another population (CNDDB EO#97) has been recorded near the vernal pool complex (Bauder "Q" pools) in the vicinity of Grossmont College (CNDDB 2017).

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-4) for San Diego goldenstar has been developed using the following factors.

- Vegetative cover: areas of coastal sage scrub, grassland, vernal pool, chamise chaparral, and southern mixed chaparral.
- Soil Texture: soils with clays and loams.
- Elevation: below 1,500 feet.

3.4.4.3 Threats and Other Management Considerations

San Diego goldenstar is threatened by urbanization, road construction, vehicles, nonnative plants, and illegal dumping (CNPS 2017). Other threats include grazing and altered fire regime promoting nonnative plants, which compete with San Diego goldenstar for resources. Populations in areas with high levels of gopher activity may exhibit high levels of predation.

As a perennial corm, this species can respond well to translocation. Impacted populations can be salvaged and placed at receptor sites including upland or vernal pool restoration areas. Translocation plans for any impacted populations can be developed as part of the mitigation program. Management of these translocated populations would be managed as part of preserve resource management plans.

3.4.4.4 References Cited for San Diego Goldenstar

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

Center for Natural Lands Management (CNLM). 2017. Rattlesnake Mountain Habitat Conservation Area Annual Report 2016-2017. November 9.

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Pires, J. C. 2012. *Bloomeria clevelandii*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=15767, accessed on November 06, 2017.

Reiser, C. 2001. *Rare Plants of San Diego County*. Aquafir Press. San Diego, CA.

3.4.5 San Diego Mesa Mint

Federal: Endangered—1978.

State: Endangered—1979.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: No critical habitat rules have been published.

Recovery Planning: San Diego mesa-mint is included in the Recovery Plan for Vernal Pools of Southern California (USFWS 1998).

3.4.5.1 Species Biology

San Diego mesa mint is an annual herb in the mint family (*Lamiaceae*). It has highly aromatic, opposite leaves on spreading to erect square stems that are up to 20 centimeters tall. The purple flower corolla is 10–12 millimeters and bell shaped, with a distinctly hairy stigma (Silveira 2012). The plants germinate and grow vegetatively during pool inundation, flower after pools have dried, and then senesce. It appears to require insect pollination and may be self-incompatible (USFWS 1987). Up to four seeds are produced per flower and seeds can float on the water, which offers some limited dispersal opportunities in interconnected pool complexes (USFWS 2010). Rabbits also spread San Diego mesa mint seeds (USFWS 2010).

Habitat Requirements

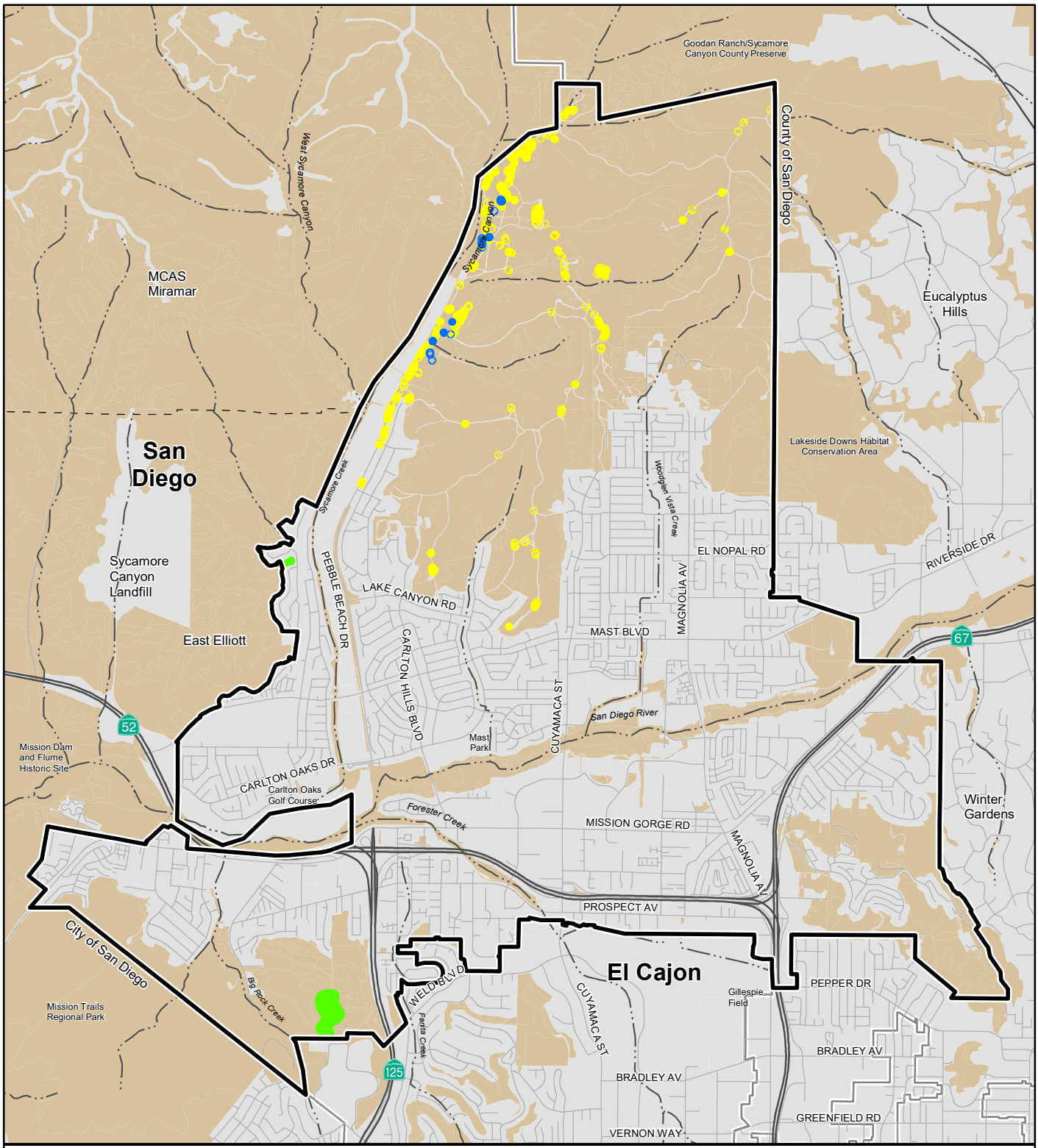
This species occurs exclusively in vernal pool wetlands; it was listed by the USACE as an indicator of vernal pools (USACE 1997) and is considered a vernal pool obligate (USFWS 2010). Vernal pools supporting San Diego mesa mint typically occur in mima-mound complexes on soils with a restrictive subsoil layer of either clay or a cemented hardpan.

Key Seasonal Periods

Key seasonal periods for San Diego mesa mint are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Annual Growth Period	✓	✓	✓	✓	✓	✓						
Flowering			✓	✓	✓	✓	✓					
Typical Pool Inundation	✓	✓	✓	✓								✓

Sources: CNPS 2017; USFWS 2010.



Legend

- Subarea Plan Area
- **Pool Type**
  - Natural Pool
  - Road Rut
  - Vernal Pool Complex
- **Species Occurrence Locations**
  None within Plan Area
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-5 San Diego Mesa Mint.mxd Date: 12/19/2018 34153

Figure 3-5
San Diego Mesa Mint - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

3.4.5.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego mesa mint is currently known from central coastal San Diego County, north of Interstate-8 to Del Mar Mesa near Highway 56 (CNPS 2017). Remaining occupied habitat for this species is concentrated on west MCAS Miramar (USFWS 2010), in the vicinity of the Miramar Mounds National Natural Landmark.

Current Distribution: Subarea Plan Area

This species is not currently known from the Subarea Plan Area but has potential to occur within seasonally inundated depressions within the Subarea Plan Area (Figure 3-5). Rare plant surveys conducted within the Fanita Ranch property were negative for San Diego mesa mint (Dudek 2018).

Habitat Suitability Mapping

Areas of suitable habitat for San Diego mesa mint is closely associated with vernal pools and seasonal basins. Known vernal pool complexes, vernal pools, and seasonal basins with the Subarea Plan Area are shown in Figure 3-5.

3.4.5.3 Threats and Other Management Considerations

The majority of potential habitat for this species has been lost to agricultural and urban development, with remaining pools threatened by a variety of sources (USFWS 2010). Threats to San Diego mesa mint include direct and indirect effects of urban development, altered hydrology, nonnative plants, off-road vehicles, illegal dumping, and military activities (USFWS 2010).

Resource management plans for preserved lands within the Subarea Plan Area will need to include measures to prevent and exclude usage of vernal pools, as this habitat has potential to support several covered species and is easily disturbed by recreation including bikes and pedestrians. A mechanism for management and funding for maintenance of fencing and signage for preserved lands will be included in resource management plans.

Effort should be made to address vernal pool functions and services as appropriate, to enhance pools and their associated watersheds, for the benefit of covered vernal pool species (USFWS 1998). Any compensatory mitigation for impacts to vernal pools

San Diego mesa mint would benefit from introduction into suitable habitat within preserved lands in the Subarea Plan Area. Vernal pools and other seasonally inundated depressions within the Subarea Plan Area could serve as receptors for seed. The introduction of the species within the Subarea Plan Area would represent an eastward expansion of the current range. This species has lost range to urban development (USFWS 2010) and establishing new populations would help provide resilience for the species.

3.4.5.4 References Cited for San Diego Mesa Mint

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

Silveira, M., Simpson, M.G. & J. D. Jokerst. 2012, *Pogogyne abramsii*, in Jepson Flora Project (eds.) *Jepson eFlora*, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=38934, accessed on November 20, 2017.

USFWS. 1998. Vernal Pools of Southern California Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

USFWS. 2010. *Pogogyne abramsii* San Diego mesa mint 5-year: Summary Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. September 1.

3.4.6 San Diego Thornmint

Federal: Threatened—1998.

State: Endangered—1982.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: Final critical habitat was designated in August 2008 (USFWS 2008).

Recovery Planning: A recovery plan has not yet been drafted for this species.

3.4.6.1 Species Biology

San Diego thornmint is a small, annual herb in the mint family (Lamiaceae). Inflorescences have a white two-lipped flower of 12 millimeters, with bottom lip much larger than the upper, rose markings on the lower lip, and bracts with spines of 7–10 millimeters (Miller and Jokerst 2017). Flowering occurs in April to June and numbers of individuals in a given year appears to be highly related to rainfall (USFWS 2009). Dominant visitors/effective pollinators appear to be generalist bees in the Apidae and Halictidae families, including honey bees (*Apis melifera*), carpenter bee (*Ceratina* sp.), and others, with most effective pollinators 6mm or smaller (Klein 2009).

Habitat Requirements

This species primarily occurs in grassy openings in chaparral or sage scrub with friable or broken clay soils. These clay lenses are open distinctive microhabitat because of the general lack of many widespread annuals and weeds (Reiser 2001).

Key Seasonal Periods

Key seasonal periods for San Diego thornmint are as follows.

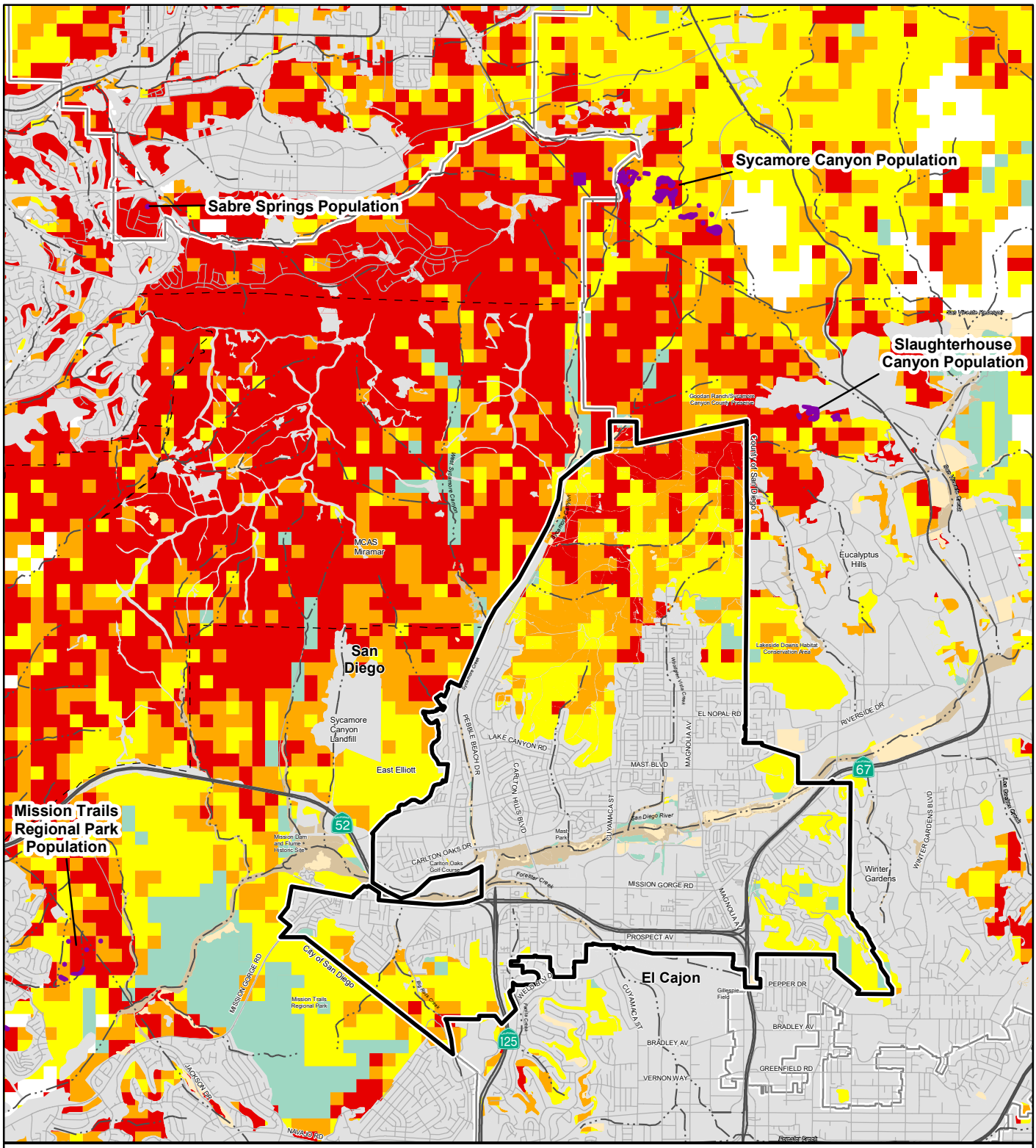
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Annual Growth Period	✓	✓	✓	✓								
Flowering				✓	✓	✓						

Source: Reiser 2001.

3.4.6.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego thornmint is endemic to San Diego County, California and northwestern Baja California, Mexico. As of the 2009 USFWS thornmint 5-year review, 55 of 80 historical occurrences were considered to be extant (USFWS 2009). The known range currently extends north to Oceanside, east to Ramona, and southeast to Jamul. The nearest CNDDB occurrences to the Subarea Plan Area are to



Sources: Habitat Suitability Model: CBI 2014; Species Occurrences: CNDDB 2017

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Figure 3-6
San Diego Thornmint - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

the northeast in Slaughterhouse Canyon, to the north on the county Sycamore Canyon/Goodan Ranch Preserve, and to the west in Mission Trails Regional Park (Figure 3-6).

Current Distribution: Subarea Plan Area

No occurrences are known within the Subarea Plan Area. While there are potentially suitable habitat on the Fanita Ranch property, rare plant surveys of this property were negative (Dudek 2018).

Habitat Suitability Model

SDMMP developed a statistically based habitat suitability model for San Diego thornmint in San Diego County that evaluated environmental factors of elevation, topographic ruggedness, slope, aspect, precipitation, temperature, soil type, soil water capacity, and rock depth (CBI 2014). The best performing model included average April minimum/maximum temperatures, April precipitation, percent sand, and median elevation, slope, and topographical heterogeneity within a 200-meter neighborhood. While it is noted that the San Diego thornmint habitat model is a preliminary model and is likely to be improved as further surveys are conducted in potential habitat, this model represents the best available scientific information for the estimating distribution of suitable habitat for this species (Figure 3-6). An identified limitation of this model is that San Diego thornmint is associated with small clay lenses that are often within a matrix of other soil types and the USDA digital soil layer is coarse in scale and does not delineate many small areas with clay lenses (CBI 2014). Accurate evaluation of species potential will depend on site-specific habitat evaluation and focused surveys.

The SDMMP model was clipped to include results only within areas of suitable vegetation types. Areas of developed, disturbed habitat, and riparian habitat are not shown as suitable habitat. For purposes of the Subarea Plan analysis, the SDMMP model results were grouped into the following categories:

Category	SDMMP Model Value
Lowest	0 – 0.25
Moderate	0.25 – 0,5
Moderately High	0.5 – 0.75
Highest	0.75 – 1

3.4.6.3 Threats and Other Management Considerations

Threats to San Diego thornmint include invasive species, direct impacts and disturbance, and habitat loss and fragmentation (CBI 2014). Other threats include trampling and grazing, competition from native plants, motorized and non-motorized recreation, and altered hydrology (USFWS 2009). Altered fire regime and increased anthropogenic nitrogen deposition may also impact the species, but the effects are not currently well understood (USFWS 2009).

Suitable habitat for San Diego thornmint exists within the Subarea Plan Area, and populations of San Diego thornmint exist around the Subarea Plan Area. There is the opportunity to establish population(s) of San Diego thornmint within preserved areas within the Subarea Plan Area. This species is an annual that reproduces by seed, so seed can be collected from donor populations to be used to establishing new populations. Establishment of populations within the Subarea Plan Area

would promote connectivity between surrounding populations and support regional conservation efforts for this species (CBI 2014). Seed from surrounding donor populations could be collected and out-planted on receptor sites or raised within a nursery facility to increase numbers of seed (bulking) prior to planting. Seed should be sourced from largest sites in the closest geographic area (Milano and Vandersgast 2018).

San Diego thornmint populations have historically been isolated with little contemporary gene flow, producing populations with low diversity within sites and high divergence of genetics between sites. Ploidy and outbreeding impacts should be further understood before moving seed between occurrences (Milano and Vandersgast 2018). As there are no known occurrences in the Subarea Plan Area which could be compromised by restoration, populations can safely be established within the Subarea Plan Area to expand the range of nearby occurrences and provide a stepping stone for connectivity (Milano and Vandersgast 2018). Any restoration efforts should track seed collections and distribution and conduct long-term monitoring to track success.

3.4.6.4 References Cited for San Diego Thornmint

Conservation Biology Institute (CBI). 2014. Adaptive Management Framework for the Endangered San Diego Thornmint, *Acanthomintha ilicifolia*, San Diego county California. Prepared for CDFW Local Assistance Grant P1182113. Prepared in collaboration with San Diego Management and Monitoring Program. March.

Klein, M.W., Sr. 2009. Pollinator study on Lakeside ceanothus (*Ceanothus cyaneus*) and San Diego thorn-mint (*Acanthomintha ilicifolia*). Section 6 project final report, contract # P0650018. Prepared for the California Department of Fish and Game, Sacramento, CA. 45 pp.

Milano, E.R., and Vandergast, A.G., 2018, Population genomic surveys for six rare plant species in San Diego County, California: U.S. Geological Survey Open-File Report 2018–1175, 60 p., https://doi.org/10.3133/ofr20181175.

Miller, J.M & J.D. Jokerst 2017. *Acanthomintha ilicifolia*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=11725, accessed on October 24, 2017.

Reiser, C. 2001. *Rare Plants of San Diego County*. Aquafir Press. San Diego, CA.

U.S. Fish and Wildlife Service (USFWS). 2008. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for *Acanthomintha ilicifolia* (San Diego thornmint); Final Rule. *Federal Register* 73 (166): 50454-50496. Washington, D.C.: USFWS. August.

———. 2009. *Acanthomintha ilicifolia* (San Diego thornmint) 5-Year Review. Summary and Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. August 12.

3.4.7 Variegated Dudleya

Federal: None.

State: None.

California Rare Plant Ranking (CRPR): 1B.2.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: A recovery plan has not yet been drafted for this species.

3.4.7.1 Species Biology

Variegated dudleya is a small, corm-like sprouting perennial with succulent leaves (Resier 2001). It has thin, spoon-shaped leaves which drop in summer. The inflorescence grows on stalks up to 20 centimeters tall, and supports 3 to 11 flowers with spreading yellow petals (McCabe 2012).

Habitat Requirements

Variegated dudleya is found in clay and rocky openings in upland vegetation communities including coastal sage scrub, chaparral, grasslands, and vernal pool complexes (Reiser 2001; CNPS 2017). It usually grows in areas devoid of shrub cover.

Key Seasonal Periods

Key seasonal periods for variegated dudleya are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering				✓	✓	✓						

Source: CNPS 2017.

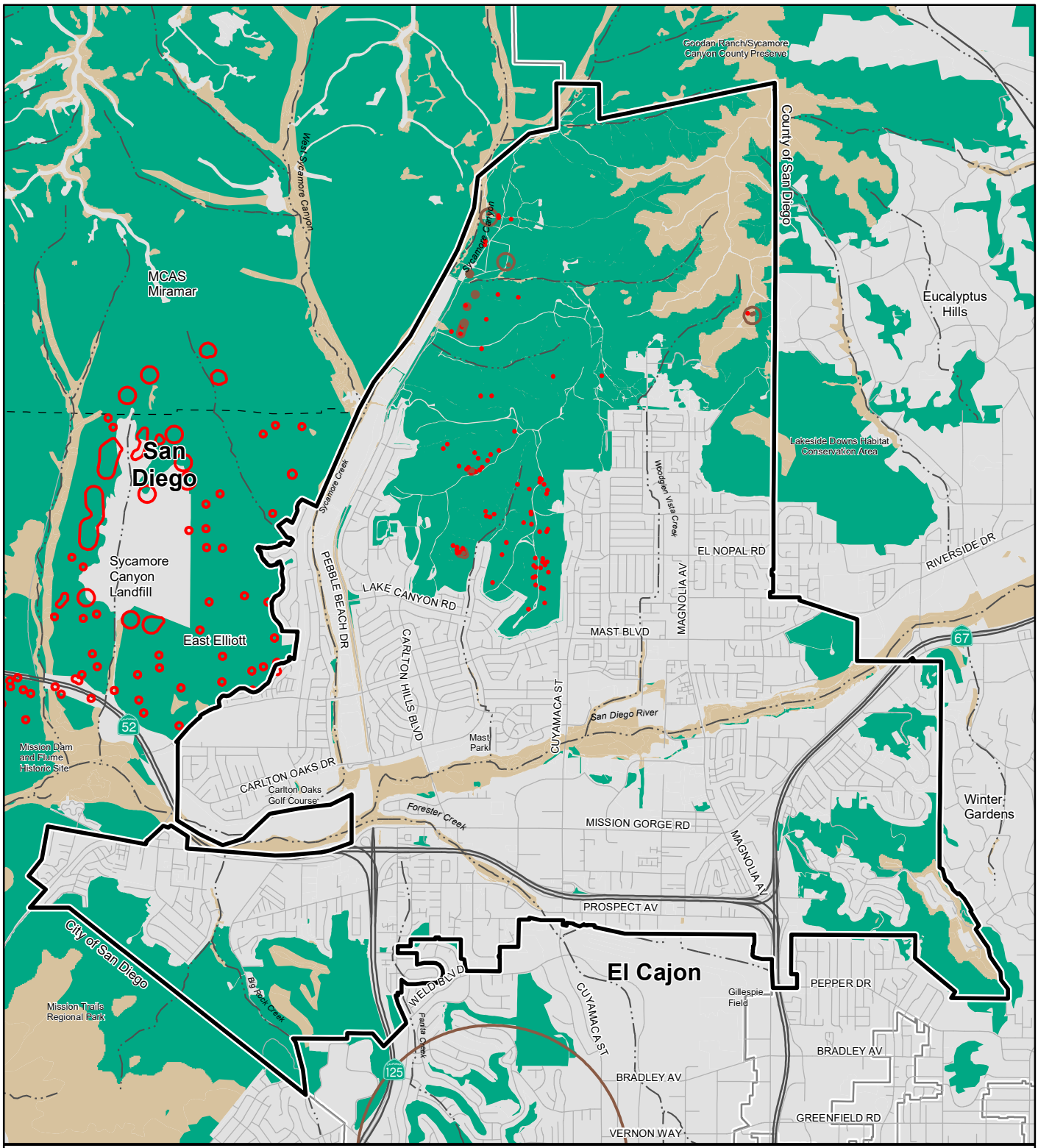
3.4.7.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Variegated dudleya occurs in San Diego County and northern Baja California, Mexico. In San Diego County, it is known along the coastal slope and foothills from south of Escondido to the international border. Near the Subarea Plan Area, occurrences of variegated dudleya have been recorded within the East Elliot, Fortuna Mountain, and Lake Murray areas of MTRP. The MTRP population is one of the 11 major MSCP populations (>500 individuals) for variegated dudleya.

Current Distribution: Subarea Plan Area

Variegated dudleya has been observed within the Fanita Ranch property (Figure 3-7). Approximately 8,942 individuals of variegated dudleya were recorded throughout the central and southern portion of the site within coastal sage scrub, grassland, and disturbed habitat and within rights-of-way of the extensions of Magnolia Avenue and Cuyamaca Street. (Dudek 2018).



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-7 Variegated Dudleya-Unique.mxd Date: 12/19/2018 34153

Figure 3-7
Variegated Dudleya - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-7) for variegated dudleya has been developed using the following factors.

- Vegetative cover: areas of coastal sage scrub, grassland, chaparral, or vernal pool habitats.
- Soil Texture: soils with clay or loam components.
- Elevation: below 1,000 feet.

3.4.7.3 Threats and Other Management Considerations

Large amounts of occupied habitat have been lost to urban and agricultural expansion. This species remains threatened by development, grazing, and nonnative plants (CNPS 2017).

The cryptic nature of this species makes it only observable in spring and early summer. Any surveys or census surveys should take place at the height of the blooming period, which would be determined by observing known populations.

As a perennial species, this plant can respond well to translocation. Impacted populations can be salvaged and placed at receptor sites including upland or vernal pool restoration areas. Translocation plans for any impacted populations can be developed as part of the mitigation program. Management of these translocated populations would be managed as part of preserve resource management plans.

References Cited for Variegated Dudleya

California Native Plant Society (CNPS), Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

McCabe, S.W. 2012, *Dudleya variegata*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=23676, accessed on November 21, 2017.

Reiser, C. 2001. *Rare Plants of San Diego County*. Aquafir Press. San Diego, CA.

3.4.8 Willowy Monardella

Federal: Endangered—1981.

State: Endangered—1979.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: Final critical habitat was designated by USFWS in November 2006 and revised in March 2012 (USFWS 2012a).

Recovery Planning: A recovery plan has not yet been drafted for this species.

3.4.8.1 Species Biology

Willowy monardella is a perennial herb or subshrub in the mint family (Lamiacea). It is has smooth, aromatic leaves with showy pink flowers in single clusters on stems of 25–50 centimeters (Sanders, et al. 2017). It occurs on rocky washes and floodplain terraces in lower-velocity stream systems, but rarely occurs in narrow first-order streams.

Habitat Requirements

Willowy monardella occurs on rocky washes and floodplain terraces in lower-velocity stream systems. Soils are typically sandy alluvium with large cobbles. It occurs below 400 meters and is endemic and restricted to central San Diego County.

Key Seasonal Periods

Key seasonal periods for willowy monardella are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Flowering						✓	✓	✓				

Source: CNPS 2017.

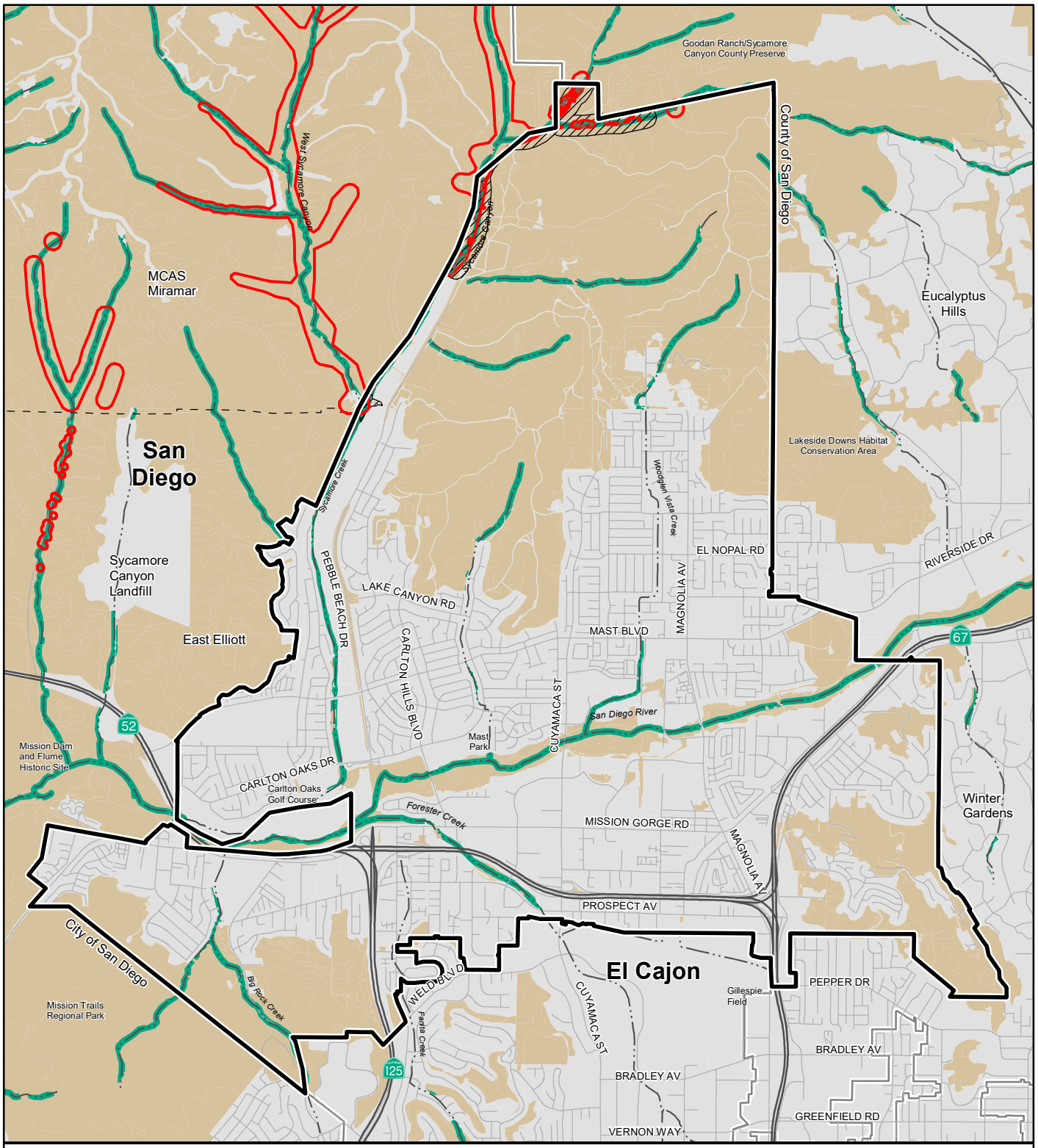
3.4.8.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Willowy monardella only occurs in central coastal plain of San Diego County. It is restricted to three watersheds north of Kearny Mesa (USFWS 2012b). It was previously listed as *Monardella linoides* subsp*. viminea*, but has been taxonomically reclassified as *Monardella viminea* and separated from the similar species Jennifer's monardella (*Monardella stoneana*) endemic to Otay Mountain and northern Baja California (CNPS 2017).

Current Distribution: Subarea Plan Area

Willowy monardella is known from the Sycamore Canyon drainages along the northern boundary of the Subarea Plan Area (Figure 3-8). A total of 1,588 willowy monardella were mapped on Fanita



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-8 Willowy Monardella-Unique.mxd Date: 12/19/2018 34153

Figure 3-8
Willowy Monardella - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Ranch property in the early 2000's, and an additional population of 34 willowy monardella were mapped during 2016/2017 surveys (Dudek 2018). The observations were in the northwestern portion of the Fanita Ranch project area within coast live oak woodland, Diegan coastal sage scrub (including disturbed), disturbed valley needlegrass grassland, mulefat scrub, non-native grassland, non-vegetated channel, southern sycamore-alder riparian woodland, and southern arroyo willow riparian forest

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-8) for willowy monardella has been developed using the following factors.

- Natural vegetation cover.
- Topographic Position Index (TPI) flat and slope bottom.
- Within 100-foot buffer blue line streams.
- Elevation: Below 1,000-feet.

While willowy monardella generally occurs on cobbly, alluvial soils, the soil survey data does not include enough detail to have high correlation within the Subarea Plan Area.

3.4.8.3 Threats and Other Management Considerations

Threats to willowy monardella include: 1) Urbanization and development, 2) altered hydrology, 3) fire and type conversion, (4) disease and predation, (5) nonnative plant species, (6) small population size and restricted range, (7) climate change, and (8) altered fire regime (USFWS 2012).

Many of the watersheds of willowy monardella have experienced increased urbanization and the related increase in impervious land structures, which increases the stream discharge and velocity (Greer and Cheong 2006). These alterations in hydrology have resulted in increased scouring of the streambeds, undercutting the alluvial terraces. As the watershed of Subarea Plan Area is developed, streams will need to be managed and enhanced to reduce downcutting and to attempt to maintain connectivity of the stream channel to the floodplain wash.

In many areas of willowy monardella habitat, willowy monardella and its habitat has been physically smothered by exotic annual grasses (Rebman and Dossey 2006). This grass thatch reduces or prevents recruitment of native herbs including willowy monardella. Grass thatch within suitable habitat within preserved areas should be monitored and managed to provide suitable recruitment sites for willowy monardella.

This species can be effectively grown from seed and cuttings, and out-planted at receptor sites. These restoration sites will be subject to the similar pressures as natural population, but also tend to suffer from increased herbivory compared to natural populations. Several transplantation sites have had low survival (Milano and Vandersgast 2018). Herbivory-prevention cages can assist with the establishment of plantings. Plantings should be tagged to allow surveys through time.

Populations have historically been connected and maintain gene flow between populations. Translocation between populations is a viable option to boost population sizes (Milano and Vandersgast 2018). Ideally, any plant sourcing would be done from the closest occurrences.

3.4.8.4 References Cited for Willowy Monardella

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 24 October 2017].

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Greer, K. and H. Cheong. 2005. Saving a Rare Plant in an Urban Environment. Fremonta. Vol 33. No. 1. January.

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Sanders, A.C., Elvin, M.A. and M.S. Brunell. 2017. *Monardella viminea*, in Jepson Flora Project (eds.) Jepson eFlora, http://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=80959. Accessed 2017.

U.S. Fish and Wildlife Service (USFWS). 2012a. Endangered and Threatened Wildlife and Plants; Revised Endangered Status, Revised Critical Habitat Designation, and Taxonomic Revison for *Monardella linoides* ssp. *viminea* (Willowy monardella); Final Rule. *Federal Register* 77 (44): 13394-13447. Washington, D.C.: USFWS. March.

———. 2012b. *Monardella viminea* (Willowy monardella) 5-Year Review Short Form Summary. Summary and Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. August 3.

3.5 Invertebrate Species Profiles

3.5.1 Hermes Copper Butterfly

Federal: Candidate.

State: None.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: A recovery plan has not yet been drafted for this species.

3.5.1.1 Species Biology

Hermes copper butterfly is a small, brightly-colored butterfly in the Lycaenidae family. Hermes copper larvae only use spiny redberry (*Rhamnus crocea*) as a host plant. Females lay eggs singularly at the base of a leaf. Larvae emerge in late spring after overwintering as eggs. Larvae mature through five instars over approximately 14 days (County of San Diego 2010). Adult butterfly emergence generally begins in mid- to late-May, with the single flight period extending into late June or early July (Marschalek and Deutschman 2015).

Habitat Requirements and Ecology

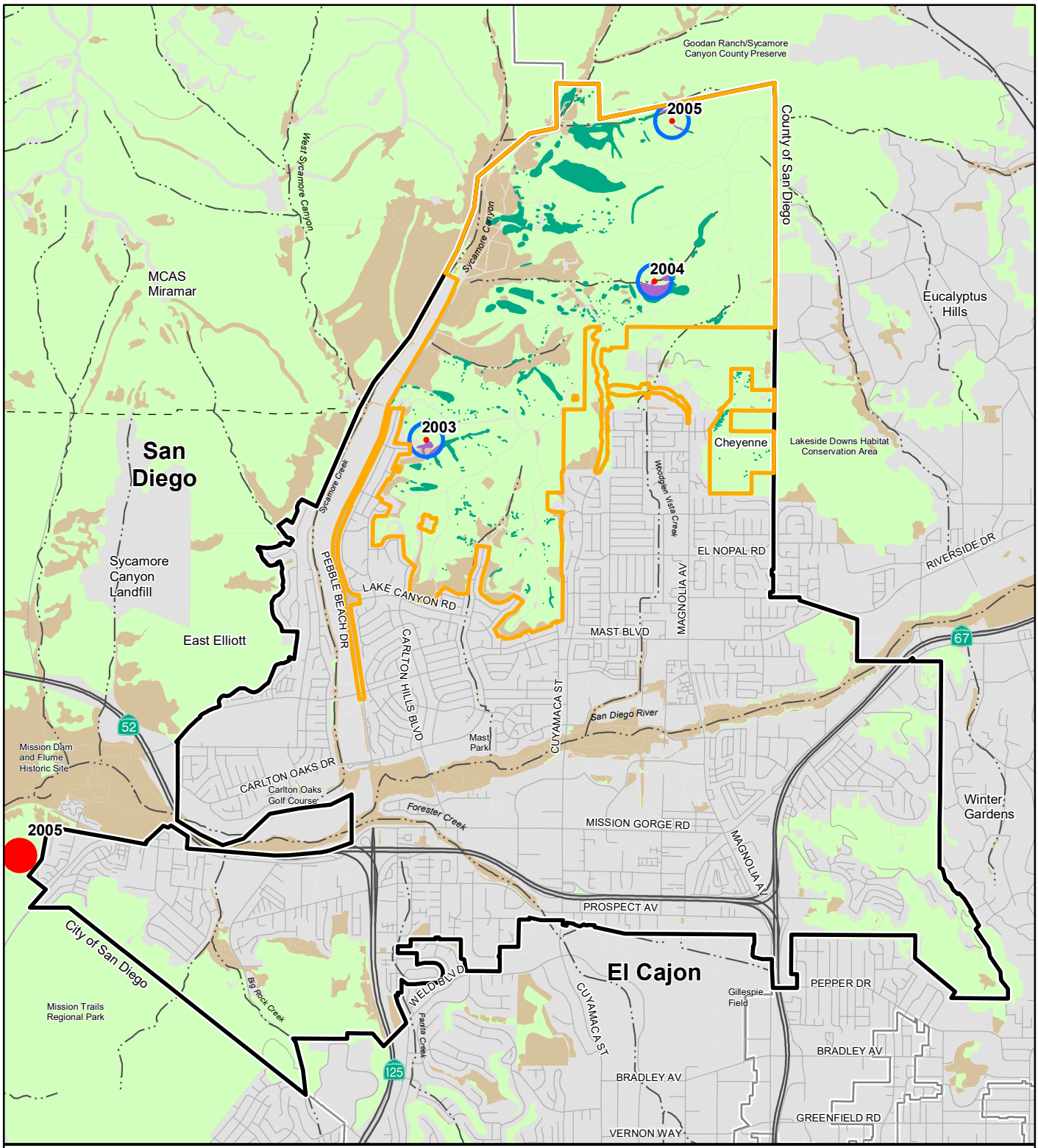
Hermes copper is closely associated with its only host plant, spiny redberry (*Rhamnus crocea*), and preferred nectar source California buckwheat (*Eriogonum fasciculatum*). These plants are concentrated within the coastal sage scrub or mixed chaparral vegetation communities (EDAW AECOM 2009). This species has also been observed within the Subarea Plan Area nectaring on other short-corolla flowers including chamise (*Adenostama fasciculatum*), California sunflower (*Encelia californica*), slender sunflower (*Helianthus gracilentus*), poison oak (*Toxicondendron diversilobum*), and short-podded mustard (*Hirshfeldia incana*) (Dudek 2018). Hermes copper larvae feed on new growth on mature shrubs. It is not known why Hermes copper does not occur further north from San Diego County, when spiny redberry is distributed hundreds of miles to the north (Marschalek and Deutschman 2015). Hermes copper males exhibit strong territoriality and rarely move more than 50 meters. Females do not exhibit this territoriality.

Key Seasonal Periods

Key seasonal periods for Hermes copper are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Larval Development and Flight season					✓	✓	✓					
Overwintering as eggs	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓

Source: USFWS 2011.



Legend

- Subarea Plan Area
- Potentially Suitable Vegetation Communities (coastal sage scrub and chaparral)
- Project Boundaries of Focused Surveys Completed for Hermes Copper Butterfly
- Hermes Copper Butterfly Occurrences (with occurrence year)
- 500-Foot Buffer Around Occurrences
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

Mapping of Suitable Habitat Based on Field Surveys

- Potentially Suitable Habitat, Previously Occupied
- Potentially Suitable Habitat

Note: Focused surveys for hermes copper butterfly completed on the Fanita Ranch property in 2014 and 2016 and on the Cheyenne property in 2010 were negative.

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Figure 3-9
Hermes Copper Butterfly: Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

3.5.1.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Hermes copper is endemic to San Diego County and northern Baja California Mexico. This species occurs west of the Cuyamaca Mountains, generally in the San Diego County foothills, and has been found as far north as Fallbrook. This species has never been identified immediately along the coast, and has not been observed above 1300 meters in elevation. The species has not been found to the east of Pine Valley and Potrero, as spiny redberry does not extend further inland (KEPS 2010). Surveys conducted in 2010-2012 showed very few individuals at most of the known occupied sites. Wildfires are known to greatly influence the distribution of Hermes copper, as only two recolonizations have been documented following the large wildfires of 2003 and 2007 (Marschalek and Deutschman 2015). The USFWS 12-month finding (2011) 57 known historical populations, with 17 extant populations, 28 believed to be extirpated, and 12 of unknown status. Occurrences of Hermes copper butterfly have recently been observed in the vicinity of the Subarea Plan Area in Mission Trails Regional Park (one individual was observed at Cowles Mountain in 2010, but was not seen in subsequent surveys in 2011 (City of San Diego 2017) and Sycamore Canyon/Goodan Ranch Preserve.

Current Distribution: Subarea Plan Area

Surveys conducted by Dudek in 2003, 2004, and 2005 (after the Cedar Fire) identified a total of three individuals within Fanita Ranch. Focused surveys conducted in 2014 and 2016 did not detect this species again (Dudek 2018). There are approximately 148.43 acres of suitable habitat areas, consisting of spiny redberry within 15 feet of California buckwheat, within the Fanita Ranch area (Figure 3-9). Within the 117-acre Cheyenne property, suitable habitat was mapped and surveys completed by Klein-Edwards Professional Services in 2010 (KEPS 2010). No observations of Hermes copper butterfly were noted on the Cheyenne property.

Habitat Suitability Model and Mapping

The mapping of suitable habitat within the Subarea Plan Area has been completed at two different levels of detail.

- **Potentially suitable vegetation communities:** vegetation communities that typically include Hermes copper butterfly host plant, spiny redberry (*Rhamnus crocea*), and preferred nectar source California buckwheat (*Eriogonum fasciculatum*) include chaparral and sage scrub communities. Suitable vegetation assemblage is much more common than the associated butterfly throughout San Diego County.
- **Mapping of suitable habitat based of field surveys:** In situations where field surveys have been completed, suitable habitat has been mapped by identifying any woody (mature) spiny redberry shrub with California buckwheat within 15 feet. This habitat definition follows the description in the County of San Diego Guidelines for Hermes Copper (County of San Diego 2010). The Fanita Ranch and Cheyenne project areas have been mapped using these criteria (Figure 3-9).

3.5.1.3 Threats and Other Management Considerations

Primary threats to Hermes copper include wildfire, and habitat loss and fragmentation, and their effects on small and isolated populations (Marschalek and Deutschman 2015; USFWS 2011). A majority of historical populations are presumed to be extirpated, with many of these directly lost to urban development. Many of the remaining populations are isolated and fragmented from other suitable habitat (USFWS 2011). Even populations protected by regulatory mechanisms will suffer from decreased connectivity, increased fragmentation, and increased edge effects from local development.

Wildfires have been identified as a major threat to the species and recolonization is critical to the existence of Hermes copper (Marschalek and Deutschman 2015). Eggs of Hermes copper are found on a chaparral species, which may be burned during large fire events, causing Hermes copper population extirpation. While spiny redberry is an obligate stump resprouting species, it takes many years for spiny redberry to mature to be suitable habitat for Hermes copper. California buckwheat densities are reduced after fires and are more susceptible to competition from invasive plants than stump-resprouting chaparral species like spiny redberry (USFWS 2011). Hermes copper populations have generally low numbers and limited distribution potential, and few extirpated populations are known to have had recent recolonization events (Marschalek and Deutschman 2015). USFWS analysis of current fire danger and fire history illustrates the potential for permanent loss of the majority, if not all, remaining butterfly populations should another large fire occur prior to recolonization of burned habitats (USFWS 2011). The small population sizes makes Hermes copper vulnerable to stochastic extirpation throughout its range.

Regional efforts should attempt to develop the understanding of rearing Hermes copper from eggs and larvae, as early and limited efforts to date have been unsuccessful. There is not an understanding of how to obtain high emergence rates from eggs, or how to successfully raise larvae to maturity. Translocation of gravid females or assumed egg-hosting shrubs may also be an effective tool to promote recolonization of suitable habitat and extirpated populations.

Other options to enhance the function and services of potential habitat include augmenting recovering post-fire habitat, expanding redberry and buckwheat densities within unoccupied areas, and limiting or removing invasive exotic plant species that would compete with native vegetation.

3.5.1.4 References Cited for Hermes Copper

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

EDAW AECOM. 2009. Independent Scientific Advisory Report for the Conservation Strategy for Hermes Copper Butterfly in the City of Santee. October.

Klein-Edwards Professional Services (KEPS). 2010. Methods, Results, and Conclusions of Focused Hermes Copper Butterfly Surveys on the Approximately 117-acre Cheyenne Property Located in the City of Santee, San Diego County, California.

Marschalek, D. and D. Deutschman. 2015. Rare Butterfly Management Studies On Conserved Lands in San Diego County: Hermes Copper (*Lycaena Hermes*): Hermes Copper Survey and Rearing Final Report. San Diego State University. Prepared for: SANDAG.

San Diego, County of. 2010. Attachment B - County of San Diego Guidelines for Hermes Copper (*Lycaena hermes*).

U.S. Fish and Wildlife Service (USFWS). 2011. 12-month Finding on a Petition to List Hermes Copper Butterfly as Endangered or Threatened. FR 76 Issue 72. 20918-20939.

3.5.2 Quino Checkerspot Butterfly

Federal: Endangered—1997.

State: Not Listed.

Critical Habitat: Critical habitat was designated in April 2002 and revised critical habitat designated in June 2009 (USFWS 2009a). There are no areas of critical habitat for Quino checkerspot butterfly located within or in the vicinity of the Subarea Plan Area.

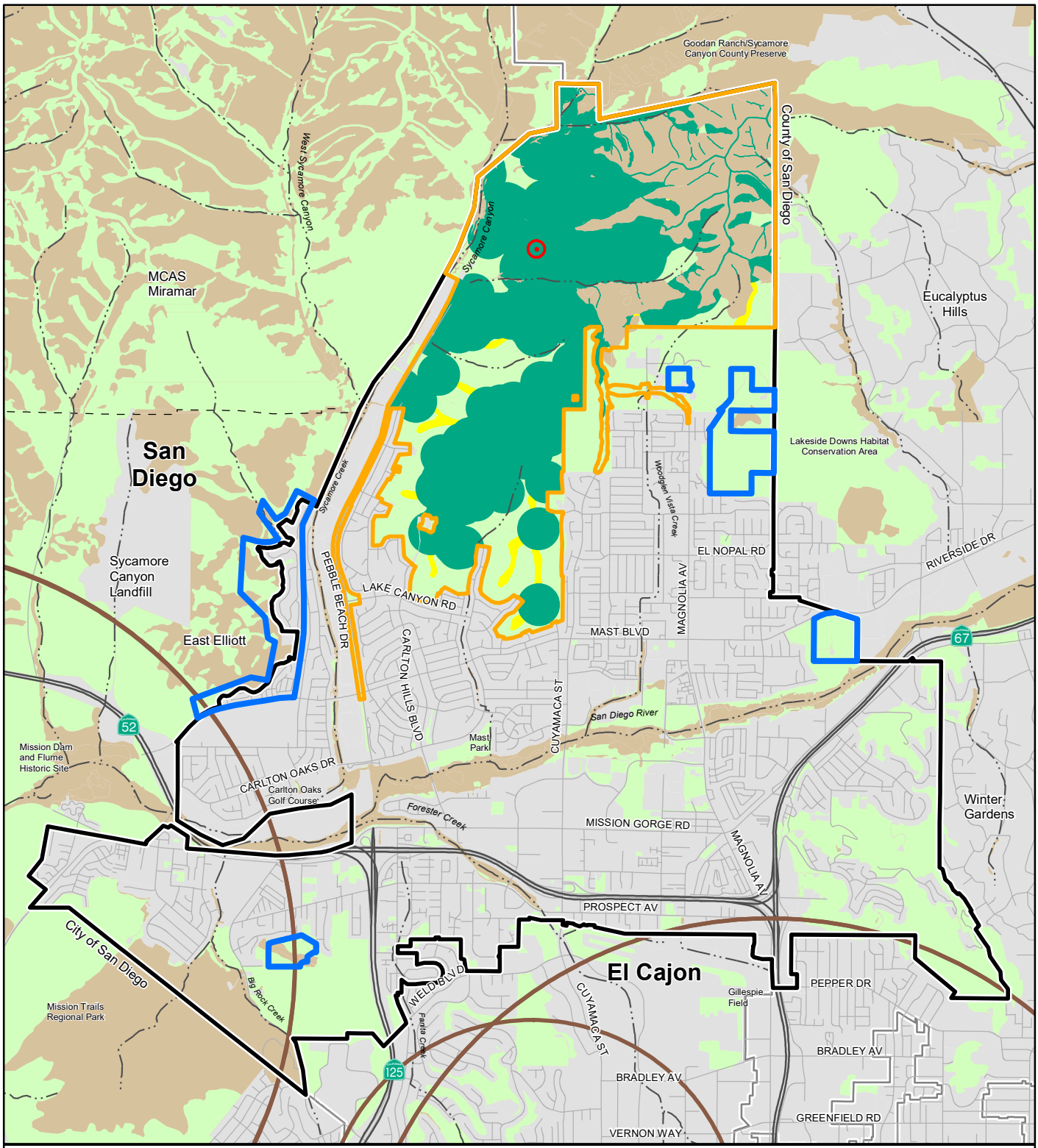
Recovery Planning: Recovery plan was published in August 2003.

3.5.2.1 Species Biology

Quino checkerspot butterfly is the most southwesterly distributed subspecies of *Euphydryas editha.* The appearance of Quino checkerspot butterfly is distinguishable from other subspecies by relative cover of red, orange, black, and white scaling (Mattoni et al. 1997). This species has one flight season which usually occurs from late February into April. Females lay egg masses on primary host plants (USFWS 2009). Larvae emerge and feed on host plants, before entering into a diapause as either third or fourth instar larvae (Mattoni et al. 1997). Surviving larvae break diapause after winter rains of the next season sufficient to germinate and establish food plant. Post-diapause larvae go through several more instars before pupating. Pupae mature and eclose in approximately 10 days. Larvae may also reenter diapause if environmental conditions are not suitable. Significant pre-diapause mortality can occur because of variable spring weather conditions (Mattoni et al. 1997).

Habitat Requirements and Ecology

Quino checkerspot butterfly habitat is characterized as patchy scrub or chaparral habitat with openings of several meters between large plants (Mattoni et al. 1997). Adult Quino will only oviposit on select host plants, including dot-seed plantain (*Plantago erecta*), desert plantain (*Plantago patagonica*), white snapdragon (*Anterrhinum coulterianum*), and Chinese houses (*Collinsia concolor*) (USFWS 2009; Parmesan et al. 2014). Pre-diapause larvae cannot move more than a few centimeters and are usually restricted to the host plant they were deposited on, but captive rearing studies also show that large prefer to diapause in or near the base of native shrubs (USFWS 2009). Larvae are also known to shift to feeding on other host plants including purple owl's clover (*Castilleja exserta*) and bird's beak (*Cordylanthus rigidus*), as primary host plants become unsuitable (USFWS 2009). Adult butterflies generally bask directly on bare dirt or rocks. They feed on short-corolla flowers including California buckwheat (*Eriogonum fasciculatum*), goldenfields (*Lasthenia gracilis*), and ground pink (*Linanthus dianthiflorus*). Males are territorial and rarely venture beyond 200 meters from adult nectar sources (USFWS 2009). Wildfire is a component of coastal sage scrub and chaparral communities. Host plants and larvae may be able to survive in unburned patches within fire perimeters, but exotic invasive may become more prevalent post fire, increasing competition for host plants and increasing fuels and likelihood of burning in future fires.



Legend

- Subarea Plan Area
- Fanita Ranch Project Area – Mapping of Suitable Habitat Based on Field Surveys

Habitat Suitability Model and Mapping

- Potentially Suitable Vegetation Communities

Mapping of Suitable Habitat Based on Field Surveys

- High
- Low
- Projects Surveyed for Quino with Negative Results
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

Species Occurrence Locations

- Observed in 2005, Subsequent Negative Survey Results
- Historic (pre-2000)

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\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-10 Quino Checkerspot Butterfly-Dudek.mxd Date: 12/19/2018 34153

Figure 3-10
Quino Checkerspot Butterfly - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Key Seasonal Periods

Key seasonal periods for Quino checkerspot butterfly are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Larval development (active period)	✓	✓	✓									
Flight Season		✓	✓	✓	✓							
Overwintering as larvae (inactive period)	✓				✓	✓	✓	✓	✓	✓	✓	✓

Source: USFWS 2009b.

3.5.2.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

This species occurs in San Diego and Riverside Counties, and northwestern Baja California Mexico. Quino checkerspot butterflies historical range included much of cismontane southern California: San Diego, western Riverside, Orange, southwestern Ventura; southwestern San Bernardino; and Los Angeles counties (USFWS 2009b; Mattoni et al. 1997). More than 75 percent of the species historical range has been lost including more than 90 percent of its coastal mesa and bluff distribution (USFWS 2009b).

Recent observations within the vicinity of the Subarea Plan Area have been recorded at Sycamore Canyon/Goodan Ranch Preserve in 2008/2009 and east Miramar in 2017 (MCAS Miramar Natural Resources Division 2018). One adult quino checkerspot butterfly was observed in MTRP in 2005, and historically, two observations were recorded in 1953 and 1960; however, no sustainable populations are known to occur within MTRP. In June 2012, Quino surveys within available habitat at MTRP were negative (City of San Diego 2017).

Current Distribution: Subarea Plan Area

One observation of Quino checkerspot butterfly has been recorded within the Subarea Plan Area during surveys of the Fanita Ranch property in 2005 (Figure 3-10) Subsequent surveys of Fanita Ranch have been negative for Quino checkerspot butterfly. Below is a description of the observations within Fanita Ranch (Dudek 2018):

> Although not observed within the Project Area during focused surveys conducted in 2016, this species is described in more detail herein because it has previously been recorded within the project area. In 2005, Quino checkerspot butterfly was observed once during focused surveys. This observation was made by Jeff D. Priest on March 18, 2005, in planned open space at the top of a knoll toward the center of the project area. This observation was made under windy Santa Ana conditions while a number of butterfly species were flying northeast to southwest. Only one Quino checkerspot butterfly was detected on site despite repeated visits to the observation location and other high potential locations. During the 2005 season, Quino checkerspot butterflies also were detected at Mission Trails Regional Park, which is located in the vicinity of Fanita Ranch.

Based on the single sighting, the known location at San Vicente, and detections elsewhere in the general vicinity (i.e., Gooden Ranch and East Miramar vicinity), it appears that the species occurs in low densities around the east-central portion of San Diego County, and dispersal movements during good years occur. Given the single sighting out of 213 site visits over two seasons, Dudek believes that the individual was only dispersing through the site and settled elsewhere. Although Dudek believes that Fanita Ranch currently only functions as a dispersal corridor, the site contains abundant resources for the species. It is therefore possible, though unlikely, that Fanita Ranch is occupied by a low-density population. To be cautious, and in recognition of the metapopulation dynamics of this species, the assessment of effects of the project on this species and the proposed mitigation will be based on the assumption that a low-density population of the species is present on the site.

It is also important to note that the Gooden Ranch, Mission Trails, and Fanita sightings were all made within 2 years after the October 2003 Cedar fire. The Cedar fire affected all of these locations. It may be surmised that Quino checkerspot may be able to survive significant fire events.

Other recent surveys for Quino checkerspot butterfly within the Subarea Plan Area that have been negative include the following:

- *Cutri*: A federal protocol survey for the Quino checkerspot butterfly was conducted over the property in 2014, but no Quino were observed (Cummings and Associates 2015)
- *Cheyenne*: Protocol surveys for the Quino checkerspot butterfly were conducted during the spring of 2004 and updated during the spring 2014 flight season. Both surveys identified the primary host plant, dot-seed plantain, on the project site; however no Quino checkerspot butterflies or larvae were observed during either survey (RECON 2015).
- *Parkside (formerly Hillside Meadows)*: A field survey for this species, pursuant to current surveying protocols, was conducted in 2013. No Quino were observed, and based on the habitat assessment conducted for this species, the site lacks sufficient host plants to support Quino (Scheidt Biological Consultant 2013).
- *Tyler Street*: Patches of plantago were observed onsite generally along the western property line and on the ridgeline within all upland habitat types. Protocol surveys for the Quino checkerspot butterfly were conducted during the spring of 2013. No Quino checkerspot butterfly were observed (Blue Consulting Group 2016).
- *Weston (formerly Castlerock)*: Suitable habitat for the Quino checkerspot butterfly occurs on site; however, no Quino checkerspot butterfly were detected on site during yearly USFWS protocol surveys conducted between 2005 and 2012 (NRC 2012).

Habitat Suitability Model and Mapping

The mapping of suitable habitat within the Subarea Plan Area has been completed at two different levels of detail.

- **Potentially suitable vegetation communities:** The host plants that support Quino checkerspot can occur in most vegetation communities but are most prevalent in areas of coastal sage scrub, grassland, and disturbed habitat. These vegetation communities have been highlighted citywide and will be the areas where Quino checkerspot butterfly surveys will likely be warranted.
- **Mapping of suitable habitat based on field surveys:** In situations where field surveys have been completed, suitable habitat has been mapped through the following steps:
    a. Field surveys should include detailed mapping of hilltop/ridgelines and host plant patches with a density ranking of high, moderate, and low.

b. Buffer all significant (density high) host plant polygons by 200 meters (M).

c. Determine which buffer areas are within 200M of another buffered location (i.e. do the buffer areas of the host plants overlap).

d. Merge buffers together and determine if buffer area is a single or multiple buffer areas polygon.

e. Identify whether hills/ridgelines intersect with buffered host plant polygons.

f. Eliminate areas that are not suitable vegetation communities (above).

g. Rank potentially suitable habitat based on:

   1) *High*: Polygons that have multiple connected host plant buffer areas and intersect with hills/ridgeline areas.

   2) *Moderate*: Polygons with a single host plant buffer area and intersect with hills/ridgeline areas, or polygons that have multiple connected host plant buffer areas and do not intersect with hills/ridgeline areas.

   3) *Low*: Polygons with a single host plant buffer area and do not intersect with hills/ridgeline areas, or hills/ridgeline areas that do not intersect with host plant buffer area.

Areas of potentially suitable habitat for Quino checkerspot butterfly are shown in Figure 3-10. Mapped potential suitable habitat for the Fanita Ranch property is based on field survey data. Although not observed within Fanita Ranch during focused surveys conducted in 2016, a single Quino butterfly was observed once during 2005 focused surveys.

3.5.2.3 Threats and Other Management Considerations

Basis for listing was habitat loss and degradation, and fragmentation. Additional threats and stressors include invasive exotic plants, climate change and increasing frequency of drought, altered host plant phenology, anthropogenic nitrogen deposition favoring exotic plants, and grazing (USFWS 2009). In areas where habitat is protected, urbanization of nearby land may result in fragmentation and increased degradation from edge effects.

The primary host plant is most frequent in Diegan coastal sage scrub, which has experienced extreme conversion to urban and agricultural uses. Remaining areas of sage scrub have been rendered less suitable because of the proliferation of exotic annual weeds, which physically outcompete and displace native host and nectar plants, and which create higher vegetative biomass, allowing wildfire to spread and burn more intensely in openings which would otherwise have low biomass in the dry season.

While several host plants for Quino are widely distributed and common, habitat suitability with regards to environmental conditions and temporal variability have not been well studied (USFWS 2009). Quino require larval food plants to be growing at a time of year and for a period of time sufficient for their development. Any habitat restoration efforts within the Subarea Plan Area should include a variety of host plants, nectar resources, shrubs for shelter, and a variety of slope aspects, to attempt to provide more variability for potential habitat to respond to environmental changes. Weed control efforts should attempt to maintain openings between shrubs and maintain low biomass openings with available rock perches.

3.5.2.4 References Cited for Quino Checkerspot Butterfly

Blue Consulting Group. 2016. Biological Assessment Report for the Tyler Street Residential TM, City of Santee. July.

Cummings and Associates. 2015. Report of a Biological Assessment of APN 378-180-11, Cutri Residence, City of Santee, California. August 3.

Mattoni, R., G.F. Pratt, T.R. Longcore, J.F. Emmel, and J.N. George. 1997. The endangered Quino checkerspot, *Euphydryas editha quino* (Lepidoptera: Nymphalidae). Journal of Research on the Lepidoptera 34: 99-118.

MCAS Miramar Natural Resources Division. 2018. Integrated Natural Resources Management Plan for Marine Corps Air Station Miramar, California. Also prepared by Gene Stout and Associates, Geomorph Information Systems, and Tetra Tech, Inc. Draft of December 2017.

Parmesan, C., A. Williams-Anderson, M. Moshwik, A.S. Mikheyev, M.C. Singer. Endangered Quino checkerspot butterfly and climate change: Short-term success but long-term vulnerability? Journal of Insect Conservation.

RECON. 2015. Updated Biological Report and Impact Analysis for the Cheyenne Project in the City of Santee, California. May 26.

Scheidt Biological Consultant. 2013. A Biological Resource Survey Report for the Hillside Meadows Industrial Park Project, Santee, California. Prepared for Gleich Properties LLC. August.

U.S. Fish and Wildlife Service (USFWS). 2009a. Endangered and Threatened Wildlife and Plants; Revised Endangered Status, Revised Designation of Critical Habitat for Quino Checkerspot Butterfly (*Euphydryas editha quino*); Final Rule. *Federal Register* 74 (115): 28776-28862. Washington, D.C.: USFWS. June.

———. 2009b. Quino Checkerspot Butterfly (*Euphydryas editha quino*) 5-Year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office. August 13.

3.5.3 Riverside Fairy Shrimp

Federal: Endangered—1993.

State: None.

Critical Habitat: Final critical habitat was designated in May 2001, and revised in April 2005 and December 2012 (USFWS 2012). There are no areas of critical habitat for Riverside fairy shrimp located within or near the Subarea Plan Area.

Recovery Planning: Riverside fairy shrimp is included in the Recovery Plan for Vernal Pools of Southern California (USFWS 1998).

3.5.3.1 Species Biology

Riverside fairy shrimp is a small aquatic crustacean in the order Anostraca. Riverside fairy shrimp feed on algae, bacteria, protozoa, rotifers, and detritus. It is approximately 2–3 centimeters long at maturity. Male Riverside fairy shrimp are distinguished from similar species by characteristics of the second antenna. Females have cigar shaped brood pouches that contain resting eggs called cysts. These cysts consists of a shell which protects the larval embryo, called naupili, which is inside in diapause. These cysts can persist and survive for many years until the right ponding and environmental conditions trigger emergence. The cysts from successful reproduction are retained in the pool and develop into a cysts bank comprised of cysts from several seasons of breeding. After emergence, Riverside require 7–8 weeks of pool inundation to reach maturity and reproduce.

Habitat Requirements and Ecology

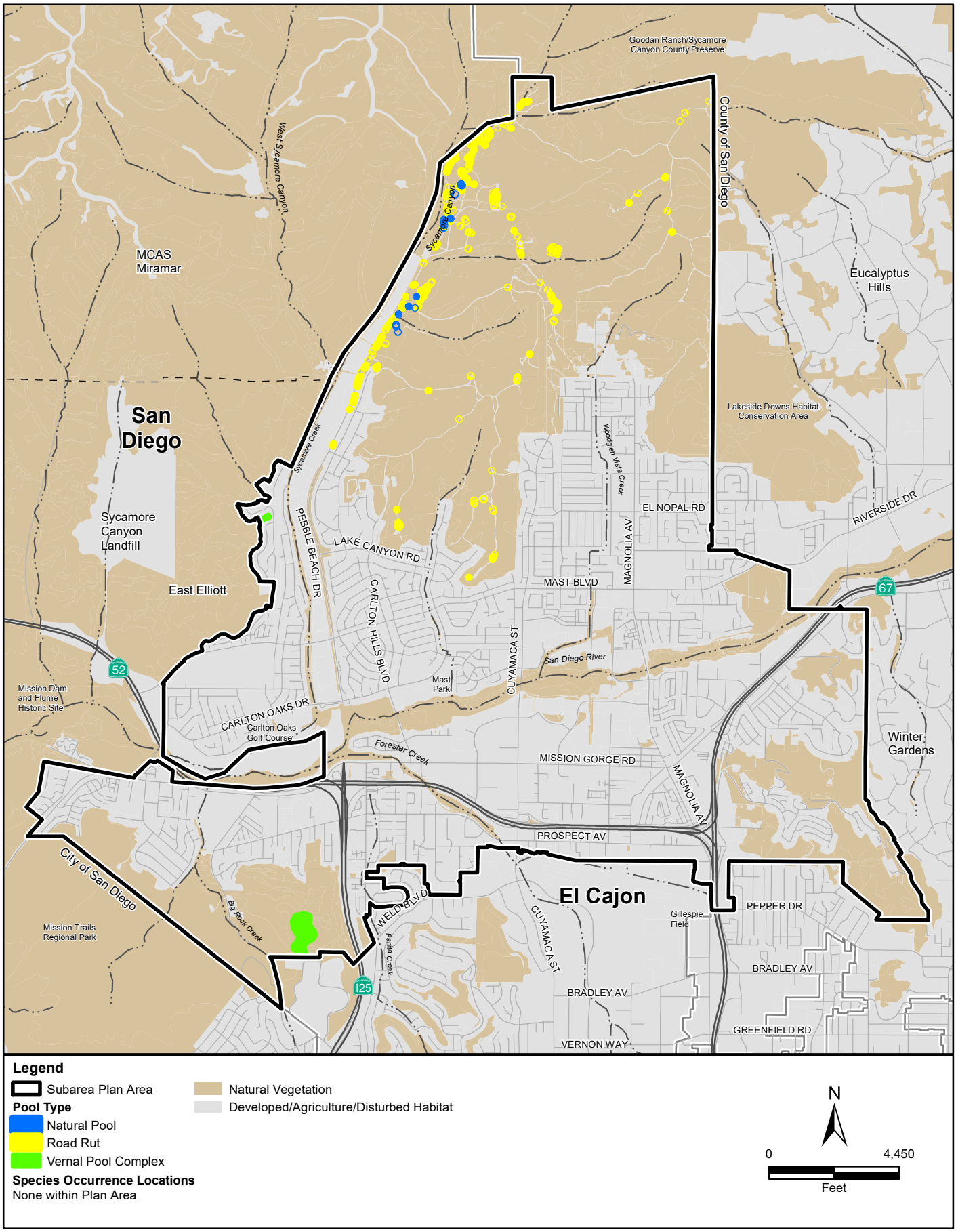
Riverside fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral basins. These pools are generally greater than 12 inches in average ponding depth, as the pools need to be large enough to have a continuous inundation period long enough to accommodate the development period of Riverside fairy shrimp. Riverside fairy shrimp cannot persist in a perennial water system because the re-wetting of cysts is necessary and ephemeral systems lack aquatic predators (USFWS 2008). Riverside fairy shrimp are restricted to vernal pools with dilute water, including low sodium concentrations, low alkalinity, and neutral pH (USFWS 2008).

Key Seasonal Periods

Key seasonal periods for Riverside fairy shrimp are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Adult phase	✓	✓	✓	✓								✓
Dormancy as cysts					✓	✓	✓	✓	✓	✓	✓	

Source: USFWS 2008.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-11 Riverside Fairy Shrimp.mxd Date: 12/19/2018 34153

Figure 3-11
Riverside Fairy Shrimp - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

3.5.3.2 Species Distribution and Population Trends

Current Distribution: Range-wide

This species is restricted to inland areas of San Diego, Orange, and western Riverside Counties, and coastal areas of San Diego County and northwestern Baja California, Mexico. As of the 5-year review in 2008, there were 45 known complexes. This species has a disjunct distribution within San Diego County, with many occurrences on Camp Pendleton and Otay Mesa, with few in the remainder of the County.

Current Distribution: Subarea Plan Area

Riverside fairy shrimp is not currently known to occur in the Subarea Plan Area. The nearest known occurrences of Riverside fairy shrimp are in west Miramar (CNDDB EO#1) and Ramona (CNDDB EO#44). While the Subarea Plan Area is not part of primary distribution for this species, there is the potential for this species to be found with the Subarea Plan Area based on other occurrences within central San Diego County.

Habitat Suitability Mapping

Areas of suitable habitat for Riverside fairy shrimp is closely associated with vernal pools and seasonal basins. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-11).

3.5.3.3 Threats and Other Management Considerations

Threats to Riverside fairy shrimp include habitat loss, habitat fragmentation, altered hydrology, and nonnative plants (USFWS 2008). Climate change is also considered a threat to the species, as increasing drought or temperatures could decrease the frequency or hydroperiod of inundation.

3.5.3.4 References Cited for Riverside Fairy Shrimp

U.S. Fish and Wildlife Service (USFWS). 1998. Vernal Pools of Southern California Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

———. 2008. *Streptocephalus woottoni*. Riverside fairy shrimp. 5-year: Summary Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. September 29.

———. 2012. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Riverside Fairy Shrimp; Final Rule. *Federal Register* 77 (223): 72069-72140. Washington, D.C.: USFWS. December.

3.5.4 San Diego Fairy Shrimp

Federal: Endangered—1997.

State: None.

Critical Habitat: Final critical habitat was designated by USFWS in December 2007 (USFWS 2007). There are no areas of critical habitat for San Diego fairy shrimp located within or near the Subarea Plan Area.

Recovery Planning: San Diego fairy shrimp is included in the Recovery Plan for Vernal Pools of Southern California (USFWS 1998).

3.5.4.1 Species Biology

San Diego fairy shrimp is a small aquatic crustacean in the order Anostraca. Male San Diego fairy shrimp are distinguished from other *Branchinecta* species by differences in the distal tips of the second antenna. Females have elongate brood pouches that contain resting eggs called cysts. These cysts consists of a shell which protects the larval embryo, called naupili, which is inside in diapause. Cysts are capable of withstanding temperature extremes and prolonged drying. The cysts from successful reproduction are retained in the pool and develop into a cysts bank comprised of cysts from several seasons of breeding. Individuals hatch and mature within 7 to 14 days of rainfall filling a pool, depending on water temperature. San Diego fairy shrimp feed on algae, diatoms, and other particulate organic matter.

Habitat Requirements and Ecology

San Diego fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral basins. They typically occur in basins that have between 2 to 12 inches of maximum ponding depth.

Key Seasonal Periods

Key seasonal periods for San Diego fairy shrimp are indicated below.

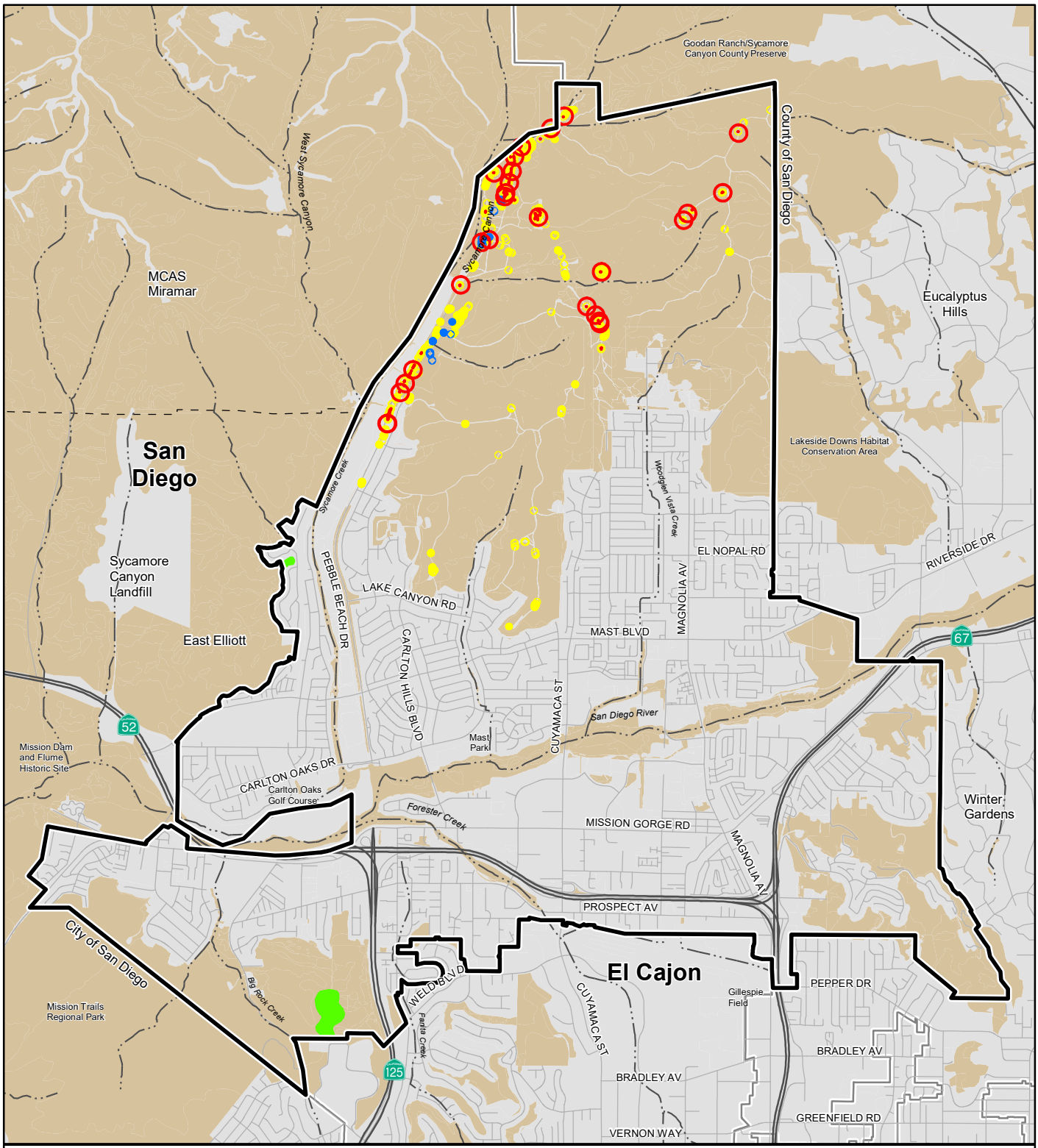
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Likelihood for adult shrimp	✓	✓	✓	✓								✓
Dormancy as cysts					✓	✓	✓	✓	✓	✓	✓	

Source: USFWS 2008.

3.5.4.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

San Diego fairy shrimp are known from coastal San Diego and Orange Counties, and northern Baja California Mexico. As of the 2008 USFWS 5-year review, there were 137 complexes occupied by San Diego fairy shrimp identified within the U.S.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-12 San Diego Fairy Shrimp.mxd Date: 12/19/2018 34153

Figure 3-12
San Diego Fairy Shrimp - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Current Distribution: Subarea Plan Area

San Diego fairy shrimp is known within the Subarea Plan Area (Figure 3-12). On the Fanita Ranch, San Diego fairy shrimp occupy a total of 72 out of 229 features. It is the only identified branchiopod within Fanita Ranch except for unidentifiable brachiopods found in two features during the 2015/2016 surveys.

Habitat Suitability Mapping

Areas of suitable habitat for San Diego fairy shrimp is closely associated with vernal pools and seasonal basins. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-12).

3.5.4.3 Threats and Other Management Considerations

Threats to San Diego fairy shrimp include development, habitat loss to development and agriculture, habitat fragmentation, altered hydrology, hybridization, and nonnative plants. Vernal pool watersheds are important as they provide nutrients and water to the vernal pool system, though they may also introduce contaminants including sediments, pesticides and fertilizer.

Nonnative plants may cause a decline in habitat conditions through alteration of hydrology, decreasing ponding duration to a point where it is not suitable for San Diego fairy shrimp. Two nonnative wetland grasses are of particular concern: Pacific bent grass (*Agrostic avenacea*) and annual rabbit's foot grass (*Polypogon monspeliensis*). These species are able to persist in ephemeral wetlands such as vernal pools and can dominate areas that otherwise have little vegetative cover. Any habitat restoration or long-term resource management should consider control and management activities for these species.

Versatile fairy shrimp (*Branchinecta lindahli*) is a widespread fairy shrimp, closely related to San Diego fairy shrimp, and which is not known from the Subarea Plan Area. This species has been shown to hybridize with San Diego fairy shrimp, and could threaten the genetics of San Diego fairy shrimp. Efforts should be made to ensure that versatile fairy shrimp are not introduced into the Subarea Plan Area, with actions including: preventing access to vernal pool complexes, and ensuring that resource managers and restoration personnel have equipment thoroughly cleaned before accessing restoration sites within the Subarea Plan Area.

3.5.4.4 References for San Diego Fairy Shrimp

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

U.S. Fish and Wildlife Service (USFWS). 1998. Vernal Pools of Southern California Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

———. 2007. Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the San Diego Fairy Shrimp (*Branchinecta sandieogonensis*); Final Rule. *Federal Register* 72 (238): 70648-70714. Washington, D.C.: USFWS. December.

———. 2008. *Branchinecta sandiegonensis*. San Diego fairy shrimp. 5-year: Summary Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. September 30.

3.6 Reptile and Amphibian Species Profiles

3.6.1 Belding's Orange-throated Whiptail

Federal: None.

State: CDFW Watch List.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

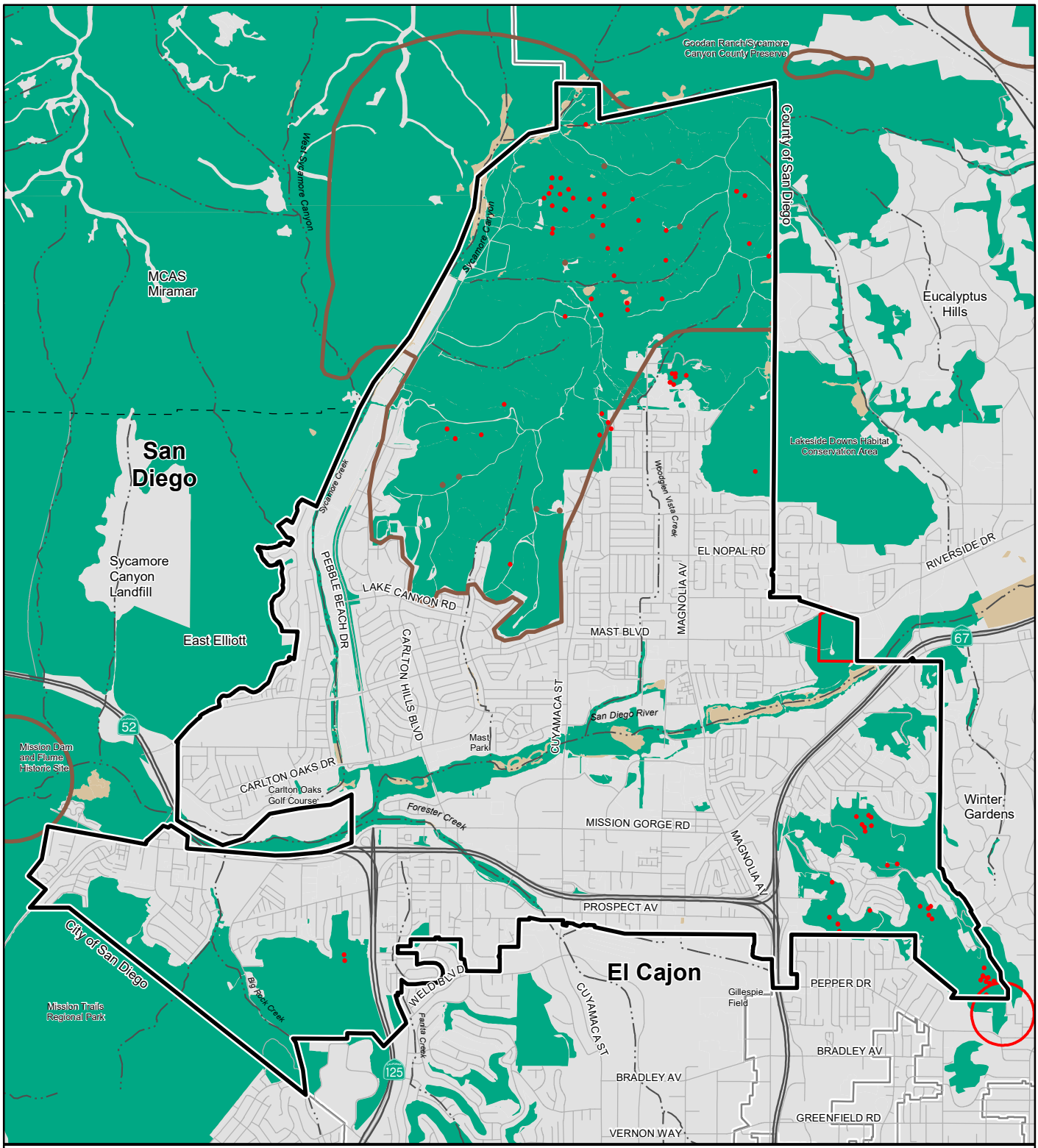
3.6.1.1 Species Description and Life History

Belding's orange-throated whiptail is a slender, alert and active lizard in the Whiptail family (Teiidae). Adults have a snout-to-vent length in the range of 5.0–9.4 centimeters. Coloration ranges include gray, reddish brown, dark brown and black, with five to seven pale yellow to tan stripes (Jennings and Hayes 1994). Young have a bright blue tail and adult males have an orange throat (CaliforniaHerps 2017).

Orange-throated whiptails emerge from hibernation in February or March, though some may remain active all year if conditions are suitably warm. Females deposit two to three leathery-shelled eggs in June or July. Juveniles emerge in August or September. They can become sexually mature in one year, though most individuals will take two years. Adults generally enter into hibernation in July through September, while juveniles begin hibernation in December (Jennings and Hayes 1994).

Habitat Requirements and Ecology

Belding's orange-throated whiptail is thought to be a dietary specialist, with termites making up the majority of the prey (Jennings an Hayes 1994). Orange-throated whiptail were historically associated with floodplains or stream terraces, and with perennial plants, as termites require woody plant material. Much of these floodplain and terrace habitat have been lost to development and agriculture, with remaining populations isolated and relegated to less suitable habitat. Belding's orange-throated whiptail are currently found in semi-arid brushy areas with loose soil including washes, streamsides, rocky hillsides, and coastal chaparral (CaliforniaHerps 2017). They are frequently associated with chaparral and sage scrub shrubs including chamise (*Adenostoma fasciculatum*), California buckwheat (*Eriogonum fasciculatum*), and black sage (*Saliva mellifera*). Sage scrub and chaparral have been largely displaced within the preferred floodplain habitat, by development or altered hydrology.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-13 Beldings Orange-throated Whiptail-Unique.mxd Date: 12/19/2018 34153

Figure 3-13
Belding's Orange-throated Whiptail - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Key Seasonal Periods

Key seasonal periods for Belding's orange-throat whiptail are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Egg laying					✓	✓	✓					
Egg hatching								✓	✓			
Adult hibernation	✓	✓					✓	✓	✓	✓	✓	✓

Source: Jennings and Hayes 1994.

3.6.1.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

This species ranges from the southern edges of Orange and San Bernardino counties south through western riverside and cismontane San Diego County into Baja California Mexico (CaliforniaHerps 2017). In California, it is known from elevation ranges from near sea level to 3,400 feet.

Current Distribution: Subarea Plan Area

Belding's orange-throated whiptail has been observed within natural habitats throughout the Subarea Plan Area (Figure 3-13). Belding's orange-throated whiptail was observed within the northern and southern portion of Fanita Ranch (Dudek 2018). Belding's orange-throated whiptail was observed within Diegan coastal sage scrub, granitic southern mixed chaparral, and coast live oak woodland.

Habitat Suitability Model

Belding's orange-throated whiptail is a habitat generalist. It is commonly found in sage scrub and chaparral habitats, but is also open grassland/shrubland ecotones and in riparian habitats. A model of potentially suitable habitat (Figure 3-10) for Belding's orange-throated whiptail has been developed based on the following factor.

- **Vegetative cover:** Areas of coastal sage scrub, grasslands, chaparral, woodlands, and riparian.

3.6.1.3 Threats and Other Management Considerations

Threats for Belding's orange-throat whiptail include habitat loss to agriculture and development, habitat fragmentation, alteration of hydrology, and climate change and drought. More frequent drought and high temperatures reduce the availability of insect food base, which affects whiptail survivorship and reproduction.

Argentine ants are common in mesic areas including floodplains and have potential to affect the prey of Belding's orange-throat whiptail. Any restoration efforts within the Subarea Plan Area, and any landscaped areas that interface with open space, must ensure that all container stock plantings are free of Argentine ants, to discourage the spread of this invasive species.

The effects of nonnative fauna on Belding's orange-throat whiptail are not well understood. To reduce any potential predation by nonnative species, efforts should be made to reduce the

prevalence of free-ranging domestic cats or dogs. Any development adjacent to preserves should include homeowner education, and preserve long-term management should include periodic public outreach, to inform the public on the threats and dangers of allowing pets to range into open space. If public access is allowed in any preserve areas, pets shall not be allowed off leash in open space.

Specific limitations on movement ecology and of characteristics of nest sites are not well understood for this species. The Plan has a goal of preserving interconnected areas of large blocks of habitat, which will provide flexibility for this species. Floodplain and terrace habitat, particularly those areas with scrub or chaparral communities, should be targeted for conservation.

3.6.1.4 References Cited for Belding's Orange-throated Whiptail

California Herps. 2017. A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/.

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game.

3.6.2 Blainville's Horned Lizard

Federal: None.

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

3.6.2.1 Species Biology

Blainville's horned lizard is a large horned lizard with adult body lengths of 2.8 to 4 inches, and a strong pair of horns at the back of the skull, and double rows of fringe scales on the sides (Sherbrooke 2003). They have very cryptic coloration with a body of various earth tones from tan, reddish, brown, yellow or gray, with dark color bands crossing the back (CaliforniaHerps 2017; Sherbrooke 2003). Males do not defend territories and are typically smaller than females. Females excavate nests and deposit 6 to 21 eggs. Eggs hatch between August and September (2017). Horned lizards enter hibernation during the winter, emerging in later winter or spring. Average lifespan is 5 to 8 years.

Habitat Requirements and Ecology

Native ants form the majority of the diet of all horned lizards. In addition to ants, Blainville's horned lizard will eat beetles, flies, spiders, grasshoppers, moth larvae, and honeybees (Sherbrooke 2003). Horned lizards will not eat invasive nonnative ant species, including Argentine ant (*Linepithema humile*).

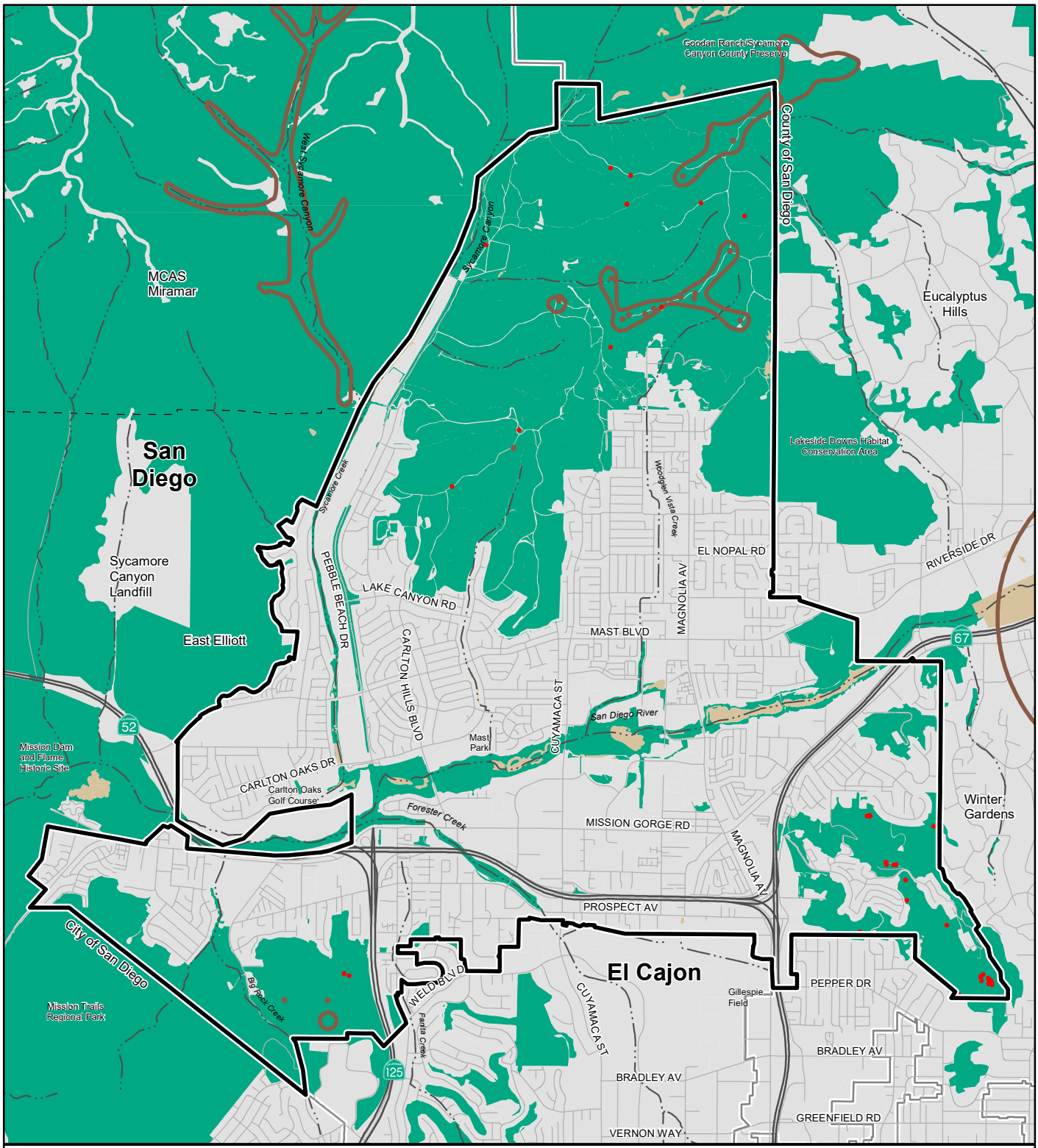
This species is found in a variety of vegetation communities including coastal sage scrub, grasslands chaparral, oak woodlands and coniferous forests (Sherbrooke 2003), but usually avoids dense vegetation, preferring 20 to 40 percent bare ground in its habitat. This species is strongly associated with areas of native ant populations.

Key Seasonal Periods

Key seasonal periods for Blainville's horned lizard are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Egg laying					✓	✓						
Egg hatching								✓	✓			

Source: CaliforniaHerps 2017.



Legend

- Subarea Plan Area
- Suitable Habitat

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

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Figure 3-14
Blainville's Horned Lizard - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

3.6.2.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Blainville's horned lizard occurs along the Pacific coast of California, west of the Sierra Nevada mountains and west of the deserts, southward into northern Baja California Mexico (CaliforniaHerps 2017).

Current Distribution: Subarea Plan Area

Blainville's horned lizard have been observed in the northern and central portions of the Fanita Ranch property (Dudek 2018; Figure 3-14), as well Rattlesnake Mountain in the southeast corner of the Subarea Plan Area, and the mesa in the southwest area of the Subarea Plan Area.

Habitat Suitability Model

Blainville's horned lizard is a habitat generalist. It is commonly found in areas of natural habitats with higher percent of open cover. A model of potentially suitable habitat (Figure 3-14) for Blainville's horned lizard has been developed based on the following factor.

- **Vegetative cover:** Areas of coastal sage scrub, grasslands, chaparral, woodlands, and riparian.

3.6.2.3 Threats and Other Management Considerations

Argentine ant has become the dominant ant in southern California, leading to a decline in the native ants on which Blainville's horned lizard feeds (Sherbrooke 2003). Blainville's horned lizard has been threatened and eliminated from many areas due to habitat destruction from human development and agriculture.

A study published in 2009 separated the coast horned lizard complex into three species, with Blainville's horned lizard occupying California and northern Baja, and Cedros Island and Cape horned lizards occupying the remainder of the Baja California peninsula (CaliforniaHerps 2017). Most of the range of this species is within California and subject to the development pressures of this most populous state.

Any restoration efforts within the Subarea Plan Area, and any landscaped areas that interface with open space, must ensure that all container stock plantings are free of Argentine ants, to discourage the spread of this invasive species. Argentine ants within active restoration sites should be treated with targeted pesticide to reduce the spread of this species. Argentine ants are drawn to moist areas, so dry season water flows originating from developed areas should be controlled.

3.6.2.4 References Cited for Blainville's Horned Lizard

California Herps. 2017. A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/.

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Sherbrooke, W.C. 2003. Introduction to Horned Lizards of North America. University of California Press. Berkeley and Los Angeles, CA.

3.6.3 Southwestern Pond Turtle

Federal: None.

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

3.6.3.1 Species Biology

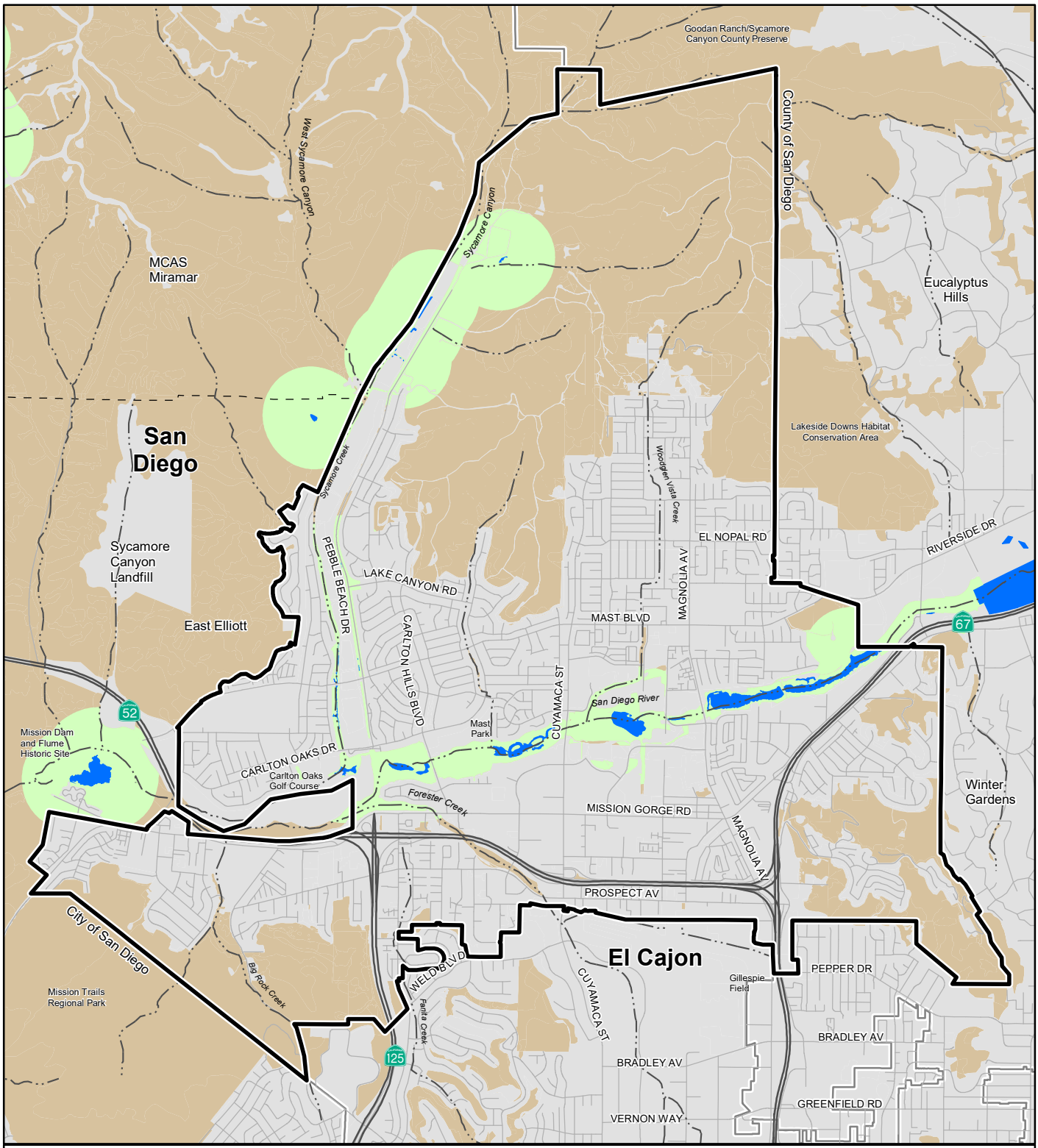
Southwestern pond turtle is a small to medium size turtle. Adults have an unkeeled shell length of 3.5 to 8.5 inches, with hatchlings being approximately 1 inch. Coloration ranges from olive brown to dark brown to black. They are active from February to November. Many populations hibernate during the winter but may be active during warm periods. Depending upon local conditions, they may aestivate in summer by burying in mud or loose upland soil (CaliforniaHerps 2017). Within the southern coast of California, including the Subarea Plan Area, winter water temperatures are likely warm enough for pond turtles to be active year-round (Jennings and Hayes 1994).

Adults in California do not mate until they are approximately 7 to 11 years old. Mating typically occurs in April and May, but may occur year round (Jennings and Hayes 1994). Females will excavate a nest along stream or pond margins, between April and August, and lay a clutch of 2-11 eggs. Some females may lay two clutches in one year, while others will lay every other year (CaliforniaHerps 2017).

They are omnivorous generalists who eat aquatic plants, invertebrates, worms, amphibian eggs, crayfish, carrion, frogs, and fish.

Habitat Requirements and Ecology

Southwestern pond turtle is an aquatic turtle that may utilize uplands to reproduce, to aestivate, and to hibernate (Jennings and Hayes 1994). They require slack or slow-water aquatic habitat with abundant vegetation and are found in ponds, lakes, rivers, streams, creeks, marshes and irrigation ditches (CaliforniaHerps 2017). Logs, rocks, or exposed banks are required for basking. Pond turtle may move significant distances (at least 2 kilometers) if the wetland habitat become unsuitable, and can tolerate at least 7 days without water (Jennings and Hayes 1994). Although relatively little research about nesting behavior has been conducted, most evidence suggests nesting occurs in upland habitats adjacent to ponds and streams, generally where there is at least four inches of soil in which eggs may be laid (Zeiner et al. 1988).



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-15 Southwestern Pond Turtle-Unique.mxd Date: 12/19/2018 34153

Figure 3-15
Southwestern Pond Turtle - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Key Seasonal Periods

Key seasonal periods for southwestern pond turtle are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Activity		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Breeding and egg laying				✓	✓	✓	✓	✓				
Hibernation	✓											✓

Source: CaliforniaHerps 2017.

3.6.3.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Southwestern pond turtle is known from south of San Francisco Bay through the California central coast range to the transverse mountain range, through the peninsular range and into Baja California Norte, Mexico. Species is normally found from sea level to around 4,700 feet. (Jennings and Hayes 1994).

Current Distribution: Subarea Plan Area

Southwestern pond turtle is not known from the Subarea Plan Area or vicinity (Figure 3-15). Nearest known extant populations are in the upper San Diego River valley near Julian, and in the Sweetwater River valley near Loveland Reservoir.

Habitat Suitability Model

Habitat for the southwestern pond turtle typically consists of ponds, small lakes, reservoirs, and slow-moving streams. This species is frequently associated with aquatic systems where aquatic vegetation is abundant and may be seen bask. A distance of 1,500 feet was used in MTRP as an appropriate upland habitat buffer to support aestivation (City of San Diego 2017). A model of potentially suitable habitat (Figure 3-15) for southwestern pond turtle has been developed based on the following factors.

- **Suitable breeding habitat:** Areas of open water and freshwater marsh.
- **Upland habitat buffer:** Buffer suitable breeding habitat by 1,500 feet into areas of natural habitat.

3.6.3.3 Threats and Other Management Considerations

Threats for southwestern pond turtle is in decline through a majority of its range. Historical threats include commercial harvesting for food. Habitat for southwestern pond turtle has been lost to urban and agricultural development, and alteration of hydrology within river systems. Southwestern pond turtle faces competition with nonnative turtles, including red-eared slider (*Trachemys scripta elegans*) and painted turtle (*Chrysemys picta bellii*), which reproduce faster and overwhelm and outcompete southwestern pond turtle.

Southwestern pond turtle also faces predation from nonnative species including American bullfrog (*Rana catesbeiana*), which will eat hatchings (CaliforniaHerps 2017). Bullfrogs can remove hatchlings from an aquatic system and prevent survival to adulthood. Any preserved areas which contain perennial waters should be monitored for invasive aquatic predators including bullfrog, and predator controls be implemented. Efforts should be made to prevent interactions of domestic pets with pond turtle within preserve areas, as cats and dogs are potential predators of turtles when turtles are utilizing uplands.

3.6.3.4 References Cited for Southwestern Pond Turtle

California Herps. 2017. A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/.

City of San Diego. 2017. Natural Resources Management Plan for the Mission Trail Regional Park, San Diego, California. Prepared by RECON Environmental Inc. January 17.

Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game.

Zeiner, D. C., W. F. Laudenslayer, Jr., and K. E. Meyer. 1988. California's wildlife. Volume I: amphibians and reptiles. May 2, 1988. California Department of Fish and Game. Sacramento, CA.

3.6.4 Western Spadefoot Toad

Federal: None (under review).

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

3.6.4.1 Species Biology

The western spadefoot toad is a small, semi-fossorial amphibian species native to California and northern Baja California.

Habitat Requirements

During the long, dry months of summer and fall, the adults seek shelter underground. Early in the rainy season, they emerge to forage and reproduce, making use of temporary pools to lay their eggs. Western spadefoot toad typically breed in standing water that collects in shallow depressions within the upland habitat rather than in flowing streams or creeks. In addition to using naturally forming pools within the landscape, western spadefoot will breed in the pools forming along dirt roads within their habitat. Western spadefoot tadpoles can develop quickly if the pools begin to dry, but they do have limits on the minimum length of time that the breeding pool must persist (Rochester et al. 2017).

Key Seasonal Periods

Key seasonal periods for western spadefoot toad are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding (rainy season)	✓	✓	✓	✓							✓	✓
Aestivation					✓	✓	✓	✓	✓	✓		

Source: Rochester et al. 2017.

3.6.4.2 Species Distribution

Current Distribution: Range-Wide

Western spadefoot toad is endemic to California and northern Baja California. Ranges from near Redding south throughout the Great Valley and its associated foothills, through the South Coast Ranges into coastal southern California south of the Transverse mountains and west of the Peninsular mountains, into northwest Baja California (California Herps 2017).

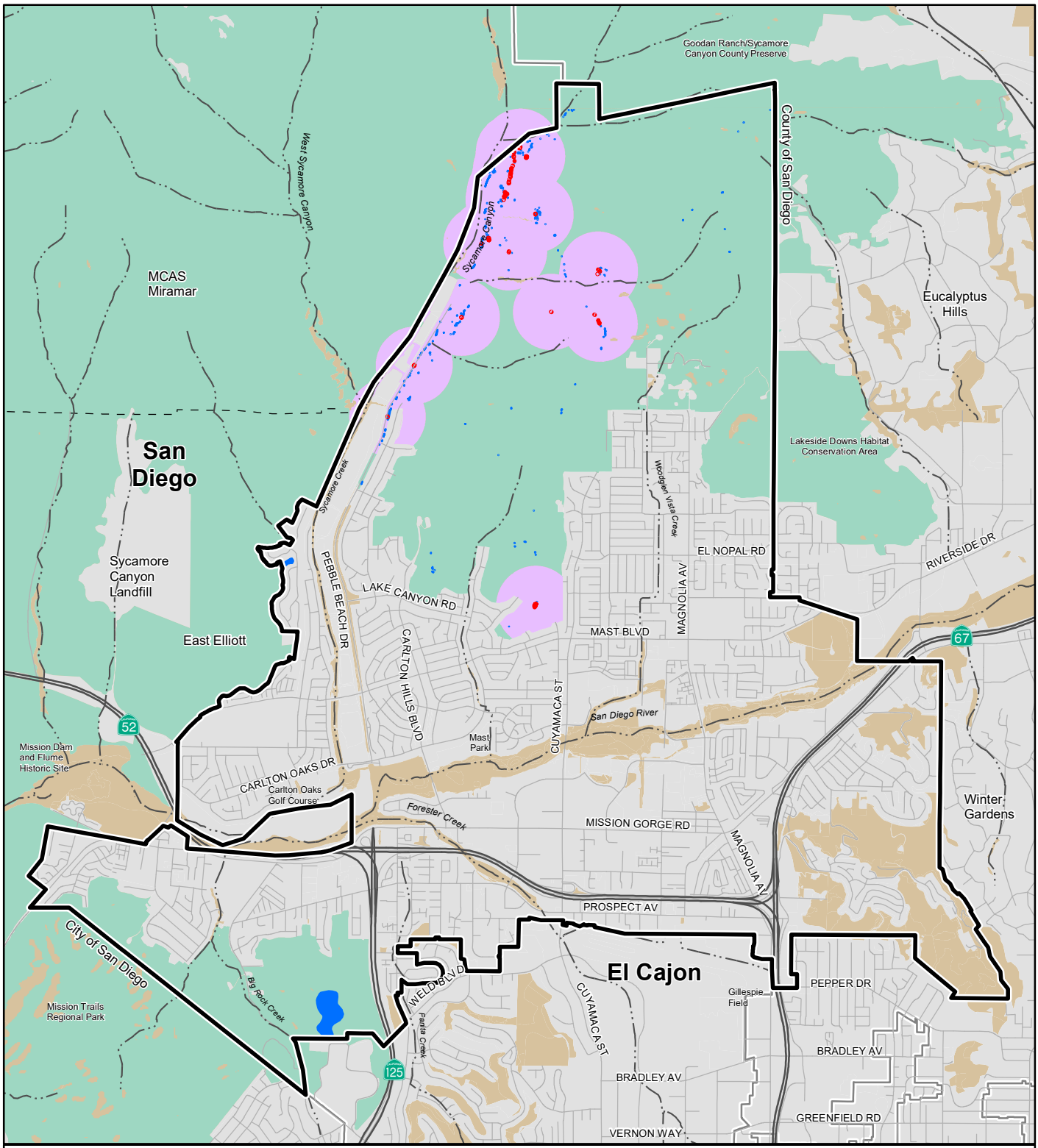


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Figure 3-16
Western Spadefoot Toad - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Current Distribution: Subarea Plan Area

Within the Subarea Plan Area, western spadefoot toad are known to live and breed at multiple sites in the Fanita Ranch property (Figure 3-16). In 2005, Dudek (2018) documented the presence of western spadefoot across the grassland and lower foothills of the Fanita Ranch property and mapped out many additional potential breeding sites. Based on observations in 2004, 2005, 2016, and 2017 by Dudek (2018) and confirmed with surveys by USGS in 2017 (Rochester et al. 2017), the Fanita Ranch property has a self-sustaining population with 100's of metamorphic western spadefoot making it out of the breeding pools in 2017.

Habitat Suitability Model

Based on input from the Independent Scientific Advisory Report (Rochester et al. 2017), a habitat suitability model (Figure 3-16) has been developed using the following factors.

Breeding Habitat

- **Known Breeding Habitat:** Vernal pool and seasonal basins identified as having western spadefoot toads during field surveys within portions of the Subarea Plan Area. Comprehensive surveys have not been completed across the Subarea Plan Area but were completed for the Fanita Ranch property.
- **Potentially Suitable Breeding Habitat:** Other vernal pool, seasonal basins, and vernal complexes within Subarea Plan Area.

Upland Habitat

- **Suitable Upland Habitat:** Based on the following factors:
    - **Vegetation Type:** Includes scrub, chaparral, grassland, woodland, riparian scrub, freshwater marsh, and vernal pools types. The denser riparian forest, open water, and developed were excluded.
    - **Slope:** Slopes greater than 30 degrees were excluded.
    - **Patch Size:** Patches of natural habitat less than 500 acres were excluded.
- **Suitable Upland Habitat Adjacent to Areas of Known Breeding Habitat:** Suitable upland habitat within 1,000 feet of known breeding habitat.

A summary of western spadefoot toad habitat suitability is shown in Figure 3.16.

3.6.4.3 Threats and Other Management Considerations

Threats include habitat loss and fragmentation, nonnative species/predation, invasive plant species, human disturbance, drought, and hydrologic modifications. The following are other key management considerations as described in the Independent Scientific Advisory Report prepared for the City of Santee (Rochester et al. 2017).

- **Roads and Trails:** Western spadefoot have a complicated relationship with roads and trails, benefiting from these features in some cases and being negatively impacted by them at other times. Pools forming along dirt roads often provide breeding habitat but can also result in off-road vehicle related mortality directly or through a faster drying period. Many of the sites in the Fanita Ranch Subunit where western spadefoot have successfully bred were road ruts. The soil

compaction and depressions created along the dirt roads often results in pools suitable for reproduction. However, continued vehicle traffic through the pools while egg masses, tadpoles, and metamorphs are present results in direct mortality or may lead to increased siltation of the egg masses and faster drying. There are few data on the impacts of paved roads directly related to western spadefoot, but looking at other reptile and amphibian studies, paved roads tend to act as barriers and result in direct mortality.

- **Home Range and Patch Size:** The minimum area of habitat or patch size required by the western spadefoot to maintain a long term, viable population is not precisely understood but likely is dependent on having both seasonal pool habitat for breeding purposes and upland, terrestrial habitats for foraging and aestivating during the hot, dry summers. Although there are no direct estimates of a minimum patch requirement for western spadefoot, it is possible to make some estimates based on existing research. Baumberger's radio telemetry efforts (2013) documented that western spadefoot moved as far as 262 meters (860 feet) from the breeding pool site with an average distance from the pool of 40 meters (131 feet). Other current research on amphibian conservation suggests that average habitat utilization falls within approximately 1,200 feet of aquatic habitats (Semlitsch and Bodie 2003). In addition, a review of existing literature and USGS pitfall trapping records suggests western spadefoot toad need a relatively large patch size (500 acres) of natural habitat to maintain sustainability. Western spadefoot tend to be found in areas with low levels of urban development within a 5,000-meter radius, but results within Southern California indicate that they can persist at intermediate levels as well.
- **Corridor width and habitat connectivity:** The exact level of connectivity and the specifics of those connections are unknown for western spadefoot toad sustainability, but it is likely that functional connectivity corridors and linkages between populations are essential for the conservation and sustainability of western spadefoot toad metapopulations. In any given spadefoot metapopulation, it is expected that some subpopulations will disappear, but the habitat they occupied will eventually be recolonized if it remains suitable habitat. To enable natural recolonization of unoccupied habitat, and to allow for gene flow that is vital for preventing inbreeding, effective opportunities for dispersal and interbreeding among subpopulations need to be maintained. Maintaining connectivity between the known breeding sites could increase the likelihood of western spadefoot persistence. Actions that could be taken include providing access to upland habitats between the breeding pools, minimizing barriers to movement between breeding sites, allowing for redundant routes (limiting movement to one route runs the risk of complete failure if that route becomes compromised or is somehow unsuitable), and incorporating the widest corridors possible (the wider the corridor the better, with 150 feet recommended for other amphibian species). Culverts under paved roads may be adequate to maintain connectivity, but they will need to be large enough not to exclude the western spadefoot. Further study is needed to determine the minimum culvert dimensions and substrate conditions necessary to maintain connectivity for the local western spadefoot toad.
- **Habitat creation and translocation:** Suitable breeding sites can be created or enhanced as evidenced by the use of road rut pools by western spadefoot toad. Translocation efforts may help to establish additional populations or move populations out of harms way. Limiting potential breeding sites to just a few or one pool could be detrimental to the species. Redundant pools provide options and a failsafe for the potential that some may fail while others succeed.

3.6.4.4 References Cited for Western Spadefoot Toad

Baumberger, K. 2013. Uncovering a fossorial species: home range and habitat preference of the western spadefoot, *Spea hammondii* (Anura: Pelobatidae), in Orange County protected areas. Thesis: California State University, Fullerton.

California Herps. 2017. A Guide to the Amphibians and Reptiles of California. Available at: http://www.californiaherps.com/.

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Rochester, C. J., K. L. Baumberger, and R. N. Fisher. 2017. Draft Final Western Spadefoot (*Spea hammondii*): Independent Scientific Advisor Report for the City of Santee Multiple Species Conservation Plan (MSCP) Subarea Plan. 53 pp.

Semlitsch, R. D. and Bodie J. R. 2003. Biological criteria for buffer zones around wetlands and riparian habitats for amphibians and reptiles. *Conservation Biology* 17:1219-1228.

3.7 Bird Species Profiles

3.7.1 Coastal California Gnatcatcher

Federal: Threatened—1993.

State: Species of Special Concern.

Critical Habitat: Final critical habitat was designated in October 2000 and revised December 2007 (USFWS 2007).

Recovery Planning: None**.** A recovery plan has not yet been drafted for this species.

3.7.1.1 Species Biology

Coastal California gnatcatcher is small non-migratory songbird in the gnatcatcher family (Polioptilidae). Pairs defend breeding territories with sizes from 2 to 14 acres, with winter home ranges larger than breeding season ranges. The breeding season generally extends from late-February to July. Females average four eggs in a clutch and will occasionally have more than one brood in a year. Both sexes participate in all stages of nesting. Juveniles will remain with their parents for several months before dispersing. Dispersal generally requires a corridor of native vegetation between appropriate sage scrub vegetation.

Habitat Requirements and Ecology

Coastal California gnatcatcher breeding habitat is strongly associated with sage scrub communities, with California sagebrush being a dominant nesting plant (USFWS 2010). Gnatcatcher will also nest in other sage scrub species and will occasionally nest shrubs more typical of chaparral communities. Coastal California gnatcatcher will expand their range in summer and fall, as prey is less available, into other vegetation communities including chaparral and riparian areas. Population abundance may be higher in higher-quality sage scrub communities.

Key Seasonal Periods

Key seasonal periods for coastal California gnatcatcher are indicated below.

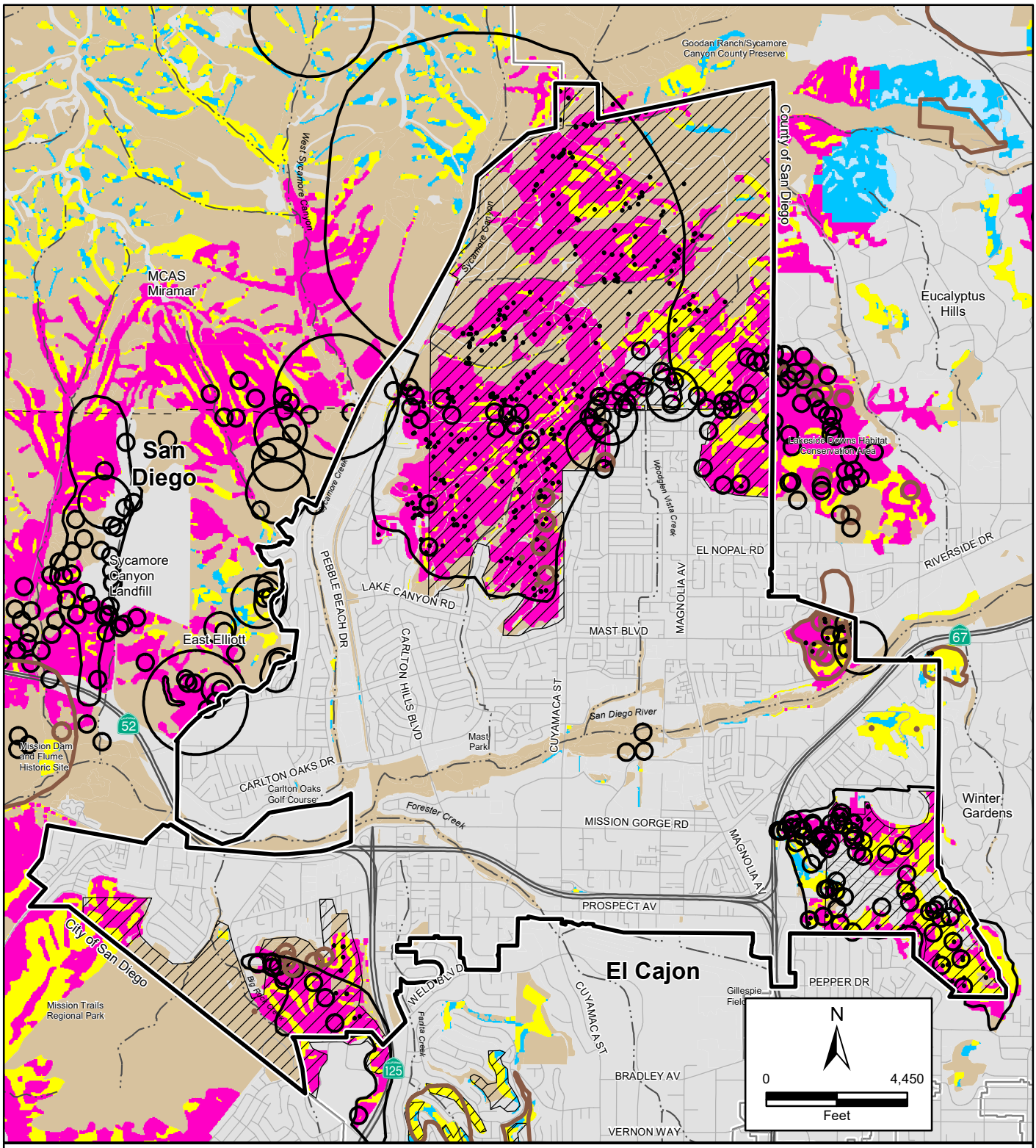
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding season		✓	✓	✓	✓	✓	✓					
Non-breeding residents	✓	✓						✓	✓	✓	✓	✓

Source: USFWS 2010.

3.7.1.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Coastal California gnatcatcher is known from the U.S. from Ventura, Los Angeles, southwestern San Bernardino, western Riverside, Orange and San Diego counties, and south into Baja California Norte,



Legend

- Subarea Plan Area

Habitat Model

- Very High Habitat Value
- High Habitat Value
- Moderate Habitat Value
- Low Habitat Value
- Final Critical Habitat (USFWS 2007)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-17 Coastal California Gnatcatcher-CHSR.mxd Date: 12/19/2018 34153

Figure 3-17
Coastal California Gnatcatcher - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Mexico (USFWS 2010). The distribution is highly correlated to the presence of Venturan sage scrub, Riversidean sage scrub, Diegan coastal sage scrub, and coastal succulent scrubs.

Current Distribution: Subarea Plan Area

Coastal California gnatcatcher is known throughout the Subarea Plan Area (Figure 3-17). Approximately 2,691 acres of suitable habitat are present within the Subarea Plan Area, with most observations occurring within modelled habitat. There are approximately 1,472.61 acres of suitable coastal scrub habitat for coastal California gnatcatcher within Fanita Ranch and the extensions of Cuyamaca Street and Magnolia Avenue. A total of 2,408.92 acres of USFWS-designated Critical Habitat for the coastal California gnatcatcher occurs within Fanita Ranch and the extensions of Cuyamaca Street and Magnolia Avenue (Dudek 2018).

Habitat Suitability Model

A habitat suitability model was prepared for the MSCP Subregional Plan and this model has been updated with current information (Figure 3-17). The model ranks habitat value using parameters of vegetation cover, climate, patch area, and slope. The modeling parameters and habitat value ranking criteria are described below.

- *Land Cover*: CAGN typically use coastal sage scrub habitat and similar scrub habitats throughout its range. The model selects coastal scrub.
- *Climate*: Climate (precipitation and temperature) have been documented as correlated with the distribution and frequency of habitat used by CAGN. Climate data consisted of average minimum January temperature and average annual rainfall. The precipitation data was reclassified into Dry (> 13.25 inches) and Wet and Cold (< 5 C) and Warm.
- *Patch Area*: The spatial configuration of suitable scrub habitat was analyzed using a core-satellite algorithm with minimum core sizes (25 acres for coastal/warm areas and 50 acres for inland/colder areas) and maximum inter-patch distances of 1,600 feet between the core and satellites that sum to the total patch area.
- *Slope*: Detailed studies and observations suggest CAGN avoid nesting on very steep slopes (>40%), although habitat on slopes greater than 40% may be suitable for foraging and dispersal.

The model parameter scoring regime is as follows.

- Climate: warm/dry = 2, warm/wet or cold/dry = 1, cold/wet = 0
- Greater than minimum patch area: yes = 1, no = 0
- Slope: <40% = 1, >40% = 0

The suitable habitat value ranking is as follows.

Score	Ranking
4	Very High Value Suitable Habitat
3	High Value Suitable Habitat
2	Moderate Value Suitable Habitat
1	Low Value Suitable Habitat

3.7.1.3 Threats and Other Management Considerations

Threats to coastal California gnatcatcher include habitat loss, habitat degradation and fragmentation, invasive fauna, and climate change, including drought and increased frequency of wildfire.

While coastal California gnatcatcher are known to occur in habitat subject to edge effects from urban development, populations are known to be more persistent in higher quality habitat (USFWS 2010). Restoration or enhancement activities that increase the cover and distribution of sage scrub habitat will provide better potential habitat for coastal California gnatcatcher.

The remaining coastal sage scrub in southern California has been subject to increasing frequency of large wind-driven wildfire. These high-speed, intense fires can cause direct mortality of populations of resident birds unable to escape the fires. The fires also burn off large areas of habitat; while coastal sage scrub is fire adapted and may recover, the habitat will be unsuitable for gnatcatcher nesting for at least several years. As most wildfires during Santa Ana events are ignited by humans, preserve managers should take steps to reduce chances of ignition with preserved lands. No maintenance activities should occur during fire weather events, to prevent sparking by tools or machinery. If public access is allowed within preserved land, closures should be implemented during fire weather events.

Nonnative argentine ants are known to be nest predators. Any restoration efforts within the Subarea Plan Area, and any landscaped areas that interface with open space, must ensure that all container stock plantings are free of Argentine ants. Argentine ants within active restoration sites should be treated with targeted pesticide to reduce the spread of this species. Argentine ants are drawn to moist areas, so dry season water flows originating from developed areas should be controlled.

3.7.1.4 References Cited for Coastal California Gnatcatcher

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

U.S. Fish and Wildlife Service (USFWS). 2007. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*); Final Rule. *Federal Register* 72(243): 72009–72213. Washington, D.C.: USFWS. December.

———. 2010. Coastal California Gnatcatcher (*Polioptila californica californica*) 5-year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. September 29.

3.7.2 Least Bell's Vireo

Federal: Endangered—1986.

State: Endangered—1980.

Critical Habitat: Final critical habitat was designated in February 1994 (USFWS 1994).

Recovery Planning: Draft recovery plan was published in May 1998.

3.7.2.1 Species Biology

Least Bell's vireo is a small, insect-eating, migratory songbird in the vireo family (Vireonidae). This species typically appears in southern California in March and April. Nesting season generally lasts from April to late June, rarely mid-July, with fledging occurring in late April through August (Unitt 2004).

Habitat Requirements and Ecology

This species typically occurs in riparian woodland or riparian scrub. Nesting occurs in the dense understory and foraging occurs within riparian canopy (Unitt 2004). Nests are typically placed in openings of dense vegetation approximately 1 meter above ground level. Within San Diego County, mulefat (*Baccharis salicifolia*) and willows (*Salix* spp.) are the most common nesting substrates. While this species is strongly associated with riparian areas for breeding, it may forage up to 200 feet away from riparian vegetation in upland sage scrub communities (Unitt 2004).

Key Seasonal Periods

Key seasonal periods for least Bell's vireo are indicated below.

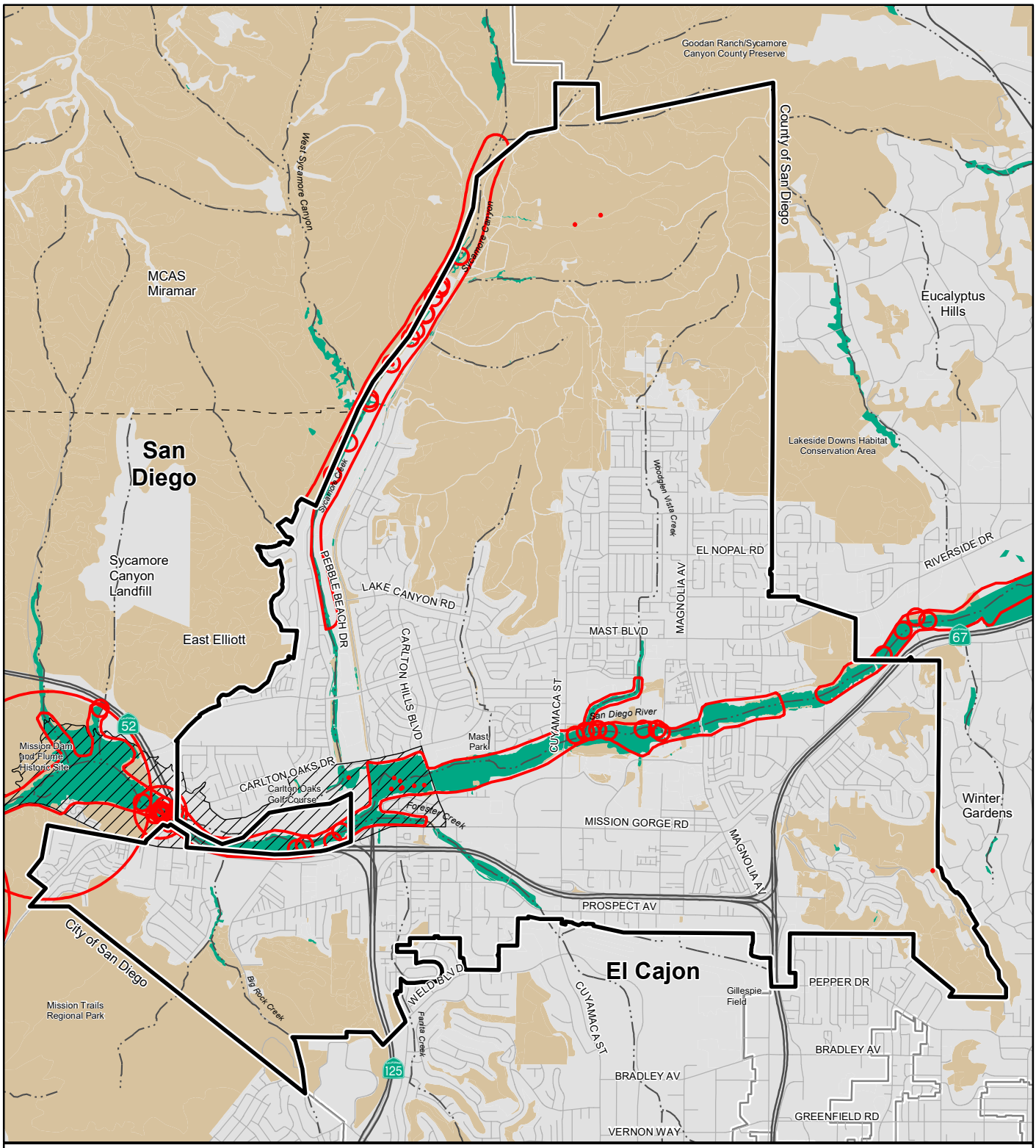
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding season				✓	✓	✓	✓	✓				
Wintering outside U.S.	✓	✓	✓						✓	✓	✓	✓

Source: Unitt 2004.

3.7.2.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Least Bell's vireo breeding range is almost exclusively restricted to southern California (USFWS 2006). The species is known to breed in San Diego, Riverside, and Orange counties. It has not meaningfully re-colonized sites in central California. Coastal San Diego County has been recognized as a core habitat for the subspecies (USFWS 2006). In San Diego County, major population centers occur along the Santa Margarita River on Camp Pendleton, San Luis Rey River, San Dieguito above Lake Hodges, lower San Diego River, and Sweetwater River above Sweetwater Reservoir (Unitt



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-18 Least Bells Vireo-Unique.mxd Date: 12/19/2018 34153

Figure 3-18
Least Bell's Vireo - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

2004). The species also nests in riparian thickets in the San Diego County desert canyons and washes.

Current Distribution: Subarea Plan Area

Least Bell's vireo breeds in suitable habitat along the San Diego River and within Sycamore Canyon within the Subarea Plan Area (Figure 3-18). One least Bell's vireo nesting pair was observed during focused surveys for Coastal California Gnatcatcher on Fanita Ranch in 2016 within mixed chaparral and coastal sage scrub; this pair did not produce a successful clutch (Dudek 2018). No least Bell's vireo were observed within traditionally suitable habitat during focused surveys for this species on Fanita Ranch in 2016 (Dudek 2018).

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-20) for least Bell's vireo has been developed using the following factor.

- **Vegetative cover:** Riparian scrub, riparian forest, and open water; and

Suitable habitat within Subarea Plan Area occurs primarily along the San Diego River and Sycamore Canyon.

3.7.2.3 Threats and Other Management Considerations

Threats to least Bell's vireo include habitat loss to urban and agricultural development, habitat degradation by invasive plant species, and nest parasitism by brown-headed cowbirds.

Riparian areas within preserved lands should be monitored for presence or expansion of perennial weeds with potential to degrade riparian habitat, including giant reed (*Arundo donax*), salt cedar (*Tamarix* spp.), or perennial peppergrass (*Lepidium latifolium*). Efforts should be made to control these species.

Cowbirds have been a major cause in the decline of least Bell's vireo. High vegetative cover and density around vireo nests can reduce the rate of cowbird parasitism on vireo nests. Enhancement of riparian systems can result in both more and better potential habitat for vireo.

Vireo will lose nests to predation, including loss to nonnative species including Argentine ants and Virginia opossum. Nests are also lost to western scrub jay (*Aphelocoma californica*), so nests should not be approached (e.g., during preserve management) as this could lead predators to the nest. Management efforts should attempt to prevent introduction of invasive species into preserved lands.

3.7.2.4 References Cited for Least Bell's Vireo

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Unitt, P. 2004. San Diego County Bird Atlas. San Diego Natural History Museum.

U.S. Fish and Wildlife Service (USFWS). 1994. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Least Bell's Vireo (*Vireo bellii pusillus*); Final Rule. *Federal Register* 59 (22): 4845-4867. Washington, D.C.: USFWS. February.

———. 2006. Least Bell's Vireo (*Vireo bellii pusillus*) 5-year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. September.

3.7.3 San Diego Cactus Wren

Federal: None (USFWS Bird of Conservation Concern).

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

3.7.3.1 Species Biology

San Diego cactus wren are a year-round resident songbird in the wren family (Troglodytidae). Nesting typically occurs in mid-march to early June in San Diego County (Unitt 2004). They will maintain nests year-round for shelter. They generally have very limited dispersal.

Habitat Requirements and Ecology

San Diego cactus wren is highly restricted to large or dense stands of cholla or prickly pear cactus. They are restricted to cactus thickets within open sage scrub on south and west facing slopes at elevations below 1500 feet.

Key Seasonal Periods

Key seasonal periods for San Diego cactus wren are indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding season			✓	✓	✓	✓						
Non-breeding residents	✓	✓					✓	✓	✓	✓	✓	✓

Source: Unitt 2004.

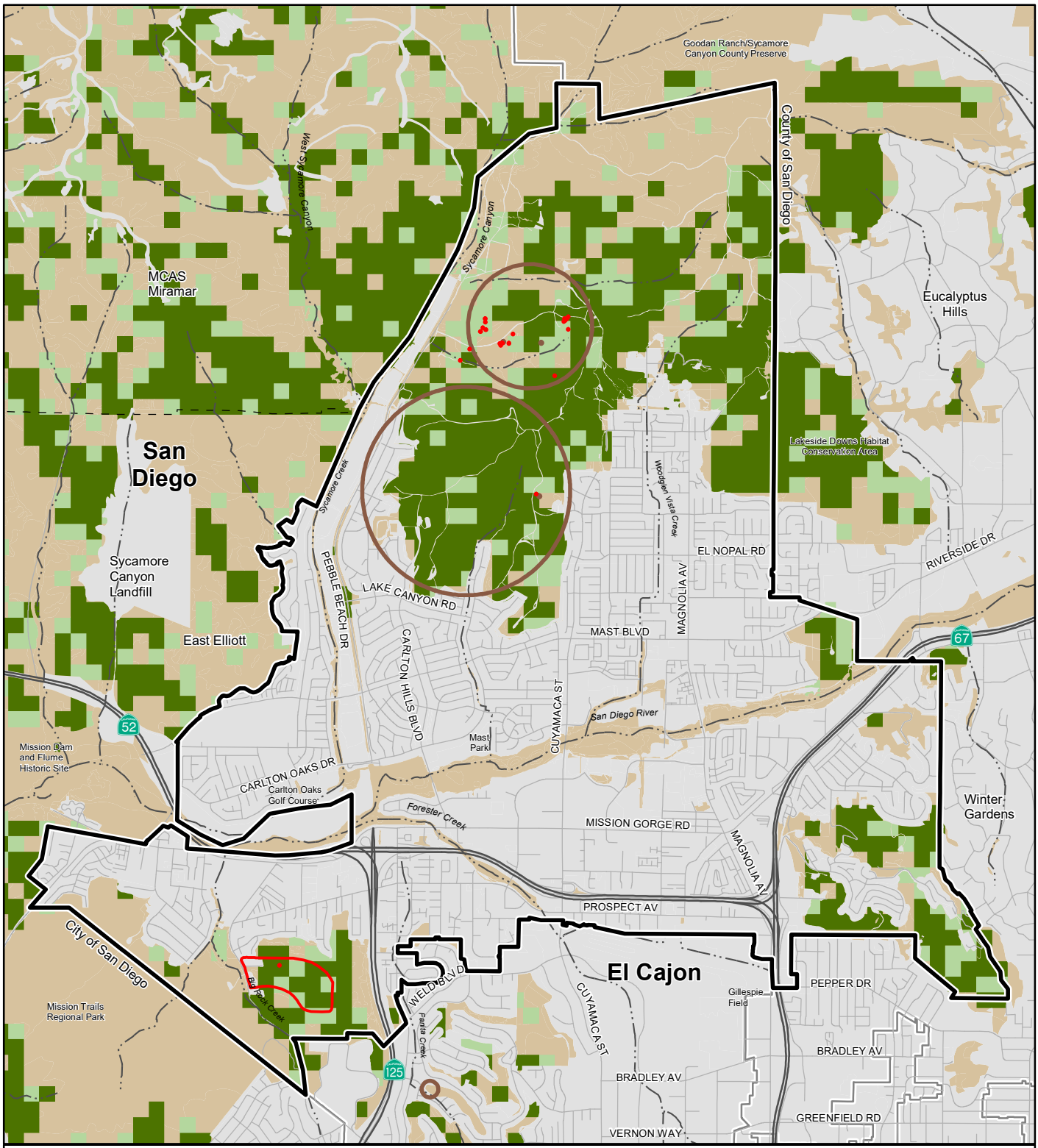
3.7.3.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

The San Diego cactus wren subspecies is localized in areas within the coastal lowlands of San Diego and Orange counties, and within northern Baja California Mexico. Other subspecies occur to the north in the Peninsular range and high deserts, and to the east and south in the low deserts and Baja California interior. San Diego cactus wren have been observed north of the Subarea Plan Area in the West Sycamore area of MTRP and historic occurrences south of the Subarea Plan Area in El Cajon.

Current Distribution: Subarea Plan Area

San Diego cactus wren have been observed within the Subarea Plan Area in the southwestern portion of the Subarea Plan Area, near Mission Trails, as well as within Fanita Ranch (Figure 3-19). San Diego cactus wren was observed within Fanita Ranch during surveys conducted in 1997, 2004,



Legend

- Subarea Plan Area
- **Habitat Model (TNC 2015)**
  - Higher Suitability (values 0.75 - 1)
  - Moderate Suitability (values 0.5 - 0.75)
- **Species Occurrence Locations**
  - Current (post-1999)
  - Historic (pre-2000)
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

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\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-19 San Diego Cactus Wren-SDMMP.mxd Date: 12/19/2018 34153

Figure 3-19
San Diego Cactus Wren - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

2016, and 2017 (Dudek 2018). During the 2017 focused surveys, eight individuals were detected and two active nests were observed at three locations in the central portion of the site. San Diego cactus wrens were acoustically detected at three additional cactus patches within Fanita Ranch in 2017.

Habitat Suitability Model

SDMMP developed a statistically based habitat suitability model for cactus wren in southern California that evaluated environmental factors of elevation, topographic heterogeneity, slope, aspect, precipitation, temperature, vegetation, normalized difference vegetation index (NDVI), and habitat suitability of cactus scrub (TNC 2015). The best performing model included minimum January and maximum January temperatures, annual precipitation, elevation, northness, eastness, topographic heterogeneity, percent of coastal sage scrub, chaparral and urban development within a 150-meter grid cell, and modeled habitat suitability for prickly pear and California sagebrush. Environmental variables that made the greatest contributions to the model included maximum July temperature, elevation, northness and eastness, percent coastal sage scrub, and prickly pear and California sagebrush habitat suitability predictions. It is noted that the cactus wren are obligates of cactus scrub habitat but there is a lack of comprehensive mapping of the cactus scrub vegetation community. SDMMP was able to characterize suitable conditions for cactus scrub habitat but the model results includes large areas of potentially suitable habitat. This model tends to over-represent suitable habitat but is the best available scientific information for the estimating distribution of suitable habitat for this species (Figure 3-19). Accurate evaluation of species potential will depend on site-specific habitat evaluation and focused surveys.

The SDMMP model was clipped to include results only within areas of suitable vegetation types. Areas of developed, disturbed habitat, and riparian habitat are not shown as suitable habitat. For purposes of the Subarea Plan analysis, the SDMMP model results were grouped into the following categories:

Category	SDMMP Model Value
Low	0 – 0.5
Intermediate	0.5 – 0.75
Highest	0.75 – 1

3.7.3.3 Threats and Other Management Considerations

San Diego cactus wren is threatened by urban and agricultural development, habitat fragmentation, and increased size and frequency of wildfires.

San Diego cactus wren requires large, dense, and/or tall cactus patches to support nesting, with an average nesting height over 4 feet from the ground (Rea and Weaver 1990). Cactus patches may be completely destroyed after fire, to the point where they will not naturally recover. New cactus patches may take 7 to 10 years to reach a condition where they can support nesting of cactus wren. The observed increase in wildfire frequency has the potential to eliminate habitat and keep it from being suitable for this species. Habitat fragmentation may prevent remaining San Diego cactus wren from colonizing habitat once it does become suitable.

Any installation or enhancement of cactus patches for San Diego cactus wren should ensure that: weeds are kept back to reduce chance of ignition during a wildfire; native shrubs are not intermixed within cactus, to prevent ladders for predators to access nests; both cholla and prickly pear are planted together, to give both the quick protection of cholla and the better nesting structure of prickly pear.

As much of the cactus thickets within the Subarea Plan Area have been subject to recent wildfire, preserve management should include cutting and planting of cactus pads, to promote regeneration of cactus and future suitability for cactus wren.

3.7.3.4 References Cited for San Diego Cactus Wren

Dudek. 2018. *Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California*. Prepared for HomeFed Corporation. June.

Rea, A.M. and K.L. Weaver. 1990. The Taxonomy, Distribution, and Status of Coastal California Cactus Wrens. *Western Birds*. V21, Number 3.

The Nature Conservancy (TNC). 2015. South San Diego County Coastal Cactus Wren (*Campylorhynchus brunneicapillus*) Habitat Conservation and Management Plan. Prepared in collaboration with San Diego Management and Monitoring Program. June.

Unitt, P. 2004. *San Diego County Bird Atlas*. San Diego Natural History Museum.

3.7.4 Southwestern Willow Flycatcher

Federal: Endangered—1995.

State: Endangered (as Willow Flycatcher)—1990.

Critical Habitat: Final critical habitat was designated in July 1997 and final revised critical habitat designated in February 2013 (USFWS 2013). There are no areas of critical habitat for southwestern willow flycatcher located within or in the vicinity of the Subarea Plan Area.

Recovery Planning: Final recovery plan was implemented on August 30, 2002.

3.7.4.1 Species Biology

Southwestern willow flycatcher is a small, insect-eating, migratory songbird in the tyrant flycatcher family (Tyranniade). It is visually indistinguishable from other subspecies of willow flycatcher which may migrate through southern California. Southwestern willow flycatcher typically arrives on breeding lands in May and nests are begun in May or June. Females begin nest construction within 10-14 days of arrival on the breeding grounds (Unitt 2004). One to four eggs are laid per nest, and this species may occasionally have second nests attempts in San Diego County (Unitt 2004).

Habitat Requirements and Ecology

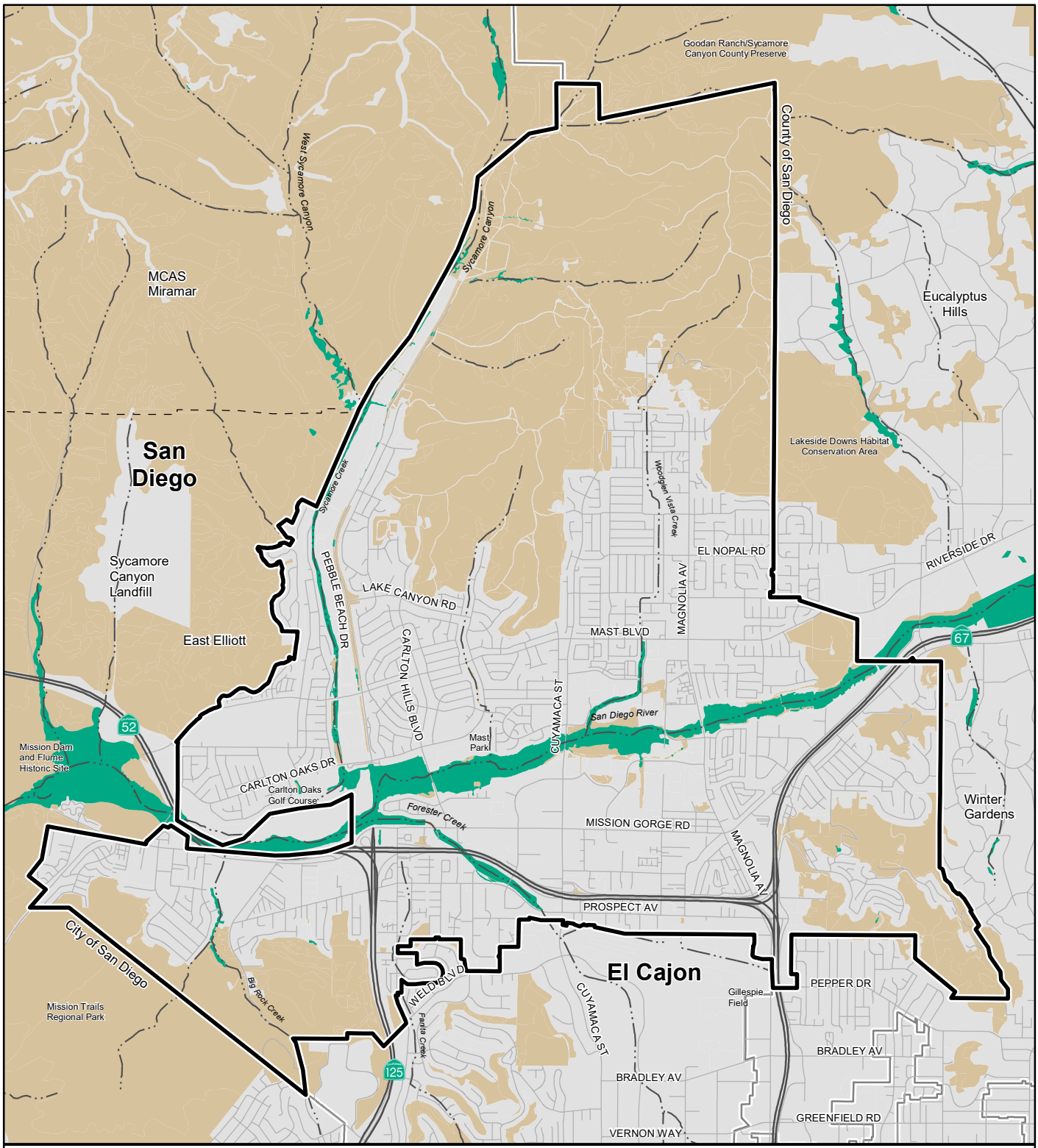
Southwestern willow flycatcher require a more dense and complex riparian structure than is utilized by many other sensitive riparian birds including least Bell's vireo. Southwestern willow flycatcher only breed in dense riparian habitat near water or saturated soil (USFWS 2002). Habitat usually includes dense vegetation in the first 3–4 meters of height. Nests are often over water or in the outer branches of a tree, and may be placed 2–30 meters in height (USFWS 2002). In coastal California, nests are typically placed in native vegetation dominated by willows (*Salix* spp.). They will also nest in nonnative salt cedar (*Tamarix* spp.); they have been observed nesting in this vegetation in San Dieguito, lower San Luis Rey, and Sweetwater Rivers (USFWS 2002).

Key Seasonal Periods

Key seasonal periods for southwestern willow flycatcher ae indicated below.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding season					✓	✓	✓	✓				
Wintering outside U.S.	✓	✓	✓	✓					✓	✓	✓	✓

Source: Unitt 2004.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-20 Southwestern Willow Flycatcher-Unique.mxd Date: 12/19/2018 34153

Figure 3-20
Southwestern Willow Flycatcher - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

3.7.4.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Southwestern willow flycatcher is known to breed in the southwestern United States including southern and central California, southern Nevada, Arizona, Utah, New Mexico, southwestern Colorado, and west Texas (USFWS 2014). Within San Diego County, only two substantial breeding populations are known to remain along the Santa Margarita River and the upper San Luis Rey River, although reproduction has been documented in recent years on the San Dieguito River as well (MHCP 2003, Kus and Beck 1998). However, it characteristically occurs in many places briefly as a late spring migrant. One migrant observation near the Old Mission Dam in MTRP was recorded in 2010 (City of San Diego 2017). The riparian forest habitat on the San Diego River through MTRP may be suitable for this species and has potential to support the species in the future as populations in southern California recover and expand.

Current Distribution: Subarea Plan Area

Southwestern willow flycatcher are not currently known to breed within the Subarea Plan Area (Figure 3-20). One willow flycatcher was observed on May 23, 2017 within Fanita Ranch, but was determined to be a migrant and was not the listed southwestern willow flycatcher (Dudek 2018).

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-20) for southwestern willow flycatcher has been developed using the following factor.

- **Vegetative cover:** Riparian scrub, riparian forest, and open water; and

Suitable habitat within Subarea Plan Area occurs primarily along the San Diego River and Sycamore Canyon.

3.7.4.3 Threats and Other Management Considerations

Threats to the species include development of riparian habitat for urban and agricultural uses; alteration of hydrology through diversions and groundwater pumping; parasitism by brown-headed cowbirds; changes in flooding regime from dams and channelization.

Preserve managers should strive to increase the amount and quality of riparian habitat. This species needs dense and tall riparian habitat resulting from riparian vegetation with dynamic hydrology.

3.7.4.4 References Cited for Southwestern Willow Flycatcher

City of San Diego. 2017. Natural Resources Management Plan for the Mission Trail Regional Park, San Diego, California. Prepared by RECON Environmental Inc. January 17.

Dudek. 2018. Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California. Prepared for HomeFed Corporation. June.

Kus, B.E. and P.P. Beck. 2003. An approach for monitoring bird communities to assess development of restored riparian habitat. In: P.M. Faber (ed.) pages 396-406. California Riparian Systems: Process and Floodplain Management, Ecology, and Restoration. 2001 Riparian Habitat and Floodplain Conference Proceedings, Riparian Habitat Joint Venture, Sacramento, CA. [Proceedings]

Multiple Habitat Conservation Plan (MHCP) Volume II. 2003. Biological Analysis and Permitting Conditions. March."

Unitt, P. 2004. *San Diego County Bird Atlas*. San Diego Natural History Museum.

U.S. Fish and Wildlife Service (USFWS). 2002. Final Recovery Plan Southwestern Willow Flycatcher (*Empidonax trallii extimus*). Albuquerque, New Mexico. i-ix. +210pp., Appendices A-O.

———. 2013. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Southwestern Willow Flycatcher (*Empidonax trallii extimus*); Final Rule. *Federal Register* 78(2): 343 - 534. Washington, D.C.: USFWS. January.

———. 2014. Southwestern Willow Flycatcher (*Empidonax trallii extimus*) 5-year Review: Summary and Evaluation. Carlsbad Fish and Wildlife Office. Carlsbad, CA. August 15.

3.7.5 Tricolored Blackbird

Federal: None (USFWS Bird of Conservation Concern).

State: Candidate—2015.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

3.7.5.1 Species Biology

Tricolored blackbird is a communal nesting blackbird (Icteridae). Females may nest with up to six nests within a square meter of marsh. Females nest eruptively, with most members of the population laying eggs at the same time. Males do not assist with nest construction but do assist with feeding of young.

Habitat Requirements and Ecology

They nest in large, dense colonizes, usually in freshwater marshes. Most colonies are in cattail marshes, but they may also nest in riparian areas, blackberry thickets, or dense stands of black mustard. The species shuns edges and prefers blocks of habitat with maximized interior space. They also prefer young, lush cattails and may abandon older marsh.

Tricolor blackbird flocks will forage away from nesting habitat outside of the breeding season, but typically roost in freshwater marsh (Unitt 2004). Alfalfa or other insect rich crop areas are prime feeding habitat. Blackbirds are opportunistic feeders, and will also eat grains and snails in addition to insects. Other foraging habitat includes grasslands and open sage scrub areas. Adults often forage up to 3 kilometers from nesting and roosting habitat, and may occasionally travel up to 8 kilometers (CBI 2015).

Key Seasonal Periods

Key seasonal periods for tricolored blackbird are indicated below.

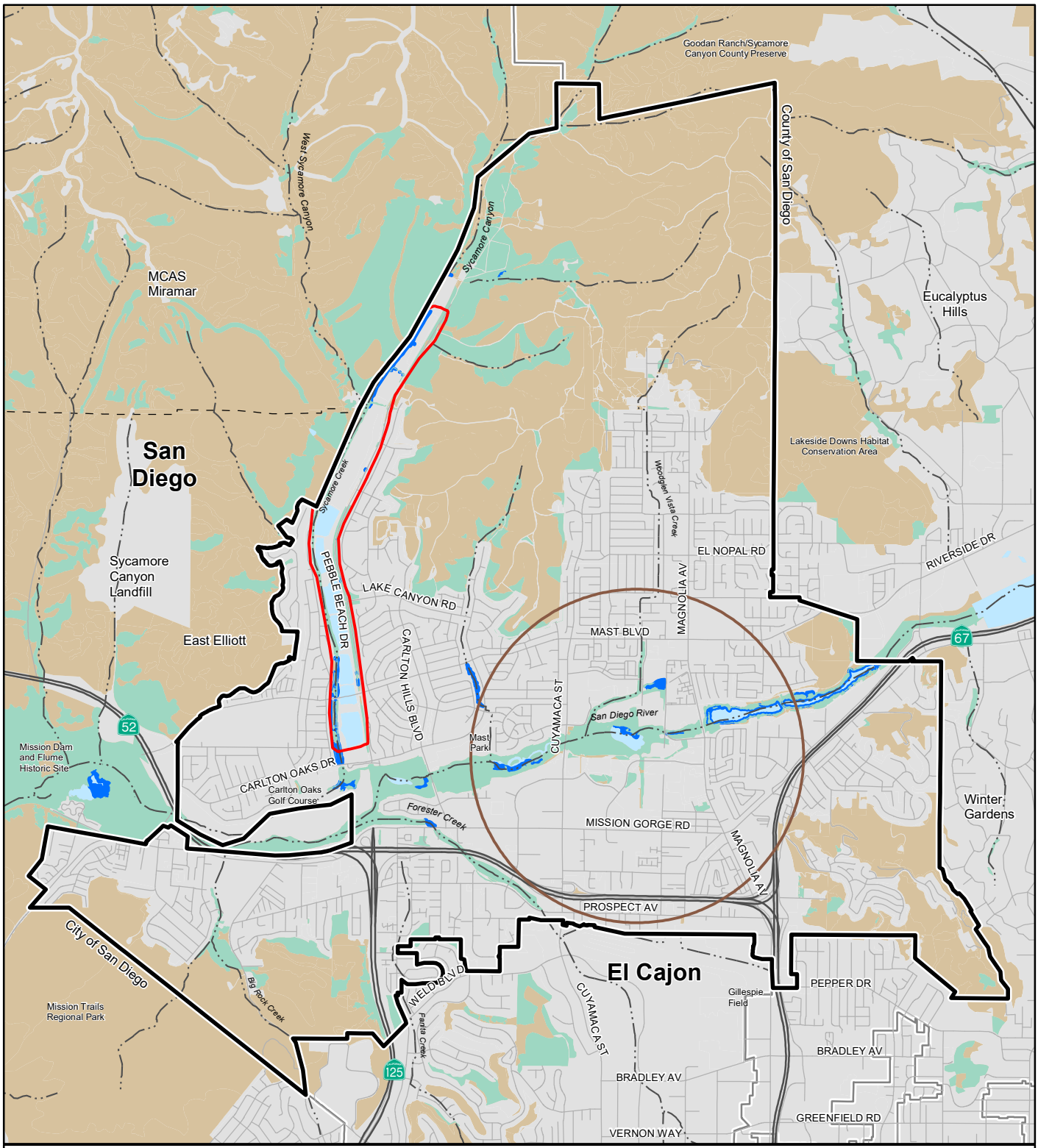
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding season				✓	✓	✓						
Non-breeding residents	✓	✓	✓				✓	✓	✓	✓	✓	✓

Source: CBI 2015.

3.7.5.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Tricolored blackbird is largely endemic to California (CBI 2015). They are primarily restricted to California's central valley, but sparse populations also occur north of the central valley and in



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 3-21 Tricolored Blackbird-Unique.mxd Date: 12/19/2018 34153

Figure 3-21
Tricolored Blackbird - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

southern California. Tricolor breeding colonies may be present in the vicinity outside of the Subarea Plan Area, to the east in Lakeside at Lindo Lake, to the southwest at Lake Murray and to the east near Viejas Casino (Unitt 2004).

Current Distribution: Subarea Plan Area

Tricolored blackbird have historically been observed within the Subarea Plan Area at Santee Lakes (CNDDB EO# 465) and the San Diego River (CNDDB EO# 464) (Figure 3-21). These locations have been recorded as colony sites monitored as part of the Statewide Tricolored Blackbird Survey (UC Davis Tricolored Blackbird Portal). More recent surveys at these locations have been negative for the presence of tricolored blackbird. In addition, no tricolored blackbird were observed onsite during surveys of Fanita Ranch (Dudek 2018).

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-21) for tricolored blackbird has been developed based on the following factors.

- **Suitable Colony Habitat:** Areas of freshwater marsh and emergent wetlands.
- **Suitable Foraging Habitat (breeding season):** Areas of grassland and riparian within 5 kilometers of suitable colony habitat.

3.7.5.3 Threats and Other Management Considerations

Threats to tricolored blackbird include loss of nesting habitat to urban development, and conversion of and agricultural development; water diversion projects removing appropriate hydrologic regime to maintain appropriate habitat; predation by native and nonnative predators; extirpation of populations to stochastic events including storms or floods; development of foraging habitat; and exposure to pesticides and other pollutants. Their colonial nesting leaves them vulnerable to large-scale reproductive failure (CBI 2015).

Two acres should be considered the minimum freshwater marsh pond size for tricolored blackbird, to be able to meet the nesting cover requirements. Management of freshwater marsh for tricolor blackbird would include a rotation of cutting cattails during the nonbreeding season to encourage young growth while preserving dense areas for roosting.

3.7.5.4 References Cited for Tricolored Blackbird

Center for Biological Diversity. 2015. Petition to List Tricolored Blackbird (*Agelaius tricolor*) as Endangered under the U.S. Endangered Species Act. February.

Dudek. 2018. *Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California*. Prepared for HomeFed Corporation. June.

U.C. Davis Information Center for the Environment (ICE) Tricolored Blackbird Portal. Available: http://tricolor.ice.ucdavis.edu/

Unitt, P. 2004. *San Diego County Bird Atlas*. San Diego Natural History Museum.

3.7.6 Western Burrowing Owl

Federal: None (USFWS Bird of Conservation Concern).

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

Recovery Planning: None.

3.7.6.1 Species Biology

Western burrowing owl is a small, long-legged, ground-dwelling owl (Strigidae). They require burrows for nesting and roosting. They typically utilize burrows constructed by fossorial mammals including California ground squirrel (*Otospermophilus beecheyi*), and often use several burrows in a vicinity within one nesting season. Breeding typically occurs in February through August, with the peak in April through July (CDFG 2012). Diet includes arthropods, amphibians, reptiles, small rodents, and carrion. Foraging is concentrated within 600 meters of their burrows (CDFG 2012).

Habitat Requirements and Ecology

Preferred habitat for western burrowing owl in California includes open, relatively flat expanses including grasslands, desert, pasture, and edges of row crops. Highest quality habitat would include well-drained soils, with multiple suitable burrows, and good visibility to watch for predators including coyotes, ravens, and hawks. Burrowing owl appear to have relatively small foraging areas, and it is unclear what make up the highest quality prey (Swaisgood et al. 2014).

Key Seasonal Periods

Key seasonal periods for western burrowing owl are indicated below.

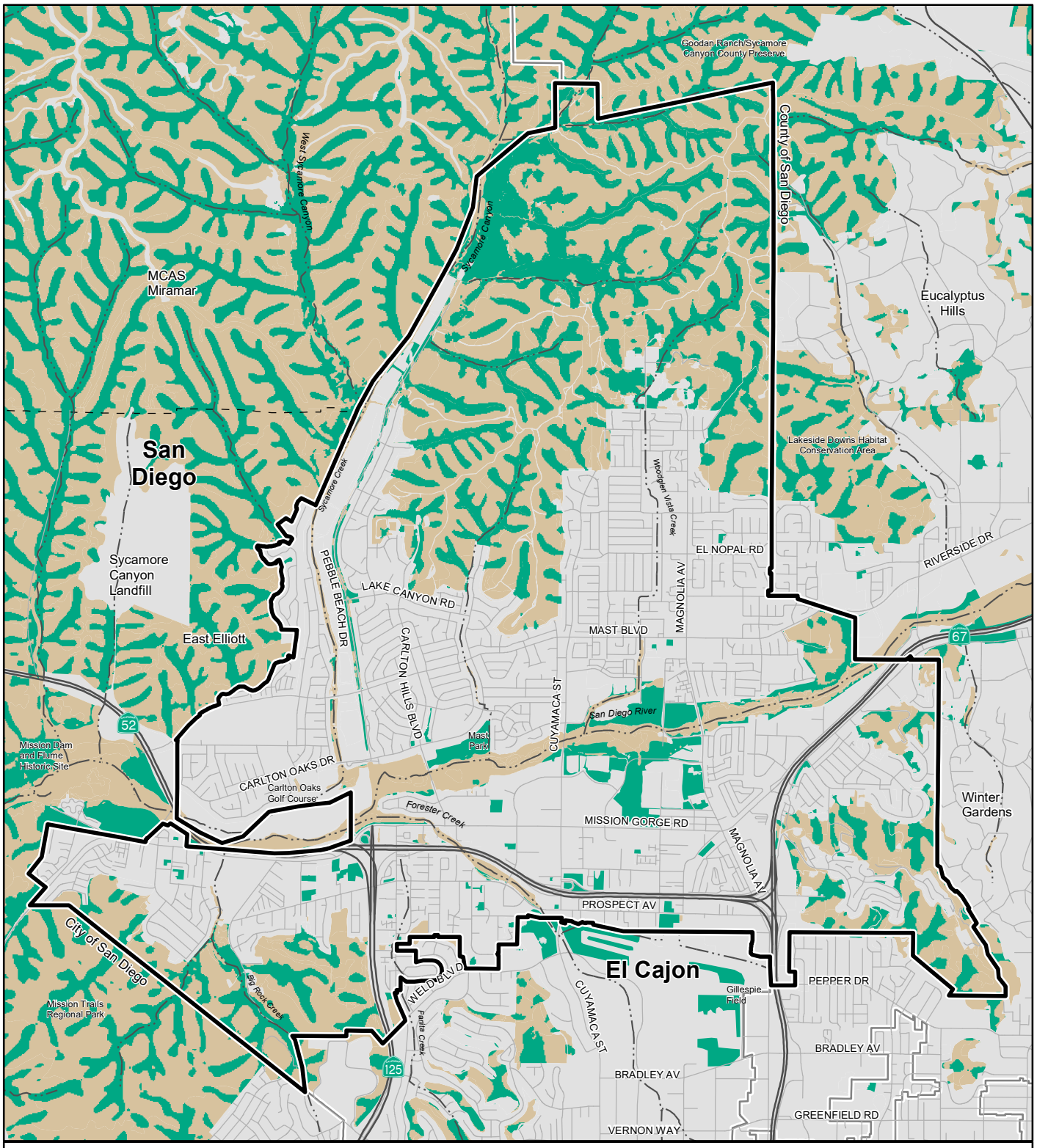
	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Breeding season		✓	✓	✓	✓	✓	✓	✓				
Wintering and resident populations	✓								✓	✓	✓	✓

Source: CDFG 2012

3.7.6.2 Species Distribution and Population Trends

Current Distribution: Range-Wide

Western burrowing owl are found scattered throughout the western United States including California. Birds in California can include year-round residents and winter visitors. In San Diego County, burrowing owl are now found at few suitable sites, with remaining breeding populations at East Otay Mesa, Warner Springs, Borrego Springs, and near airports at North Island Naval Station and Naval Outlying Landing Field Imperial Beach.



Legend

- Subarea Plan Area
- Suitable Habitat
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

Species Occurrence Locations
None within Plan Area

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Figure 3-22
Western Burrowing Owl - Known Occurrences and Suitable Habitat
Santee MSCP Subarea Plan

Current Distribution: Subarea Plan Area

No burrowing owl are known to nest in the Subarea Plan Area (Figure 3-22). No burrowing owl were observed on Fanita Ranch during focused surveys in 2016 (Dudek 2018).

Habitat Suitability Model

A model of potentially suitable habitat (Figure 3-22) for western burrowing owl has been developed using the following factors.

- **Vegetative cover:** Areas of coastal sage scrub, grasslands, and disturbed habitat; and
- **Flat topography:** Topographic Position Index (TPI) flat and slope bottom.

3.7.6.3 Threats and Other Management Considerations

Habitat loss and degradation from conversion of agriculture and rangeland to urban development is the greatest threat for this species (CDFG 2012). Control of burrowing rodents is a threat as it removes the species that construct most burrows. Burrowing owl suffer direct mortality from vehicle collisions, ditch and culvert maintenance, and discing of fallow fields.

Management for burrowing owl should include promotion or re-introduction of California ground squirrel into habitat open and suitable for burrowing owl (Swaisgood et al. 2014). Reintroduction would include evaluation of soils, as friable soils are preferred over clays and alluvium, and mowing of nonnative grasses to make a site more suitable for ground squirrels.

Management for burrowing owl may also include management of exotic weeds to ensure visibility and high-quality foraging habitat for burrowing owl.

Artificial burrows may be used to provide suitable nesting habitat, but they require maintenance and are labor intensive in the long-term (Swaisgood et al. 2014).

3.7.6.4 References Cited for Western Burrowing Owl

California Department of Fish and Game (CDFG). 2012. *Staff Report on Burrowing Owl Mitigation*.

Dudek. 2018. *Biological Technical Report for the Fanita Ranch Project, City Of Santee, San Diego County, California*. Prepared for HomeFed Corporation. June.

Swaisgood, R.R., C. Wisinski, J.P. Montagne, S. Marczak, D.M. Shier, and L.A. Nordstrom. 2014. *An Adaptive Management Approach to Recovering Burrowing Owl Populations and Restoring a Grassland Ecosystem in San Diego County*. Institute for Conservation Research, San Diego Zoo Global.

Unitt, P. 2004. *San Diego County Bird Atlas*. San Diego Natural History Museum.

Chapter 4
Covered Activities and Impact Assessment

4.1 Introduction

This chapter describes the activities within the Subarea Plan Area for which the Santee Subarea Plan will provide conservation and avoidance and minimization of impacts for Covered Species and their habitats (Section 4.2, *Covered Activities*). These are the Covered Activities for which take authorization will be obtained.

This chapter also addresses direct and indirect effects of the Covered Activities on natural communities and Covered Species (Section 4.3, *Impact Assessment and Level of Take*).

4.2 Covered Activities

The Subarea Plan includes coverage for three major categories of Covered Activities:

- **Known and anticipated projects and maintenance activities (Section 4.2.1)**: The City has completed a review and inventory of all known and anticipated projects. This includes public and private planned development projects, streets project, trails projects, drainage projects and maintenance activities, new trail and maintenance activities, and fuel modification zones.
- **Future development in Santee (Section 4.2.2)**: The Subarea Plan sets forth policies and procedures for the review and approval of future development activities, above and beyond the known and anticipated projects. Section 4.2.2 provides an estimate of the areas of the Subarea Plan Area subject to future development activities.
- **Preserve management activities (Section 4.2.3)**: Preserve management, restoration, and monitoring activities within the Subarea Plan Preserve System will have the potential to result in minor impacts on Covered Species and their habitats.

4.2.1 Known and Anticipated Projects and Maintenance Activities

The City has identified a number of other known and anticipated projects and maintenance activities in the Subarea Plan Area. Project-specific environmental review will be conducted, as required under CEQA, for all projects. Any future CEQA analysis for these projects will consider consistency with the Subarea Plan (Chapter 5, *Conservation Strategy*) and will undergo Wildlife Agency review as part of the CEQA process. The following discussion groups known and anticipated projects into development projects, street projects, drainage projects and maintenance, trails projects and maintenance, and fuel modification areas.

4.2.1.1 Development Projects

Public and private development projects include residential, industrial, commercial, and/or recreational facility developments that could result in direct and/or indirect impacts on natural habitat. The City has been coordinating with known private developers to identify ongoing and

proposed development projects within the city of Santee. In addition, the City has identified publicly funded development projects. Development projects are in different stages of project planning, approval, and construction. For the purposes of the Subarea Plan, development projects have been categorized as follows: covered, forecasted, pending, and approved but incomplete development projects.

Covered Development Projects

Covered development projects include development projects that are (1) currently in the planning and environmental review process, (2) are expected to have impacts on Covered Species or their habitats, and (3) will obtain take coverage under the Subarea Plan, as appropriate. Impacts and conservation associated with covered development projects have been estimated and hardline boundaries for the development area and open space for compensatory mitigation have been developed. These boundaries are described based on the Tentative Maps submitted to the City and incorporated by reference to this Subarea Plan. As the individual development projects move through the project approval process, the proposed project development boundaries will be reviewed for consistency with the hardline boundaries included in Subarea Plan, and the project applicant will prepare a Consistency Determination (see Section 8.3.3, *Boundary Line Adjustment Procedures and Consistency Determination*), if needed, for the City to review and approve.

Forecasted Development Project Areas

The City has identified areas where development projects are anticipated. However, the planning and environmental review processes for these forecasted development projects have not progressed to the point that impacts and any corresponding compensatory mitigation has been determined. The City will review and approve any future development activities within these locations through the project development approval process.

Pending Development Projects

Pending development projects include projects that are currently in the environmental review and approval process at the time of when the Subarea Plan was being prepared and are expected, if necessary, to obtain appropriate permits from the Wildlife Agencies independent of the Subarea Plan. The development footprint and biological mitigation (including dedicated conservation) has been approved for these projects, and the boundaries are considered during the preparation of the Subarea Plan. These projects do not require coverage under the Subarea Plan; however, any conservation of open space associated with pending development projects will become part of the Subarea Plan Preserve System, unless otherwise noted.

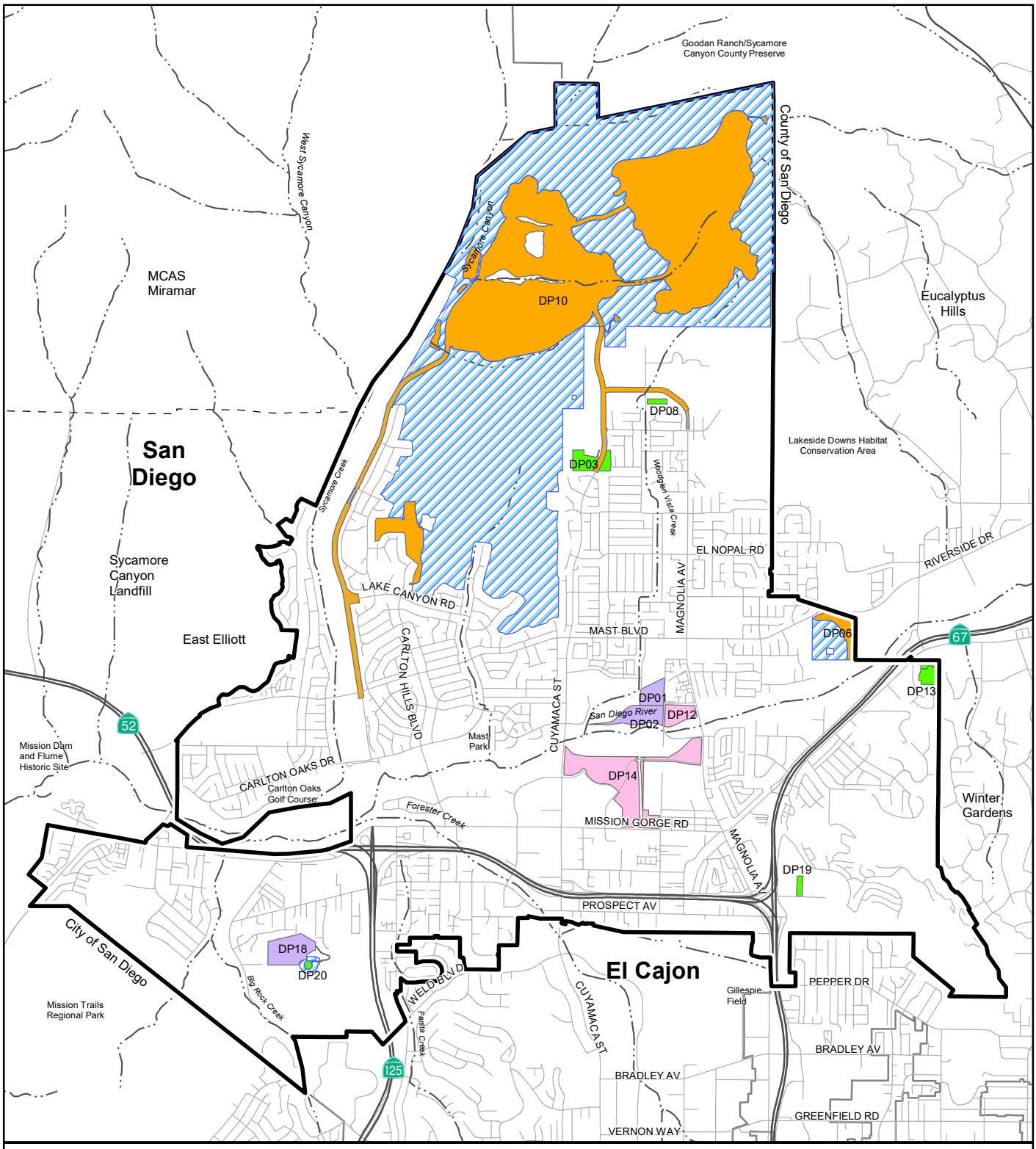
Approved but Construction Not Complete

Some development projects in Santee have been approved and permitted, but construction is not complete. At the time when the Subarea Plan was being prepared, these development projects either have not yet initiated construction activities or have been partially built with remaining phases to be completed. These projects have already received project approvals and necessary permits, and compensatory mitigation of biological impacts have been fully addressed. These projects do not require coverage under the Subarea Plan but are included to note where future disturbances of natural habitat are expected.

Figure 4-1 shows the locations of all known and anticipated development projects, and Table 4-1 describes each project. Figure 4-2 shows the Fanita Ranch site plan and is included since this development project represents a substantial portion of the Subarea Plan Area.

Table 4-1. Covered Activities—Known and Anticipated Development Projects

Map ID	Project Name	Description
Covered Development Projects (DP) (refer to definition above)		
DP6	Parkside	The Parkside development (formerly Hillside Meadows) is located on the east City border on the south side of Mast Boulevard at the Los Ranchitos intersection. Based on a Tentative Map submitted December 2017 (Hunsaker & Associates 2017), the proposed development includes the subdivision of 47.4 acres for the development of 125 residential units (59 duplex and 66 detached). The upland hillside portion of the property would be set aside as a 27.2-acre biological open space lot that would be incorporated into the Subarea Plan Preserve System. Other open space for fuel management zones and stormwater/wetland conservation lots would be maintained by the HOA and not incorporated into the Subarea Plan Preserve System. A biological resources technical report was prepared in 2013 based on an earlier (but similar) version of the development plan (Scheidt 2013). The project will result in impacts on coastal sage scrub, broom baccharis scrub, and nonnative grassland vegetation communities. Field surveys indicate the site is occupied habitat for coastal California gnatcatcher and Beldings' orangethroated whiptail. An open space conservation easement will be recorded on the biological open space lot, and this area will managed per the requirements of this Subarea Plan.
DP10	Fanita Ranch	The Fanita Ranch project site is located in the northwest quadrant of the city of Santee. Based on a Tentative Map submitted June 2018 (Hunsaker 2018), the Fanita Ranch project area totals approximately 2,676.3 acres with 2,635.5 acres onsite (owned by developer), plus 40.7 acres intended for offsite road improvements. Onsite development, which includes village development, roads (including the northerly extension of Fanita Parkway), basins, fuel modification zones around new development, water tanks, and a special-use area, totals approximately 901.1 acres (Figure 4-2). The remaining onsite property includes 1,650.2 acres dedicated as an open space preserve that will be managed for wildlife benefits and 84.4 acres of a passive park, riparian open space, and fuel management zones adjacent to existing development that will not be developed nor be part of the managed open space. The offsite road improvements would include an extension of Cuyamaca Street north to Fanita Ranch and an extension of Magnolia Avenue connecting to Cuyamaca Street. The project seeks to balance the City's need for housing, amenities, and an increased tax base with the preservation and restoration of habitat areas. The development plan would preserve the majority of the property in its natural condition. The managed open space areas would be incorporated into the Subarea Plan Preserve System for long term protection and management as a habitat preserve. The open space areas would be selectively accessible through a managed and maintained trail system. Some portions of the open space may jointly be used for stormwater management. Ongoing maintenance of trails, streets, drainage facilities, and stormwater facilities maintenance are part of this covered development project.



Legend

- Subarea Plan Area
- Covered Development Projects
- Forecasted Development Areas
- Pending Development Projects
- Approved Projects but Construction Not Complete
- Mitigation for Development Projects

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\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 4-1 Public and Private Development Projects.mxd Date: 12/19/2018 34153

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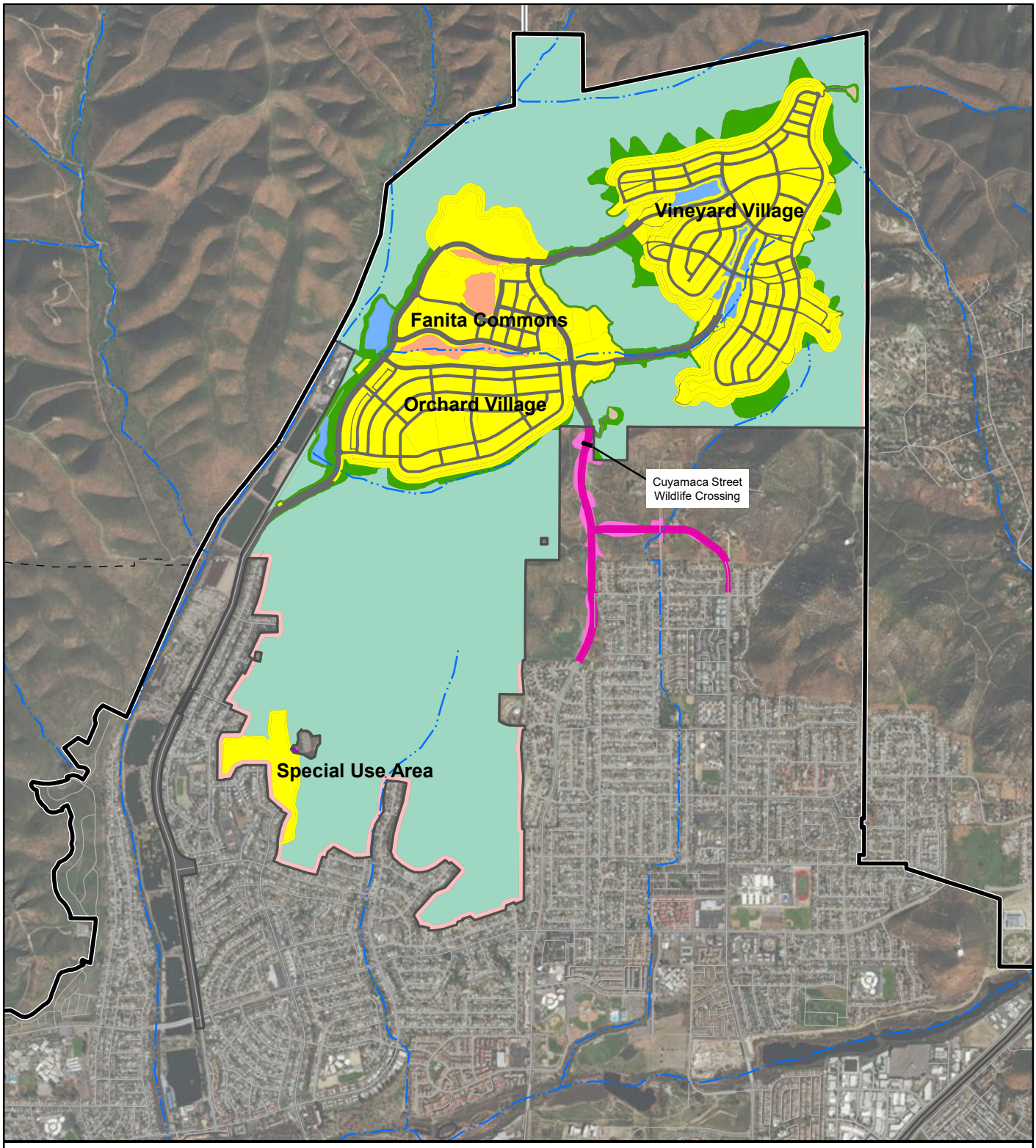
Figure 4-1
Covered Activities - Development Projects
Santee MSCP Subarea Plan



Legend

- Subarea Plan Area
- Fanita Ranch Boundary

Generalized Plan Category

- Open Space Preserve - Undisturbed
- Open Space Preserve - Revegetated
- Village Development Area
- Undeveloped Areas Within Villages
- Basins
- Water Tank Areas
- Roads
- Offsite Road Improvement - Permanent
- Offsite Road Improvement - Temporary
- Offsite Improvements - Permanent
- FMZ Adjacent Development

Source: Fanita Ranch Site Plan: HomeFed 2017

N

0 2,750

Feet

Basemap Source: ESRI 2016

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Figure 4-2
Covered Activities - Fanita Ranch Site Plan
Santee MSCP Subarea Plan

Map ID	Project Name	Description
Forecasted Project Development Areas (refer to definition above)		
DP1	Cornerstone Multi-Family	The County of San Diego completed an auction to sell an 11.7-acre property located south of Mast Boulevard and west of Cottonwood Avenue. Cornerstone Communities acquired rights in 2017 for the development of this property. It is anticipated this site will be developed with multi-family residential development.
DP2	County Property 2	The County of San Diego completed an auction to sell an 18.9-acre property located south of Mast Boulevard and west of Cottonwood Avenue. City Ventures acquired rights in 2017 for the development of this property. It is anticipated this site will be developed with multi-family residential development.
DP18	Tyler Street Subdivision	A preliminary development plan was prepared in 2017 that subdivided 27.3 acres into 16 lots: 14 single family lots, 1 detention basin lot (total of 8.79 acres of disturbance), and an 18.5-acre open space lot. The preliminary development plan is being evaluated to ensure it properly coordinates with the PDMWD Mesa Road Reservoir project (see *Pending Development Projects*, below).
Pending Development Projects (refer to definition above)		
DP3	Bailey Subdivision (Santee View Estates)	This project subdivides a 17.8-acre property into 27 lots for single-family residential development. The project has an approved tentative map that expires in 2018 and could be extended to 2020. Mitigation (offsite) will be determined as the developer completes a low-effect HCP.
DP8	Abell Tentative Map	A Tentative Map has been approved (which expires in 2019) that subdivides 2.4 acres into 7 lots: 6 lots for single-family residential development and one lot for a private street. The entire site would be affected by the proposed development, including 0.12 acre of disturbed coastal sage scrub and 2.28 acres of nonnative grassland vegetation communities. The project received a *de minimus* exception from USFWS in 2007. Mitigation through the purchase of offsite mitigation credits in a Wildlife Agency approved mitigation bank will be completed prior to issuance of a grading permit and clearing of the project site.
DP13	Woodside Terraces	This project subdivides a 10.3-acre site into two single-family lots. A biological resource technical report was prepared in 2014 (PSBS 2014). The proposed project would affect 7.3 acres of the site and would include 3.0 acres set aside as an onsite open space easement. Additional biological offsite mitigation will be required because the onsite open space would not be connected to adjoining habitat. The developer is pursuing a low-effect HCP that will identify offsite mitigation. The onsite open space will not be included as part of the Subarea Plan Preserve System.

Map ID	Project Name	Description
DP19	Lantern Crest Ridge Phase 2	The Lantern Crest Ridge Phase 2 project, as proposed, would result in the creation of 50 new congregate care units and is associated with the Lantern Crest Ridge Phase 1 project located on the parcel to the east. A biological resources technical report was prepared in 2017 (Scheidt 2017). Nearly 100% of the site would be impacted, either directly or indirectly, under the development scenario proposed, and all mitigation would take place offsite. The developer is pursuing a low-effect HCP that will identify offsite mitigation.
DP20	PDMWD Mesa Road Reservoir	PDMWD has long-term plans to construct a new reservoir in the southwestern portion of the city on properties owned by PDMWD (APNs 386-29-019, 386-29-028, and 386-07-027). PDMWD has acquired a right-of-way easement to access these sites. In addition, PDMWD has acquired conservation easements on surrounding properties in anticipation of using these areas of conserved habitat as mitigation for biological impacts. PDMWD anticipates it will complete appropriate environmental review and permitting with the Wildlife Agencies independent of the Subarea Plan.
Approved Projects but Construction Not Complete (refer to definition above)		
DP12	Walker Trails (RCP Site)	The Walker Trails project includes two general components: residential and open space. The residential component is proposed on the northerly 11.1 acres of the 20.4-acre project site, comprising 67 single-family detached dwelling units on 9.6 acres and 1.5 acres of new public road. The open space component is proposed on the southerly 9.3 acres of the project site, comprising 8.1 acres of the San Diego River floodway and 1.2 acres of a floodway buffer zone. A Mitigated Negative Declaration (MND) was adopted in 2018. The open space portion of the project site, which has been used since 1955 by RCP Block and Brick (RCP) as a sand mining operation, will be restored in accordance with Reclamation Plan RP88-01 (approved in 1990). The open space portion will be deeded to the City.
DP14	Town Center Specific Plan Area (SPA)	The Town Center SPA development project was approved for development in 2006. Portions of the site have been developed, but future phases remain to be constructed. Within the Town Center SPA boundaries, the City of Santee will construct an interpretive center that will provide educational information on the rich ecosystem existing along the San Diego River. (CIP Project #2017-30, Parcel A of parcel map 20177). Implementation of the project will ultimately result in the disturbance of the entire 154-acre site, including coastal sage scrub, southern willow scrub, and nonnative grassland communities. All biological impacts anticipated under this project have already been mitigated for through purchase of mitigation credits at the Crestridge Mitigation Bank and implementation of a restoration project with a long-term management plan for the sensitive smooth tarplant (*Centromadia pungens* ssp. *laevis*; formerly *Hemizonia pungens* ssp. *laevis*) (see description of Ryan Company Smooth Tarplant Preserve in Section 2.3.3, *Protected Open Space within Santee*). No additional compensatory biological mitigation is required for future phases of construction except for the Riverview Linear Park Corridor drainage project (D11).

4.2.1.2 Street Projects

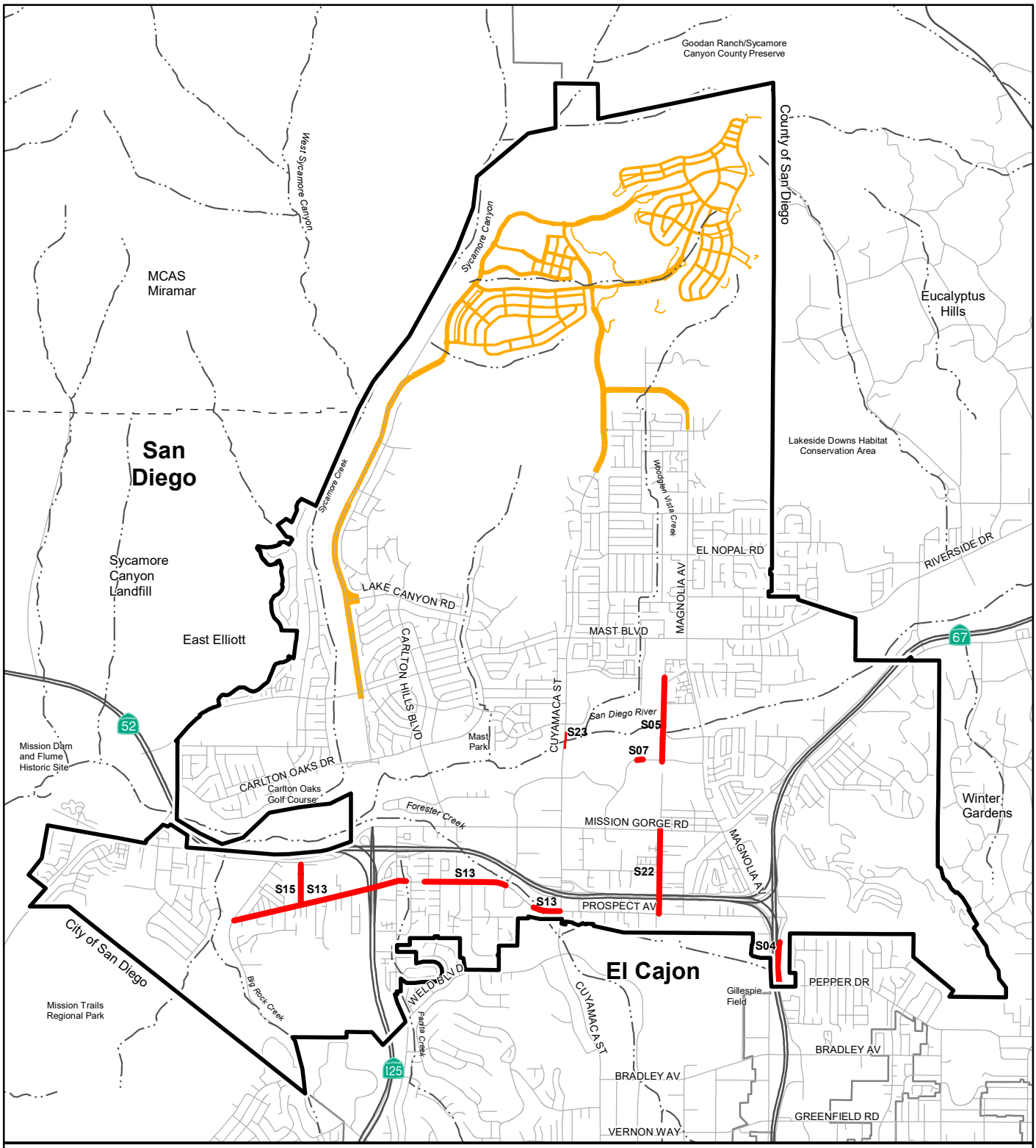
The City has identified future street improvement projects based on a review of the City Mobility Element (updated 2017) (City of Santee 2017) and other ongoing capital improvement planning. The street projects listed in Table 4-2 have been identified as future street projects that have the potential for direct and/or indirect effects on Covered Species and/or their habitats. If the construction of a new street and improvement of an existing street is part of a proposed development project, it is not listed in Table 4-2 and is assumed to be part of the development project. Detailed engineering and impact footprints for the street projects listed in Table 4-2 have not yet been developed. Preliminary impact footprints for the purpose of this Subarea Plan were developed based on the road length and width dimensions typical of the proposed street size.

The location of development projects is shown in Figure 4-3 and summarized in the project descriptions in Table 4-2.

Table 4-2. Covered Activities—Known and Anticipated Street Projects

Map ID	Project Name	Description[a]
Covered Street (S) Projects (refer to definition above)		
S4	Graves Avenue Extension	This project extends Graves Avenue south from the Lantern Crest development. [1,760’ x 50’]. (CIP Project #2015-08).
S5	Cottonwood Avenue Extension	This project extends Cottonwood Avenue between Riverview Parkway and the existing Cottonwood Avenue. It is expected that any extension of Cottonwood Avenue would cross the river at the existing Cottonwood Avenue/Chubb Lane crossing with a bridge. The design and precise alignment of the street and river crossing are unknown at this time. [2,280’ x 100’; bridge = 380’ x 60’].
S7	Riverview Parkway Extension over Drainage Channel	This project constructs a two-lane bridge or road segment over the existing north-south trending drainage channel (D11) in the Riverview master planned office park site. [192’ x 102’].
S13	Prospect Avenue widening from Cuyamaca Street to Mesa Road	This project widens three segments of Prospect Avenue to a two-lane Collector Street. [9,000’ x 110’] (CIP Project #2011-50 & 2015-04).
S15	Marrokal Lane	This project extends and widens Marrokal Lane from Mission Gorge Road to Prospect Avenue to a two-lane residential collector. [1,280’ x 60’].
S22	Cottonwood Avenue widening between Mission Gorge Road and Prospect Avenue	This project widens the road, as needed, and installs missing sections of curb, gutter, and sidewalk; provides street lighting; and relocates drainage inlets. [2,635’ x 60’] (CIP Project #2015-02).
S23	Cuyamaca Bridge	This project widens the Cuyamaca Bridge to City’s Mobility Element standards allowing for bike lanes and sidewalks. The widening area would be the length of the bridge by 12 feet wide.

[a] If project design footprints have not been developed, the general dimensions (length x width) of the estimated project impact footprint are noted.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 4-3 Street Covered Activities.mxd Date: 12/19/2018 34153

Figure 4-3
Covered Activities - Street Projects
Santee MSCP Subarea Plan

4.2.1.3 Drainage Projects and Maintenance

The City has identified drainage improvement projects and maintenance activities based on a review of ongoing capital improvement and maintenance planning. For the purposes of this Subarea Plan, drainage projects and maintenance have been categorized as follows: covered drainage projects, covered drainage activities, and future drainage maintenance.

Covered Drainage Projects

Covered drainage projects include known and anticipated drainage projects with the potential to have permanent impacts to Covered Species or their habitats, and will obtain take coverage under the Subarea Plan, as appropriate. Detailed engineering and impact footprints have not yet been developed. For the purpose of this Subarea Plan, preliminary impact footprints of each drainage project were developed based on estimates of the width of the drainage channel requiring improvements.

Drainage Maintenance Activities

Occasionally, it is necessary for City maintenance crews to remove sediment, trash, or debris at drainage inlets, outfalls, and catch basins to improve drainage and prevent pipelines or culverts from backing up and causing deleterious downstream effects on habitat and property. Removal of vegetation is also sometimes necessary in these areas to allow for equipment access. All maintenance activities will be performed consistent with maintenance guidelines that include the following guidelines:

- Any action in a streambed and/or jurisdictional water of the United States requires notification and approval from the ACOE and a CDFW lake or streambed alteration agreement as applicable.
- Any temporary impacts on vegetation would be remedied through restoration of the affected area. Permanent impacts would be mitigated according to the ratios established in this Subarea Plan.
- To the extent feasible, maintenance activities would be scheduled outside of the bird-nesting season (upland birds, including the California gnatcatcher: February 15 through August 15; riparian birds, including the least Bell's vireo and the southwester willow flycatcher: March 15-September 15.

Future Drainage Improvements

The City anticipates other improvements to the existing drainage network will be required in the future to improve water quality and to improve aging infrastructure, although the location and potential for impacts on Covered Species and their habitats are not known at this time. Future drainage improvement may include the following.

- Storm Drain Trash Diversion—Implements a "Trash Amendment Compliance Plan" which will include infrastructure improvements, such as retrofitting storm drain inlets with trash interceptor devices.
- Corrugated Metal Pipe (CMP) Storm Drain Replacement—Replaces aging CMP storm pipes located throughout the city on private property and within street rights-of-way with reinforced

concrete pipe and composite pipe. Slip lining of plastic liners may be used, where feasible. Where these pipes cross areas of natural habitat, the City will minimize habitat impacts to the maximum extent practicable, to include realignment and slip lining.

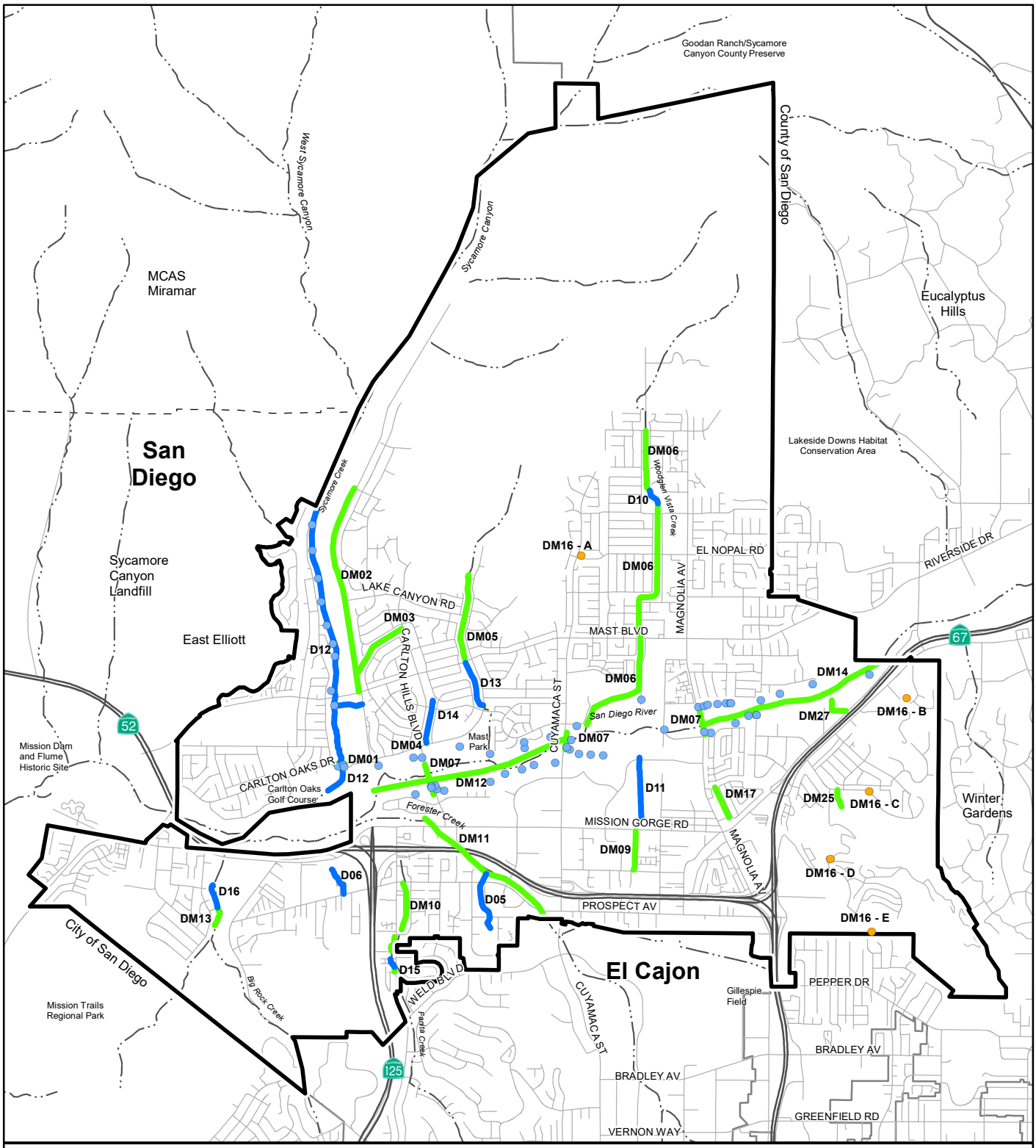
- Alternative Storm Water Compliance—Currently, water that enters into the San Diego River watershed within the Santee jurisdictional boundaries has high concentrations of pollutants such as nitrogen, phosphorus, Enterococcus and bacterial coliforms, among other pollutants. In order to comply with their pollution limits in the near future, the City has begun to develop an Alternative Storm Water Compliance Program that will account for and improve the quality of water that is entering into the San Diego River watershed during storm events. A number of locations have been conceptually evaluated for storm water quality enhancement (Smart Storm Solutions 2015), but no detailed project plans have been developed to date. The description of proposed storm water quality enhancements are listed below.
    - Woodglen Vista Park—An open concrete storm channel enters Woodglen Vista Park from the north but breaks off into an earthen channel going through most of the park. The channel then returns to concrete at the midpoint of the park until exiting at the south end of the park. Storm water quality enhancement would involve: a) replacing the concrete segment of the channel that runs through the park from the midpoint of the park south to the end of the park with a permanent slope diversion with an earthen bottom; and b) constructing a bioretention basin at the north end of the park in the open space next to the channel in order to divert some storm water flow.
    - Woodglen Vista Channel—An open concrete storm channel runs south from Woodglen Vista Park and connects to a vegetated site at Mast Boulevard. Water quality enhancement would involve installing 3-foot high loose rock check dams with earthen lined infiltration trenches behind the check dams.
    - Mast Boulevard Vegetated Channel—The open concrete channel from Woodglen Vista Park runs south toward the San Diego River and turns into a 20-foot-wide vegetated area. Storm water quality enhancement would involve installing a forebay in order to trap sediments and hold the water longer so that it may improve permeation into the ground before continuing downstream towards the river.
    - Mission Gorge Trenches—As part of the improvements to Mission Gorge Road, storm water quality enhancement would involve installing twelve tree trenches which can be linked up to the new storm drain inlets to divert some of the storm water flow.
    - Mast Park—A large storm water drainage outfall is located at the southeast corner of Mast Park that drains directly into the San Diego River. Storm water quality enhancement involves constructing a dry percolation pond adjacent to the outfall in the park to divert some storm water to that it can infiltrate into the ground.
    - Sycamore Creek—A natural creek channel exists along the western border of the Santee Lakes. Due to invasive plants colonizing the area, the channel does not filter out as many pollutants as it could with natural vegetation. Storm water quality enhancement involves: (a) removing the nonnative vegetation; (b) removing sediment; and (c) planting new native vegetation that will be able to take up more nutrients and pollutants that flow through the area.

Impacts on and mitigation for biological resources, per Subarea Plan requirements, associated with future drainage improvement projects will be determined once more detailed project plans are developed and impacts can be determined.

The location of known drainage projects and maintenance activities is shown in Figure 4-4 and summarized in the project descriptions in Table 4-3.

Table 4-3. Covered Activities—Known and Anticipated Drainage Projects and Maintenance

Map ID	Project Name	Description[a]
Covered Drainage (D) Projects (refer to definition above)		
D5	East of Atlas View Drive from south of Pryor Drive to Forester Creek	This project involves constructing storm drain facilities to correct minor flooding and localized drainage problems. [1,890' x 15'].
D6	Placid View from Prospect Avenue to Mission Gorge Road	This project would install storm drain facilities to carry the 100-year flood flows. The storm drain would be placed in existing developed areas. [950' x 15'].
D10	Woodglen Vista Park Channel Stabilization	This project involves improving the existing channel within Woodglen Vista Park, which includes adding irrigation, planting, slope protection and fencing. [510' x 30'].
D11	Town Center Specific Master Plan Linear Park Corridor	This project constructs a drainage channel (25 feet wide), adjacent channel banks and a 25-foot-wide trail corridor including a 9-foot-wide shared concrete bikeway and pedestrian walkway, shade trees, lights, benches and fencing. The total width of the linear park would be 85 feet wide. [1,910' x 85']. Note: This drainage project was included as part of the Town Center Specific Master Plan environmental review. However, mitigation of the biological impacts to this channel would be triggered with development of Parcel #6 of Map 20177 of the Town Center Specific Master Plan.
D12	Sycamore Creek Multi-Jurisdictional Drainage Project	This project regrades the low-flow vegetated channel and routinely maintains the channel to improve drainage and control flooding. [9,430' x 35']. It also replaces the underground drainage pipe located between Lakes 1 and 2 of the Santee Lakes. [887' x 35'].
D13	Halberns Channel Vegetated Segment	This project regrades the low-flow vegetated channel to improve drainage and control flooding. The channel south of Mast Boulevard to the Halberns/Stoyer inlet is earthen, but private, and needs to be maintained. [1,517' x 20'].
D14	Carlton Hills Boulevard	This project regrades the low-flow vegetated channel to improve drainage and control flooding. [1,285' x 20'].
D15	Fanita Drive Channel South	This project regrades the low-flow vegetated channel to improve drainage and control flooding. [290' x 32'].



Legend

- Subarea Plan Area
- Covered Drainage Projects
- Drainage Maintenance Activities
- San Diego River and Sycamore Creek Storm Drain Outfalls/Outlets (DM26/DM01)
- Detention Basin Maintenance (DM16)

N

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Feet

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Figure 4-4
Covered Activities – Drainage Projects and Maintenance
Santee MSCP Subarea Plan

Map ID	Project Name	Description[a]
D16	Big Rock Creek	This project regrades the low-flow vegetated channel to improve drainage and control flooding. [750' x 40'].
Drainage Maintenance Activities (DM) (refer to definition above)		
DM1	Sycamore Creek/Carlton Oaks Bridge	Maintenance activities includes ongoing and consistent maintenance of nine outfalls within the Sycamore Creek channel and silt removal around the Carlton Oaks Bridge City right-of-way. [260' x 72'].
DM2	Fanita Parkway Channel	Maintenance activities involve periodic clearing/maintenance activities of the concrete and natural channel and inlets and outlets between the Fanita Ranch development project and Mast Boulevard to maintain unobstructed flows and to prevent flooding. [6,644' x 30'].
DM3	Carita Road/Lake Canyon Drive Drainage Channel	Maintenance activities involve periodic clearing/maintenance activities of the easement and outfall to maintain unobstructed flows to prevent flooding. The channel is generally located between Carita Road and Lake Canyon Drive, serving a single-family residential area. The channel is earthen and some of the channel is on private property. The City maintains two outfalls from the Fanita outfall to a second outfall. [1,990' x 20'].
DM4	Carlton Hills Boulevard/Carlton Oaks Drive Inlets	Maintenance activities involve periodic clearing/maintenance activities of three inlets to maintain unobstructed flows to prevent flooding. [27' x 20'].
DM5	Halberns Channel	Maintenance activities involve periodic clearing/maintenance activities of the concrete portion of the Halberns Channel and inlet/outlet north of Mast Boulevard to maintain unobstructed flows and prevent flooding. [2,650' x 20'].
DM6	Woodglen Vista Creek channel	Maintenance activities involve periodic clearing/maintenance activities to maintain a clear channel and prevent flooding. It also includes periodic vegetation pruning to maintain access for maintenance vehicles. The channel is predominantly concrete north of Mast Boulevard. Maintenance involves removal of all vegetation (weeds, grasses, tree branches that are hanging over from backyards) growing onto the access road and scraping out all the vegetation, silt and debris from the channel itself. The project does not entail widening or grading. This maintenance would take place once a year in late summer. Concrete channel from Princess Joanne Road south to park where the channel becomes earthen through park and south of the park the channel is concrete to Mast Boulevard. [6,515' x 30'].

Map ID	Project Name	Description[a]
DM7	San Diego River at Magnolia Avenue Bridge, Cuyamaca Street and Carlton Hills	Maintenance activities involve selective pruning to keep sidewalk on bridges clear, periodic clearing/maintenance activities to maintain open drainage and protect bridge structures, and trash pick-up and graffiti removal. (Three bridges: Magnolia Street [910'x80']; Cuyamaca Street [530' x 80']; Carlton Hills Boulevard [985' x 80']).
DM9	Buena Vista Channel/Las Colinas	Maintenance activities entail maintaining a linear park and storm drain system north of Mission Gorge Road to San Diego River. The Riverview Master Plan Concept Plan delineates this park as 2,400' x 85' right-of-way, with a 25' channel width (see also D11). [maintenance area = 1,230' x 12'].
DM10	Fanita Drive Channel South	Maintenance activities involve periodic clearing/maintenance activities in three segments of the open channel to maintain unobstructed flows and prevent flooding. [2,060' x 32'].
DM11	Forester Creek from south of Prospect Avenue to approximately Mission Gorge Road	Maintenance activities involve periodic clearing/maintenance activities in a natural and concrete channel, such as removal of trash and dead vegetation and sediment removal to maintain unobstructed flows and prevent flooding.
DM12	San Diego River Channel	Maintenance activities consist of ongoing maintenance activities within the San Diego River channel from approximately 1,800 feet west of Carlton Hills Boulevard to Cuyamaca Street. Activities include exotic species removal and control, vector control, flood channel maintenance to maintain unobstructed flood flows and general maintenance of existing improvements and landscaping. Maintenance includes under the bridge. DM12 area overlap with the location of Trail Maintenance 2 (Table 4-4) but maintenance of the channel includes different activities than trail maintenance.
DM13	Big Rock Creek	Maintenance activities involve periodic clearing/maintenance activities within the natural channel west of Chet Harrit Elementary School and Big Rock Park to maintain unobstructed flows and prevent flooding. [620' x 40'].
DM14	Walker Preserve/Trail/San Diego River-North	Maintenance activities involve periodic clearing/maintenance activities in the Walker Preserve channel/ponds to maintain unobstructed flows and prevent flooding. [5,840' x 30'].
DM16	Detention Basins	Maintenance activities involve periodic clearing/maintenance activities in five detention basins: (A) Shoredale Drive, (B) A1 Stor-It [below Woodside Terrace], (C) Diamondback Drive [Blackhorse Estates], (D) Calico Street [Sky Ranch] and (E) Brockway Street [Sky Ranch].
DM17	Mission del Magnolia	Maintenance activities involve periodic clearing/maintenance activities in the concrete channel. [1,055' x 10'].

Map ID	Project Name	Description[a]
DM25	Shadowhill Park	Maintenance activities involve periodic clearing/maintenance activities of the existing drainage channel located along the west side of the park [570' x 20'].
DM26	San Diego River Storm Drain Outfalls	The City has mapped up to 50 outfalls that drain storm water into the San Diego River. Maintenance activities involved periodic clearing of vegetation and sediment removal as required at these outfalls.
DM27	Vision Systems Site	This project site will include improvements to a drainage swale (determined to be jurisdictional) that drains into the San Diego River. The developer is working with the Resource Agencies (USACE, CDFW, and RWQCB) to obtain permits for impacts on the drainage swale and will address mitigation separately from the Subarea Plan. The channel will be maintained privately for ongoing clearing/ maintenance activities. [765' x 40'].

[a] If project design footprints have not been developed, the general dimensions (length x width) of the estimated project impact footprint are noted.

4.2.1.4 Trail Projects and Maintenance

The City has identified future trail improvement projects and maintenance activities based on a review of the Santee General Plan Mobility Element, ongoing capital improvement planning, and other regional trail planning. For the purposes of this Subarea Plan, trail projects and maintenance have been categorized as follows: new trail segment projects, trails as part of development projects, pending trail development/improvement projects, and trail maintenance activities.

New Trail Segment Projects

Covered trail projects include trail projects that are anticipated to have permanent impacts on Covered Species or their habitats, and will obtain take coverage under the Subarea Plan as appropriate. Detailed engineering and impact footprints for these trails have not yet been developed. For the purpose of this Subarea Plan, the preliminary impact footprints for these trails were developed based on estimates of the length and width of the new trail segments. Once these trails are developed, there will be trail maintenance activities on these trails similar to the type and frequency of trail maintenance activities as described below for trail maintenance activities.

Trails as Part of Development Projects

The development of new trails or relocation of trails is included as part of the proposed plans for certain development and street projects. The impacts and mitigation associated with these trails have been incorporated into the analysis of the development and street projects.

Pending Trail Development/Improvement Projects

Pending trail development/improvement projects include projects that are in the environmental review and approval process at the time of this Subarea Plan's preparation. These projects are expected, if necessary, to obtain appropriate permits and permissions from the Wildlife Agencies independent of the Subarea Plan.

Trail Maintenance Activities

The City has identified existing trails that require ongoing maintenance that may include periodic trimming/clearing of adjacent native vegetation, erosion control, and maintenance of signage and fencing. Trail maintenance activities will not result in areas of additional permanent direct impacts but maintenance activities will be completed in a manner to minimize indirect impacts on Covered Species and their habitats.

The location of trail projects and maintenance activities is shown in Figure 4-5 and summarized in the project descriptions in Table 4-4.

Table 4-4. Covered Activities—Known and Anticipated Trail Projects and Maintenance

Map ID	Project Name	Description
New Trail Segment Projects (T) (refer to definition above)		
T1	San Diego River Trail—South (Fanita Parkway to Magnolia Street)	The City of Santee Mobility Element and Bicycle Master Plan identify a riding/hiking trail that extends from Fanita Parkway on the west to Magnolia Avenue on the east, south of the San Diego River. Much of this trail is constructed and is being maintained (TM21, TM24). T1 is a new riding/hiking trail segment through the Mast Park West and Lowes Preserve protected open space on the south side of the San Diego River. This trail segment will extend from the Carlton Oaks golf course, under the Carlton Hills Boulevard bridge, and connect with the existing trail constructed along the southern border of the Mast Park Wetland Restoration Project. Since this will be a new trail resulting in direct impacts within currently protected open space, this project will be subject to changes being made to the current conservation easement(s).
T2	San Diego River Trail—South (Mission Gorge to Fanita Drive)	The City of Santee Mobility Element and Bicycle Master Plan identify a new riding/hiking trail segment that connects Mission Gorge Road and Fanita Drive to the trail following the San Diego River. This trail will extend across the Caltrans Forester Creek Mitigation Site. Since this will be a new trail resulting in direct impacts within currently protected open space, this project will be subject to changes being made to the current conservation easement(s).
T3	San Diego River Trail —North (Cuyamaca Street to City Ventures Planned Development	The City of Santee Mobility Element and Bicycle Master Plan identify a new riding/hiking trail segment that connects the San Diego River Trail (north side of river) from Cuyamaca Street, across the tributary of Woodglen Vista Creek, and connects to future County Project 2 development area (DP2). This trail will extend across the currently protected open space of the Woodglen Vista Creek. Since this will be a new trail resulting in direct impacts within currently protected open space, this project will be subject to changes being made to the current conservation easement(s).

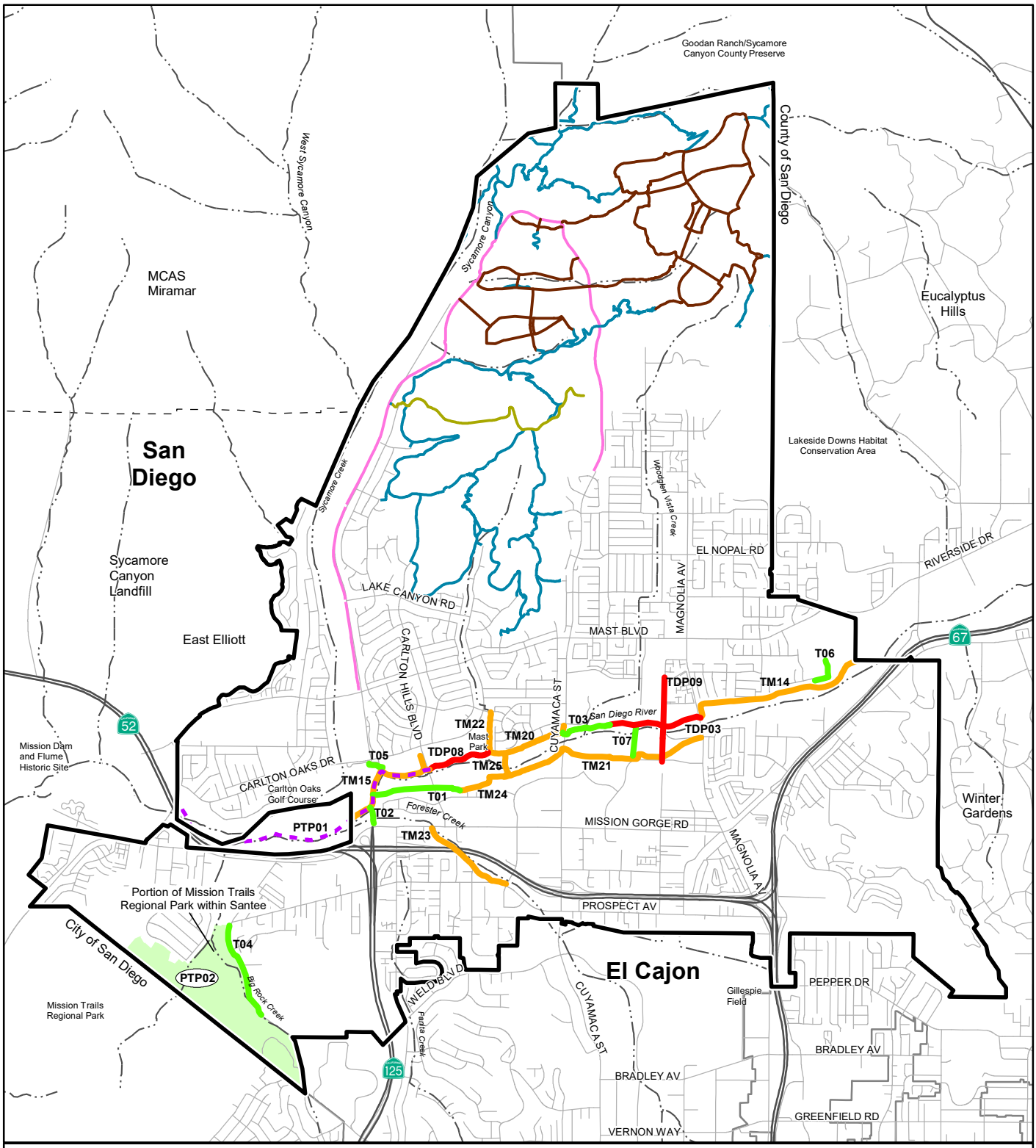

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Figure 4-5
Covered Activities - Trail Projects and Maintenance
Santee MSCP Subarea Plan

Map ID	Project Name	Description
T4	Mesa Road	The City of Santee Mobility Element and Bicycle Master Plan identify a new trail segment that be along Mesa Road from Big Rock Park to the end of the existing paved road. This trail will be along the boundary of the Mission Trails Regional Park (MTRP). It is anticipated this trail will be within the existing road right of way and not result in the loss of natural habitat. If the trail extends in the MTRP, improvements will be coordinated with the City of San Diego and addressed as part of the trail improvements within MTRP (see PTP2).
T5	San Diego River North between Carlton Oaks Drive and Trail Within Mast West	The City of Santee Mobility Element and Bicycle Master Plan identify an improvement to an existing trail segment that connects Carlton Oak Drive to the existing trail within Mast Park West. This project will include a crosswalk at Carlton Oaks Drive. Peeler log fencing is proposed along both sides of the trail to discourage encroachment into adjacent riparian areas. (CIP #2015-32).
T6	Walker Preserve Hilltop Trail	The City of Santee plans to install a new hiking-only trail from the Walker Preserve Trail to the look-out point on Tank Hill. [990' x 8'].
T7	Town Center Iconic Pedestrian Bridge (Sage project)	There are long-term plans to construct a suspension-type pedestrian bridge over the San Diego River west of Cottonwood Avenue. [950' x 14'] It anticipated that this bridge would have minimal permanent direct impact to the riparian habitat. This trail segment is not in the City of Santee Mobility Element or Bicycle Master Plan.
Trails as Part of Development Projects (TDP) (refer to definition above)		
TDP3	San Diego River Trail—North	A new riding/hiking trail will be constructed on the north side of the San Diego River between Cuyamaca Street and Magnolia associated with future Walker Trails (PD12) and County Property 2 (PD2) development projects. The trail will be constructed between urban development and the edge of riparian habitat. This trail segment is identified in the City of Santee Mobility Element and Bicycle Master Plan.
TDP8	Mast Park Trail	This project relocates the east-west riding/hiking trail through Mast Park in as part of the Mast Park Improvements project (PD21). The existing asphalt trail that currently meanders near riparian vegetation will be replaced and relocated further north and away from the existing riparian habitat. The new trails will be walkable and bikable disintegrated granite surfacing with lodgepole fencing. The existing trail will be abandoned and restored with native vegetation. This trail segment is identified in the City of Santee Mobility Element and Bicycle Master Plan.
TDP9	Cottonwood Avenue Extension Trail	As part of the Cottonwood Avenue extension across the San Diego River, a riding/hiking trail will be incorporated into this project design.

Map ID	Project Name	Description
Pending Trail Development/Improvement Projects (PTP)(refer to definition above)		
PTP1	SANDAG Carlton Oaks Trail Segment Project	SANDAG proposes to construct the Carlton Oaks Golf Course Segment of the San Diego River Trail (SDRT) within the cities of San Diego and Santee. A final initial study / mitigated negative declaration was completed in 2017 (SANDAG 2017) and construction is anticipated in 2018 or 2019. The project would consist of a Class I bikeway for riding and biking. The trail would be 10-foot-wide, and would have an all-weather, paved surface with 2-foot-wide pervious shoulders on each side. The project proposes to incorporate design treatments into the bike path surface during final design such as use of earth-toned colors and textures to visually blend the project surface with the existing visual environment. Split-rail (i.e., lodge pole) fencing would be installed along both sides of the bike path. A portion of this project extends through the West Mast conservation area and implementation of the project will require a modification of the Conservation Easement per CDFW approval. SANDAG is responsible for obtaining permits from the Wildlife Agencies for this project.
PTP2	Trails within Mission Trails Regional Park (MTRP)	The MTRP Master Plan (City of San Diego 2016) identifies potential new trails, improvements to existing trails, and closure of some existing trails within the MTRP, including the segment of MTRP that extends into the Santee jurisdiction. Trail development and improvements within the Santee portion of the MTRP are listed as covered activities under the Subarea Plan, although the City of San Diego has been primary steward for the trail management and monitoring and mitigation of biological impacts in conjunction with the implementation of the MTRP Master Plan.
Trail Maintenance Activities (TM) (refer to definition above)		
TM14	Walker Preserve Trail	The City conducts maintenance of the existing trail within the Walker Preserve. Activities include periodic trimming/clearing of adjacent vegetation, erosion control, and maintenance of signage and fencing. The existing trail extends from Magnolia Avenue on the west to the City limits on the east.
TM15	Mast West Trail	The City conducts maintenance of the existing trail that extends from Mast Park, through the Mast West open space, and connects to the Carlton Oaks golf course. This trail segment is scheduled to be improved as part of the SANDAG Carlton Oak Trail Segment project (PTP1). After the trail is improved, the City will continue to provide periodic trimming/clearing of adjacent vegetation, erosion control, and maintenance of signage and fencing.
TM20	San Diego River Trail —North	The City conducts periodic clearing/maintenance activities of the existing trail between Cuyamaca Street and Carlton Hills Boulevard, including trimming of shrubs, clearing of trash, and removal of miscellaneous branches and leaves.

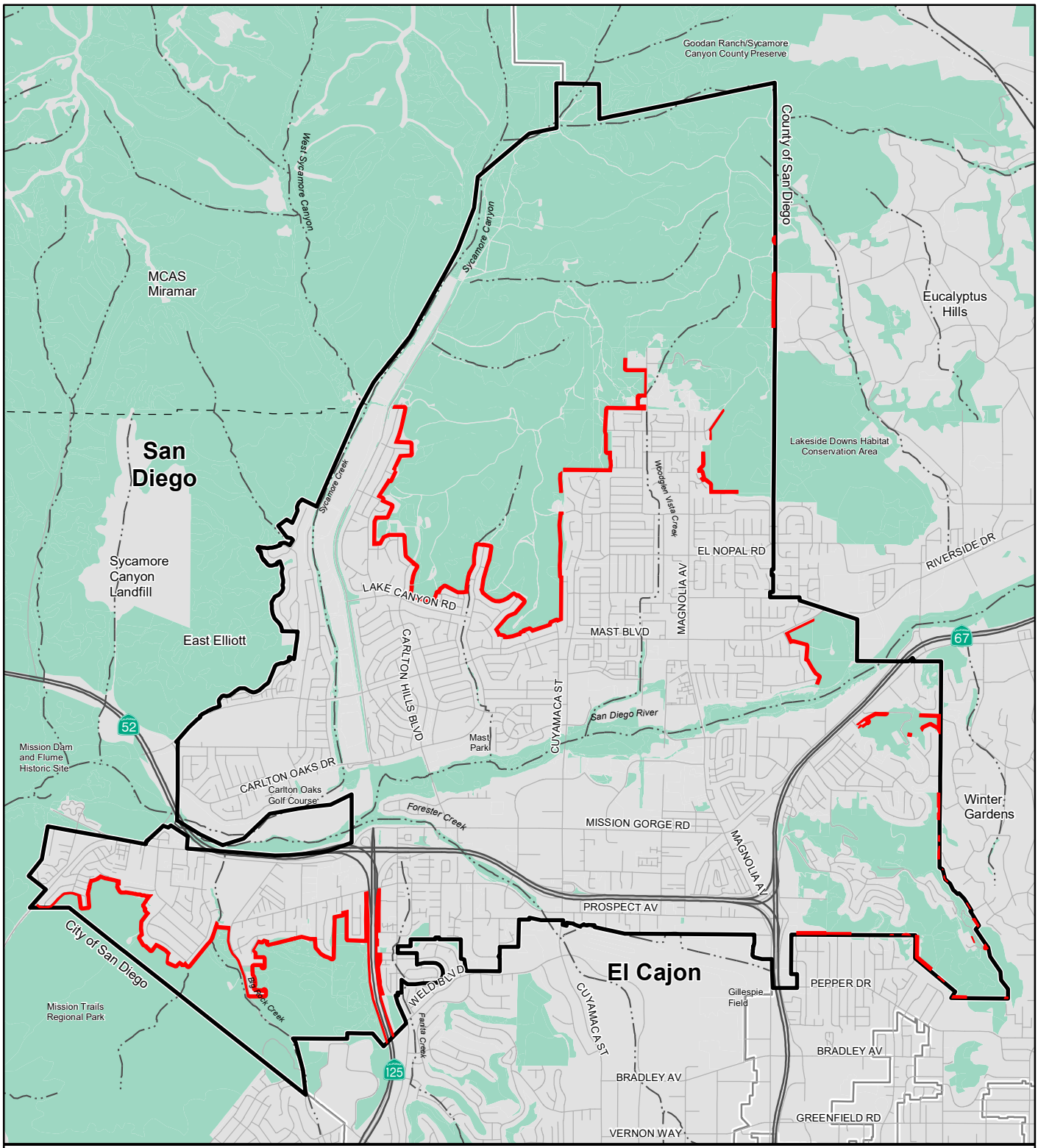
Map ID	Project Name	Description
TM21	San Diego River Trail —South	The City conducts periodic clearing/maintenance activities of the existing concrete hiking and biking trail segment from north of Willow Grove Court to Magnolia Avenue, including trimming of shrubs, clearing of trash, and removal of miscellaneous branches and leaves. Portions of the existing trails along this route will be replaced and enhanced with formal trails and fencing with the developments of the Town Center Specific Plan Area (DP14).
TM22	Trail along Eastern Edge of Mast Park	The City conducts periodic clearing/maintenance activities of the existing concrete trail segment that follows the eastern edge of Mast Park from existing San Diego River Trail to Willow Pond Road. Activities include trimming of shrubs, clearing of trash, and removal of miscellaneous branches and leaves.
TM23	Forester Creek Trail	The City conducts periodic clearing/maintenance activities of the existing riding/hiking trail segment adjacent to Forester Creek from Mission Gorge Road to Prospect Avenue. Activities include trimming of shrubs, clearing of trash, and removal of miscellaneous branches and leaves.
TM24	Mast Park Wetland Restoration Project Trail	As part of the Mast Park Wetland Restoration Project (see Conserved Lands #18), a dirt riding/hiking trail was installed along the southern border of the restoration area. The San Diego Habitat Conservancy is responsible for long-term maintenance of trail and fencing.
TM25	Mast East San Diego River Crossing Trail	An existing dirt hiking and biking trail (with a small wooden bridge over the main San Diego River channel) extends through the Mast East conservation area and connects the Mission Creek neighborhood and Town Center (Walmart). The City conducts periodic maintenance that includes trimming/clearing of adjacent vegetation, erosion control, and maintenance of signage and fencing.

4.2.1.5 Fuel Modification Zones

This City is responsible for completing and overseeing vegetation management within fuel modification zones surrounding habitable structures and roadways (see Section 5.5.4, *Fire and Fuel Management Standards*). The vegetation management within existing and future fuel modification zones are Covered Activities.

Existing Fuel Modification Zones

The City has completed an inventory of existing fuel modification zones within the Subarea Plan Area, as depicted in Figure 4-6. These areas are cleared by the City or property owners annually in accordance with the City's ordinance. If a structure is located within 50 feet of a property line, then the target width of these buffer areas is 30 or 50 feet from the back edge of the parcel ownership boundary, as specified by the ordinance; however, actual widths on the ground may be wider in some areas. Existing fuel modification zones are generally mapped as disturbed habitat and to the extent that they overlap with currently protected open space that become part of the Subarea Plan



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 4-6 Fuel Management.mxd Date: 12/19/2018 34153

Figure 4-6
Covered Activities - Fuel Management Areas
Santee MSCP Subarea Plan

Preserve System, they do not count towards conservation credits. Maintenance of existing fuel modification zones that overlap with existing Preserves will be an approved management action to be incorporated into the individual Preserve Management Plans (PMPs), as appropriate.

Future Fuel Modification Zones

For future developments and subdivisions, fuel modification zones with a minimum of 100 horizontal feet of defensible space between structures and wildland areas will be incorporated in the project design. Depending on the percentage of slope and other wildland area characteristics, the fuel modification zone may be increased beyond 100 feet, if conditions warrant, at the direction of the City's fire chief. In all areas, the fuel modification zone will not occur within the boundaries of Subarea Plan Preserve System and will be treated as part of the development impact footprint. An increase in the width of the fuel modification zone beyond the minimum 100 feet will influence the location of structures within a project proponent's ownership, rather than necessitate an adjustment within the Preserve that reduces acreage. Furthermore, all fuel modification zones for new development are considered an impact and will be mitigated for according to conservation strategy outlined in Chapter 5, *Conservation Strategy*.

4.2.2 Future Development Activities

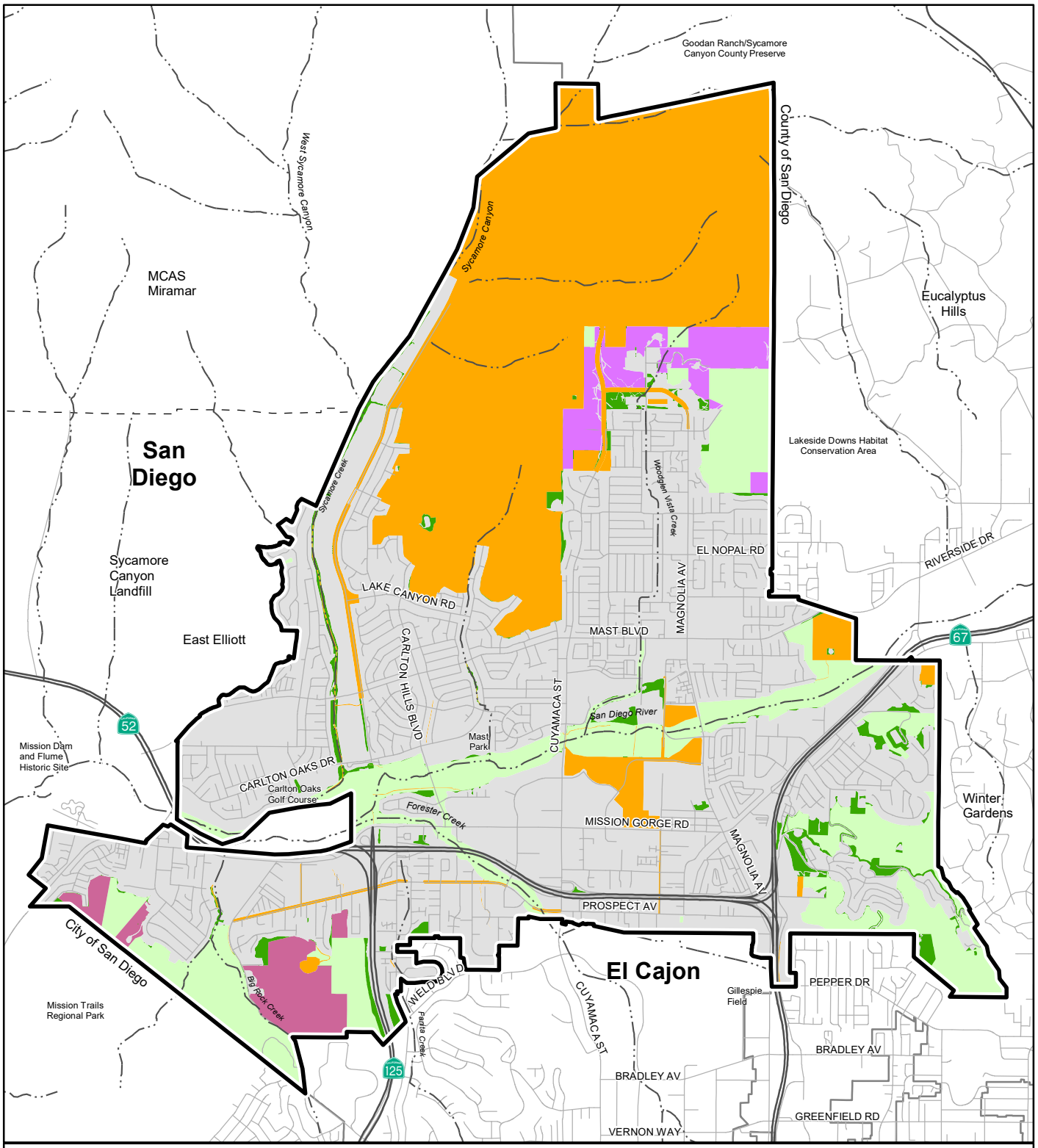
In addition to the known and anticipated projects, the Subarea Plan defines the process by which future development activities are reviewed and permitted. See Chapter 5, *Conservation Strategy*, and Chapter 8, *Plan Implementation*, for a description of the development review and approval process.

Overall, there is not much area remaining in Subarea Plan Area that is subject to future development activities; the city of Santee is relatively near build-out conditions. A majority (54.1%) of the city is already developed or disturbed habitat. Of the remaining areas of the city in natural habitat, over half (56.0%) occurs within the Fanita Ranch project area, approximately 2% is within other known and anticipated projects, and approximately a quarter (26.6%) is currently protected as open space. Only 15.2% of the remaining natural habitat is subject to future development activities, with the larger and more contiguous blocks of remaining habitat in the North Magnolia and Mission Trails subunits.

Figure 4-7 and Table 4-5 summarize the areas of natural habitat in Santee that are subject to future development activities.

Table 4-5. Covered Activities—Areas of Future Development Activities

	Developed, Nonnative (acres)	Natural Habitat (acres)	Percent of Subarea Plan Area	Percent of Remaining Natural Habitat
Existing Development Areas	5,793.2	-	54.1%	0.0%
Currently Protected Areas	136.3	1,200.6	12.5%	26.6%
Fanita Ranch Project Area	140.7	2,522.4	24.9%	56.0%
Other Known and Anticipated Projects	132.5	98.8	2.2%	2.2%
Remaining Areas of Natural Habitat Subject to Future Development Activities	0.0	685.5	6.4%	15.2%
Totals:	**6,202.7**	**4,507.3**	**100.0%**	**100.0%**



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 4-7 Future Development Activities.mxd Date: 12/19/2018 34153

Figure 4-7
Areas of Future Development Activities
Santee MSCP Subarea Plan

	Developed, Nonnative (acres)	Natural Habitat (acres)	Percent of Subarea Plan Area	Percent of Remaining Natural Habitat
Remaining Areas of Natural Habitat Subject to Future Development Activities Within:				
North Magnolia Subunit	-	227.7	2.1%	5.1%
Mission Trails Subunit	-	206.4	1.9%	4.6%
Other Areas of City	-	251.4	2.3%	5.5%

4.2.3 Activities within Subarea Plan Preserves

Some management activities are expected to take place within the properties that comprise the Subarea Plan Preserve System that might adversely affect some Covered Species and their habitats. Most of these effects are expected to be temporary and of limited severity. Because they might result in take, these activities require coverage under the Subarea Plan. All Covered Activities within the Subarea Plan Preserve System will be implemented to avoid or minimize take of Covered Species to the maximum extent feasible. The ESA and NCCPA permits will cover Preserve Manager and contractor activities consistent with the Subarea Plan. The types of activities are described below and in more detail in Section 7.2, *Preserve Management and Monitoring*.

4.2.3.1 Recreational Facilities and Maintenance

This activity category includes the construction and maintenance of recreational facilities such as trails, parking lots, restrooms, wildlife observation platforms, and educational kiosks, which would be built in accordance with the Subarea Plan guidelines. This category also includes construction and maintenance of facilities needed to manage the Preserves, including field offices, maintenance sheds, carports, roads, bridges, fences, gates, and wells. All Preserve management structures will be constructed to minimize impacts on Covered Species and sensitive vegetation communities. Facilities existing at the time of land acquisition will be used whenever possible. All new facilities will be sited and constructed consistent with site-specific Preserve Management Plans.

4.2.3.2 Management Activities

This category includes all management actions required by the Subarea Plan or other actions that might be necessary to achieve Subarea Plan biological goals and objectives. These actions might include the activities listed below:

- **Vegetation Management.** Hand methods for vegetation control is allowed. Pesticide/herbicide use is allowed under the Subarea Plan only to achieve biological goals and objectives (e.g., exotic plant control) in accordance with label instructions and in compliance with state and local laws. Grazing is not anticipated to be used for large-scale vegetation management but may be used selectively to target specific locations or vegetation management issues within the Preserves, provided they are consistent with the Subarea Plan biological goals and objectives.
- **Fire Management.** Fire management includes mowing, selective thinning of vegetation, and maintenance of access roads and existing fuel modification zones.

- **Onsite Vehicle Use**. Preserve management staff members may travel through the Preserves on foot or by mountain bicycle, truck, ATV, or other off-road vehicle on designated pathways to inspect or maintain facilities, conduct monitoring, and patrol trails.
- **Relocation of Covered Species**. Relocation may be undertaken within Preserves where impacts are unavoidable and relocation has a high likelihood of success (e.g., translocation of San Diego barrel cactus). Relocation is expected to occur in very limited circumstances.
- **Demolition or Removal of Structures or Roads.** Demolition or removal of structures or roads may be used to increase public safety or to restore habitat.
- **Trail Closures**. Barriers and fencing to control and direct public access.
- **Control of Introduced Predators.** Control of introduced predators may take place for such predators as feral cats and dogs, pigs, red fox, nonnative fish, cowbirds, Argentine ants, African clawed frogs and bullfrogs.
- **Control of Rodents.** Control of rodents may take place for such rodents as nonnative squirrels, gophers, rabbits, rats, and mice. Control methods are limited to mechanical control methods only. Rodenticides are not authorized without prior written consent from the Wildlife Agencies. Brodifacoum, bromodiaolone, diphacinone, and difethialone chemical products will not be authorized under any circumstances.

4.2.3.3 Habitat Enhancement, Restoration, and Creation

The Subarea Plan conservation strategy identifies that habitat enhancement, restoration, and creation may be necessary within the Subarea Plan Preserve System. Enhancement activities generally fall under this Preserve management category. Habitat restoration and creation would generally be disruptive only in the short term; these activities would involve soil disturbance, removal of undesirable plants, and limited grading. All habitat restoration and creation is expected to result in a net long-term benefit for Covered Species and vegetation communities. However, these activities might have temporary or short-term adverse effects and might result in limited take of Covered Species. All habitat enhancement, restoration, and creation activities conducted within Subarea Plan Preserve System that are consistent with Subarea Plan requirements will be covered by the ESA and NCCPA permits.

4.2.3.4 Species Surveys, Monitoring, and Research

Preserve Managers and/or their contractors will conduct surveys for Covered Species, vegetation communities, and other resources within the Preserves on a regular basis for monitoring, research, and adaptive management purposes. These surveys might require transect sampling, audio playback, physical capture and inspection of specimens to determine identity, mark individuals, or measure physical features, some of which are considered take under ESA. Surveys for all Covered Species will be conducted by qualified biologists. All such survey activity, consistent with the Subarea Plan, is covered by the ESA and NCCPA permits.

Research conducted by Preserve Managers and/or their contractors within the Subarea Plan Preserve System will be covered by ESA and NCCPA permits only if the research projects have negligible effects on populations of Covered Species. Research resulting in take of Covered Species that is conducted by other individuals (e.g., academic scientists) will not be covered by the permits

because the nature and impacts of these future research projects cannot be predicted at this time, and these researchers are not bound by the terms of the permit.

4.2.3.5 Responses to Changed Circumstances

Responses to Changed Circumstances within the Preserves that might affect populations of Covered Species are covered under the Subarea Plan (see Chapter 8, *Plan Implementation*). *Changed Circumstances* are defined under the USFWS's No Surprises rule as "changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and that can be planned for." (USFWS 2016) Changed Circumstances for the Subarea Plan include the following reasonably foreseeable events: fire, climate change, flooding, drought, invasion by exotic species, disease, listing of non-covered species, and toxic spills (see Section 8.7.2, *Changed Circumstances*). Potential management actions following Changed Circumstances are discussed in Section 8.7.2 and could include actions such as temporary erosion control features, more intensive weed control, and reseeding with native species following a fire; recontouring and replanting areas affected by flooding; and cleanup and restoration of an area affected by illegal dumping or a small toxic spill.

4.2.4 Compatible Uses within Subarea Plan Preserves

Low-intensity recreational use, including hiking, wildlife observation, equestrian use, and non-motorized bicycling, in the Subarea Plan Preserve System is allowed on a case-by-case basis under the Subarea Plan guidelines (Chapter 7, *Management and Monitoring*). Subarea Plan guidelines and preserve-specific Preserve Management Plans will be developed with the goal of minimizing disturbance to Covered Species from low-intensity recreational activities. The ESA and NCCPA permits do not cover take of Covered Species by recreational activities and any type of activity prohibited by the Subarea Plan.

4.2.5 Activities Not Covered by the Santee Subarea Plan

4.2.5.1 Emergency Activities

USFWS defines an *emergency* as a situation involving disasters, casualties, national defense, or security and includes response activities that must be taken to prevent imminent loss of human life or property (USFWS 2016). The Wildlife Agencies will not obstruct an emergency response decision made by the Permittee where human life is at stake. Emergency activities are inherently not covered under the Subarea Plan, but many of the actions taken after an emergency, such as habitat restoration following fires or floods, are Covered Activities under the Subarea Plan (e.g., responses to Changed Circumstances).

4.3 Impact Assessment and Level of Take

This section addresses the effects of the Covered Activities described above on natural communities and Covered Species.

4.3.1 Definitions

The terms below are defined for the purposes of this Subarea Plan.

Effects are actions that affect biological resources, specifically undeveloped land cover types and Covered Species, in the Subarea Plan Area. Effects can be direct or indirect; they can also be cumulative.

Direct effects are defined as activities or projects that remove or alter land cover types or Covered Species habitat, populations, or occurrences (or portions thereof). Direct effects (e.g., ground disturbance, inundation) are caused by the project and occur at the time and place of project implementation. Direct effects can be either permanent or temporary (see definitions of permanent and temporary effects immediately below).

Permanent effects are direct effects that permanently remove or alter a land cover type or affect a land cover type for more than 1 year.

Temporary effects are direct effects (e.g., construction staging areas, re-contouring of slopes) that alter land cover for less than 1 year and allow the disturbed area to recover to pre-project or ecologically improved[1] conditions within 1 year of completing construction.

Indirect effects are caused by or a result of a project action. Indirect effects can occur later in time and possibly at some distance, or they may occur at the time of the proposed action but beyond the footprint of a project or activity (i.e., the effects are beyond the area of land cover disturbance but still reasonably foreseeable). Although more difficult to detect and track, indirect effects can undermine species viability or habitat quality, especially if multiple indirect or direct effects work cumulatively to impair the species or degrade the habitat.

Cumulative impacts result from the proposed action's incremental impact when viewed together with past, present, and reasonably foreseeable future actions. Cumulative impacts are defined under both ESA and NEPA. HCPs do not require a discussion of cumulative effects as analyzed under NEPA. However, as stated in the HCP handbook, "the applicant should help ensure that those considerations required of the Services by Section 7 have been addressed in the HCP" (USFWS 1996). Accordingly, the Subarea Plan and Subarea Plan EIR/EIS include an analysis of cumulative effects, as defined under ESA regulations, of non-federal activities that are reasonably certain to occur.

4.3.2 Direct Effects

Permanent Effects. Permanent effects resulting from Covered Activities were estimated for this Subarea Plan by completing a GIS overlay analysis of the project impact footprints with biological resources information. A detailed inventory of the impact analysis for each individual Covered Activity described in this chapter is included in Appendix I, *Covered Activities Impact Analysis Calculations*. A summary of the estimated permanent direct effects on biological resources for the major categories of Covered Activities is included in Tables 4-6.

Temporary Effects. Temporary effects are those impacts associated with a proposed project that are intended and designed to be fully mitigated in place after the project is completed. These types of impacts are often associated with development of public utility projects like pipelines or facility maintenance; although private projects often have impacts that qualify as temporary. Temporary impacts shall be mitigated at the ratios identified in Chapter 5.5.1, *Uniform Mitigation Standards for*

[1] *Ecologically improved* means that the site's ecological functions are better than those present on the site prior to ground disturbance.

Vegetation Communities. In all cases, partial mitigation may be achieved through restoration of the affected area with the habitat type that was impacted by the project subject to a restoration plan, prepared by a qualified biologist and approved by the City and Wildlife Agencies. If habitat cannot be restored in place, then the impact would be considered permanent. Note that in some cases where impacts are temporary but repeated with regularity (such as regular maintenance grading of dirt roads or firebreaks where sensitive habitats may have reestablished during the period between repeated impacts), the impacts will be counted once as permanent (requiring mitigation ratios accordingly) and then not considered as impacts (permanent or temporary) following additional repeated impact disturbances (assuming future repeated impacts do not affect previously unimpacted habitat areas or mitigation sites).

Table 4-6. Estimated Permanent Impacts Resulting from Covered Activities—Biological Resources

Biological Resources Factor	Total Acres in Subarea Plan Area	Known and Anticipated Projects: Covered Development Projects	Covered Street Projects	Covered Drainage Projects	New Trail Segments	Future Development Activities	Total Direct Permanent Impacts
Natural Vegetation Communities							
Coastal Sage Scrub	2,689.0	389.0	-	0.2	0.2	165.4	554.8
Chaparral	813.8	305.0	-	-	0.2	12.9	318.1
Grassland	583.3	190.0	0.1	-	0.8	43.1	234.0
Coast Live Oak Woodland	36.8	2.3	-	-	-	6.9	9.2
Riparian	293.9	1.5	0.7	6.1	1.8	31.6	41.7
Freshwater Marsh	19.8	0.1	-	0.9	0.1	0.8	1.9
Vernal Pool	0.8	0.4	-	-	-	-	0.4
Disturbed Wetland	10.8	-	-	1.2	-	6.5	7.7
Freshwater (Open Water)	48.8	0.1	-	0.2	0.1	0.0	0.4
Non-Vegetated Channel or Floodway	10.2	2.8	-	-	-	0.2	3.0
Natural Communities Subtotals	4,507.2	891.2	0.8	8.6	3.2	267.4	1,171.2
Covered Species Suitable and Critical Habitat (See Chapter 3, Covered Species)							
Plants							
San Diego ambrosia							
Suitable habitat	997.5	146.4	3.1	8.8	1.9	66.7	226.9
Critical habitat (natural habitat within)	0.2	-	-	-	-	-	-
San Diego barrel cactus							
Suitable habitat	3,231.7	579.1	0.1	2.0	0.4	199.7	781.3
San Diego button-celery							
Vernal pools and seasonal basins (Fanita Ranch)	1.6	0.8	-	-	-	-	0.8
Vernal pools complexes (Weston, Grossmont College)	19.6	-	-	-	-	-	-

Biological Resources Factor	Total Acres in Subarea Plan Area	Known and Anticipated Projects: Covered Development Projects	Covered Street Projects	Covered Drainage Projects	New Trail Segments	Future Development Activities	Total Direct Permanent Impacts
San Diego goldenstar							
Suitable habitat	3,333.1	566.4	-	2.1	0.4	187.8	756.7
San Diego mesa mint							
Vernal pools and seasonal basins (Fanita Ranch)	1.6	0.8	-	-	-	-	0.8
Vernal pools complexes (Weston, Grossmont College)	19.6	-	-	-	-	-	-
San Diego thornmint							
Suitable habitat							
Higher value (0.75 – 1)	706.8	322.1	-	-	-	16.8	338.9
Moderately high value (0.5 – 0.75)	1,192.3	291.2	-	-	0.1	50.2	341.5
Moderate value (0.25 – 0.5)	1,948.4	255.9	-	-	0.3	122.0	378.2
Lower value (0.0 – 0.25)	126.8	-	0.2	2.1	0.1	15.1	17.5
Suitable habitat subtotal:	3,974.3	869.2	0.2	2.1	0.5	204.1	1,076.1
Variegated dudleya							
Suitable habitat	3,456.8	579.1	-	2.1	0.4	181.3	762.9
Willowy monardella							
Suitable habitat	345.6	28.5	0.2	7.7	0.5	40.4	77.3
Critical habitat	115.8	2.9	-	-	-	-	2.9
Invertebrates							
Hermes copper butterfly							
Potentially suitable vegetation communities	3,504.8	693.0	-	0.7	0.4	178.2	872.3
Quino checkerspot butterfly							
Potentially suitable vegetation communities	3,713.7	619.4	2.1	4.0	0.7	208.5	834.7
Riverside fairy shrimp							
Vernal pools and seasonal basins (Fanita Ranch)	1.6	0.8	-	-	-	-	0.8
Vernal pools complexes (Weston, Grossmont College)	19.6	-	-	-	-	-	-

Biological Resources Factor	Total Acres in Subarea Plan Area	Known and Anticipated Projects: Covered Development Projects	Covered Street Projects	Covered Drainage Projects	New Trail Segments	Future Development Activities	Total Direct Permanent Impacts
San Diego fairy shrimp							
Vernal pools and seasonal basins (Fanita Ranch)	0.8	0.8	-	-	-	-	0.8
Vernal pools complexes (Weston, Grossmont College)	19.6	-	-	-	-	-	-
Reptiles and Amphibians							
Belding's orange-throated whiptail							
Suitable habitat	4,375.8	885.6	1.2	8.8	2.2	252.3	1,150.1
Blainville's horned lizard							
Suitable habitat	4,412.7	887.9	1.2	8.8	2.2	259.1	1,159.2
Southwestern pond turtle							
Suitable breeding habitat	68.7	0.1	-	-	0.2	0.9	1.2
Upland habitat buffer	681.8	195.2	1.2	7.4	1.8	59.6	265.2
Suitable habitat subtotal:	750.5	195.3	1.2	7.4	2.0	60.5	266.4
Western spadefoot toad							
Suitable habitat							
Known breeding habitat	0.294	0.038	-	-	-	-	0.038
Other potentially suitable breeding areas	19.9	0.719	-	-	-	4.3	5.0
Suitable upland habitat adjacent to known breeding habitat	813.8	378.0	-	-	-	-	378.0
Other suitable upland habitat	2,837.0	517.1	-	-	0.3	149.8	667.2
Suitable habitat subtotal:	3,671.0	895.9	-	-	0.3	154.1	1,050.3
Birds							
Coastal California gnatcatcher							
Suitable habitat							
Very high	2,039.6	349.3	-	-	0.1	105.3	454.7
High	616.4	35.5	-	0.2	0.1	50.3	86.1
Moderate	35.3	2.4	-	0.5	-	4.8	7.7

Biological Resources Factor	Total Acres in Subarea Plan Area	Known and Anticipated Projects: Covered Development Projects	Covered Street Projects	Covered Drainage Projects	New Trail Segments	Future Development Activities	Total Direct Permanent Impacts
Suitable habitat subtotal:	2,691.3	387.2	-	0.7	0.2	160.4	548.5
Critical habitat	3,542.2	850.6	0.5	-	0.4	133.8	985.3
Least Bell's vireo							
Suitable habitat	362.5	1.6	0.9	7.6	1.5	32.5	44.1
Critical habitat	82.9	-	-	0.9	2.9	-	3.8
San Diego cactus wren							
Suitable habitat							
Higher value (0.75 – 1)	1,892.9	292.2	-	-	0.3	93.4	385.9
Moderate value (0.5 – 0.75)	635.3	115.0	-	-	-	22.3	137.3
Suitable habitat subtotal:	2,528.2	407.2	-	-	0.3	115.7	523.2
Southwestern willow flycatcher							
Suitable habitat	362.5	1.6	0.9	7.6	1.5	32.5	44.1
Tricolored blackbird							
Suitable habitat							
Suitable colony habitat	30.6	0.2	-	2.1	0.1	7.4	9.8
Suitable foraging habitat	870.2	185.3	1.2	8.1	1.7	66.8	263.1
Suitable habitat subtotal:	900.8	185.5	1.2	10.2	1.8	74.2	272.9
Western burrowing owl							
Suitable habitat	1,837.4	393.8	2.1	4.0	0.7	82.0	482.6

4.3.3 Indirect Effects

Indirect effects are more difficult to predict. For purposes of this Subarea Plan, a distance of 300 feet from Covered Activities was used to estimate the areas of potential indirect effects. A quantification of indirect effects is included in Appendix I, *Covered Activities Impact Analysis Calculations*. Indirect effects from the Subarea Plan may include habitat fragmentation, blockage of movement corridors, edge effects, noise effects, disruption of the natural fire regime, changes in hydrology from adjacent development, increased lighting, and the proliferation of exotic species.

Habitat Fragmentation. Habitat fragments generally have less conservation value than large habitat blocks because smaller habitat areas usually contain fewer species, have proportionally larger perimeters (making them more vulnerable to edge effects), are more likely to be biologically isolated from other habitat areas, and tend to be more vulnerable to adverse stochastic events.

Blockage of Natural Wildlife Movement Corridors. Roads and development restrict movements within home range, define boundaries of home ranges, or form complete barriers to movement. Large mammals may continue to use a low-traffic road or trails as a convenient way of travel or to feed on roadkill or small mammals in grassy road shoulders. Nevertheless, they are unable to maintain populations where road densities are high, because of the mortality rates with high vehicle speeds, legal or illegal hunting, or roadkill. Also, the frequency of roadkill is higher on more remote and less frequently traveled roads than larger, more urban roads. This is because less road avoidance in remote locations increases the chance of wildlife being hit by a vehicle.

Edge Effects. A negative effect of fragmentation is exposure to incompatible land uses along the habitat edge (edge effects). The biological integrity of habitats adjoining development can be diminished by adverse effects of noise, lighting, exotic plant and animal invasion, dust/air pollution, predators, parasites, disturbance from human activities, pesticides, fuel modification, and other factors. Numerous predators, such as snakes, opossums, raccoons, skunks, ground squirrels, and various corvids, thrive on edges by making use of the additional food and water sources provided by residential development adjacent to preserves. Dog and cat (both domestic and feral) predation are also associated with edges

Noise. Development in the Subarea Plan Area is likely to result in increasing ambient noise to a level which is likely to adversely affect some Covered Species within the Subarea Plan Area. The impact of noise on wildlife is likely to differ from species to species and is not only dependent on the source of the noise (e.g., aircraft versus blasting), but also on the duration and schedule. Organisms that rely on sound to communicate (e.g., birds) may be indirectly impacted from noise through disruption of interspecific communication (such as during the breeding season). Construction activity (for example) that is outside of the Preserve may also generate noise that impacts species within the Preserve.

Alteration of Fire Regimes. Natural fire is generally not compatible with highly urbanized areas and therefore is suppressed. Alteration of the natural fire regime could lead to an elimination of fire in small habitat fragments adjacent to development, to an increase in fire frequency from anthropogenic ignition, or the intensity of fires due to build up of materials. All of these changes disrupt natural successional processes.

Changes in Hydrology. Increased urbanization in the Subarea Plan Area resulting by implementation of the Subarea Plan may indirectly result in changes in hydrology, run-off, and

sedimentation that could impact surface water dependent Covered Species both in and outside of the Subarea Plan Preserve System. Increased urban run-off into the Subarea Plan Preserve System and channelization for flood control could result in increased erosion and increased rates of scouring, which could result in downstream habitat loss for some species. Because urbanization has the potential to increase the magnitude and frequency of high flows, causing bank erosion and channel widening, species could be adversely affected if they rely on natural flow regimes for their persistence. Additionally, urban run-off increases the temperature of adjacent streams due to higher water temperatures from streets, roof tops, and parking lots, and increases the variety and amount of pollutants carried into streams, rivers, and lakes.

Lighting. Artificial night lighting adversely impacts the habitat value for some species, particularly for nocturnal species through potential modification of predation rates, obscuring of lunar cycles, and/or causing direct habitat avoidance. Illumination of foraging habitat by artificial light during surface activity periods of prey likely makes detection by predators easier, potentially increasing the predation rate by owls, coyotes, foxes, house cats, etc. Artificially lit habitat areas may also be directly avoided by certain species.

Illumination of bird habitat by increased night lighting of the Subarea Plan Study Area has the potential to adversely affect bird species. Physiological, developmental, and behavioral effects of light intensity, wavelength, and photoperiod on domestic bird species are well-documented. Placement of nests away from lighted areas implies that part of the home range is rendered less suitable for nesting by artificial light. If potential nest sites are limited within the bird's home range, reduction in available sites associated with artificial night lighting may cause the bird to use a suboptimal nest site that is more vulnerable to predation, cowbird parasitism, or extremes of weather or to avoid nesting at all.

Exotic Species. Native species are often at a disadvantage after exotic species or non-native predators are introduced. Non-native plant and animal species have few natural predators or other ecological controls on their population sizes, and they often thrive in disturbed habitats. These species may aggressively out-compete native species or otherwise harm sensitive species. When top predators are absent, intermediate predators multiply and increase predation on native bird species and their nests. Domestic holding areas (e.g., stables and backyards) and golf courses provide resources for increased populations of parasitic cowbirds and European starlings, which adversely effect native songbird populations. Litter and food waste from picnickers can contribute to an increase in Argentine ant populations, which out-compete native ants. Irrigation of landscapes may also provide resources for invasive Argentine ants. Invasive plant species, such as salt cedar and giant reed, can alter water flow and quantities, outcompete native plant species, and provide less suitable habitat for native animals.

Potential direct and indirect effects on the Preserve will be minimized by requiring all proposed public/private development projects within the Subarea Plan Area to adhere to the Preserve adjacency guidelines.

4.3.4 Effects Resulting from Covered Activities within Subarea Plan Preserve System

Some management activities (erosion control, trail maintenance, habitat restoration) that are expected to take place the Subarea Plan Preserve System may adversely affect some Covered Species and natural communities. These effects are expected to be limited with respect to severity and

generally temporary. Preserve Managers will implement avoidance and minimization measures to ensure adverse impacts are minimized to the extent feasible. Additionally, the overall conservation strategy implementation is expected to have a net benefit on all Covered Species and their habitats. However, because there is the potential for activities within the Preserves to result in take, these activities require coverage under this Subarea Plan.

Chapter 5
Conservation Strategy

5.1 Introduction

This chapter presents the Santee Subarea Plan conservation strategy, which is designed to meet the regulatory requirements of the California NCCPA and federal ESA and to streamline compliance with CEQA, NEPA, and other applicable environmental regulations. The conservation strategy provides for the conservation of Covered Species in the Subarea Plan Area necessary to meet the requirements of the NCCPA and mitigates impacts from Covered Activities in the Subarea Plan Area under Section 10 of ESA. The conservation strategy also will build on existing conservation efforts in the Subarea Plan Area, including the portions of Mission Trails Regional Park within the southwestern portion of Santee, establishment of the Preserves on Rattlesnake Mountain, acquisitions of Preserves north of Magnolia Avenue, and protection and enhancement of habitats along the San Diego River. Combined with the responsible land use planning of the City of Santee, existing and new conservation efforts will provide significant habitat for many species, including those covered by the Subarea Plan.

To meet the NCCPA and federal ESA permit standards, the conservation strategy provides for the conservation of Covered Species by protecting, enhancing, restoring, and managing natural communities, Covered Species habitats, and occurrences of Covered Species.

The conservation strategy achieves the following objectives.

- Conserve, restore, and provide for the management of representative natural vegetation communities.
- Establish a Preserve System that provides for the conservation of Covered Species within Santee and linkages to adjacent habitat outside the Subarea Plan Area.
- Protect and maintain habitat areas that are large enough to support sustainable populations of Covered Species.
- Incorporate into a Subarea Plan Preserve System a range of environmental gradients and high habitat diversity to provide for shifting species distributions in response to changing circumstances (e.g., in response to climate change).
- Sustain the effective movement and genetic interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the Subarea Plan Preserve System.

The Santee Subarea Plan conservation strategy identifies the intended biological outcomes of Santee Subarea Plan implementation and describes the means by which the City will achieve these outcomes. The conservation strategy includes specific and measurable biological goals, objectives, and comprehensive conservation measures. The conservation strategy is comprised of biological goals and objectives, conservation measures, and a monitoring and adaptive management strategy. The biological goals and objectives (Section 5.2) articulate *what* the conservation strategy intends to achieve. The conservation measures (Sections 5.3 through 5.5) describe *how* the City will meet the biological goals and objectives (i.e., the actions to be implemented).

There are three broad categories of conservation measures.

- Section 5.3, *Conservation Measure 1, Establish Preserve System*, describes the City's commitments to establish the Subarea Plan Preserve System. It includes acreage commitments for natural communities and species habitat, describes land protection mechanisms and enrollment requirements, and provides guidelines and commitments for identifying lands to acquire.
- Section 5.4, *Conservation Measure 2, Manage and Enhance the Preserve System*, describes the City's commitments for natural community and species habitat management and enhancement. It defines management and enhancement, describes the requirements for preparing preserve management plans (PMPs), and describes management and enhancement responsibilities of the City and individual Preserve Managers.
- Section 5.5, *Conservation Measure 3, Avoidance, Minimization, and Mitigation*, describes the City's commitments to review, approve, and monitor future development within the Subarea Plan Area following the avoidance, minimization, and mitigation measures established in this Subarea Plan. Standards and guidelines provided in this section include uniform mitigation ratios, wildlife corridor criteria, narrow and endemic species standards, aquatic resources standards, and species-specific protection requirements.

5.2 Biological Goals and Objectives

The biological goals and objectives articulate the intended outcomes that Santee Subarea Plan implementation will achieve. Biological goals are broad statements of intent. Biological objectives are expressed as specific outcomes that the Subarea Plan is expected to achieve for ecosystems, natural communities, and covered species habitat. The biological objectives are measurable to the extent possible.

The biological goals and objectives are organized hierarchically based on the following ecological levels of organization.

- **Landscape**. The landscape-level biological goals and objectives focus on the extent, distribution, and connectivity among natural communities and protection to the overall condition of hydrological, physical, chemical, and biological processes in the Subarea Plan Area in support of achieving natural community– and species-specific biological goals and objectives.
- **Natural community**. Natural community biological goals and objectives focus on maintaining or enhancing ecological functions and values of specific natural communities. Achieving natural community goals and objectives will also provide for the conservation of habitat of associated covered species and other native species; and
- **Species**. Species-specific biological goals and objectives address stressors and habitat needs specific to individual covered species.

Table 5-1 summarizes the biological goals and objectives at the landscape, natural community, and species levels. The acreage objectives for natural communities and suitable habitat for Covered Species is based on the size and configuration of the proposed Subarea Plan Preserve System. Each biological objective will be met through implementation of one or more of the conservation measures described in Sections 5.3, 5.4, and 5.5.

Table 5-1. Biological Goals and Objectives

Biological Resource	Goals	Objectives
Landscape Level Goals and Objectives		
Consistency with MSCP Subregional Plan	**Landscape Goal 1 (L-1):** Conserve and protect natural communities and Covered Species populations that is consistent with and contributes to the MSCP Subregional Plan.	**Landscape Objective 1.1 (L-1.1):** Over the permit term, the City of Santee will establish a Subarea Plan Preserve System totaling at least 3,060 acres of protected natural habitat, which exceeds the target of 2,067 acres of natural habitat established as part of the 1998 MSCP Subregional Plan based on the Multi-Habitat Planning Area (MHPA) boundaries.
Representative of natural landscape	**Landscape Goal 2 (L-2):** Conserve and manage representative natural and semi-natural landscapes to maintain the ecological integrity of large habitat blocks, ecosystem function and biological diversity.	**Landscape Objective 2.1 (L-2.1):** Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that conserves a representative percent of extant vegetation communities (not more than a 10% difference), with a focus on habitats considered sensitive, rare, or declining.
Sustain wildlife movement and connectivity	**Landscape Goal 3 (L-3):** Sustain effective wildlife movement and interchange between habitat areas to maintain ecological integrity within the Subarea Plan Area.	**Landscape Objective 3.1 (L-3.1):** Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that protects biological core and linkage areas consistent with targets of the MSCP Subregional Plan.
		Landscape Objective 3.2 (L-3.2): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that secures important wildlife movement corridors and landscape connectivity both within and adjacent to the Subarea Plan Area.
Maintain range of environmental gradients	**Landscape Goal 4 (L-4):** Protect natural landscapes within a range of environmental gradients and contiguous to other protected areas to allow for shifting species distributions in response to catastrophic events (e.g., fire, prolonged drought) or changed circumstances (e.g., climate change).	**Landscape Objective 4.1 (L-4.1):** Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that conserves natural habitat representative of the current distribution of natural habitat within elevation ranges (not more than a 5% difference).

Biological Resource	Goals	Objectives
Natural Communities Level Goals and Objectives		
Upland vegetation communities	**Natural Community Goal 1 (N-1):** Protect, manage, and enhance natural communities to promote native biodiversity.	**Natural Community Objective 1.1 (N-1.1) (Chaparral):** Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 484 acres of chaparral habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the chaparral natural community.
		Natural Community Objective 1.2 (N-1.2) (Grassland): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 288 acres of grassland habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the grassland natural community.
		Natural Community Objective 1.3 (N-1.3) (Riparian): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 194 acres of riparian habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the riparian natural community.
		Natural Community Objective 1.4 (N-1.4) (Scrub): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 1,995 acres coastal sage scrub habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the scrub natural community.
		Natural Community Objective 1.5 (N-1.5) (Woodland): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 26 acres of woodland habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the woodland natural community.

Biological Resource	Goals	Objectives
Riparian, wetland, and vernal pool habitats	**Natural Community Goal 2 (N-2):** Maintain and enhance riparian and wetland function and values to benefit Covered Species and promote native biodiversity.	**Natural Community Objective 2.1 (N-2.1):** Over the permit term, the City of Santee will conserve, restore and/or enhance areas within the Santee Subarea Plan Preserve Area with aquatic resources (per CDFW jurisdiction). These conservation actions will protect riparian and wetlands functions and values by improving the condition and integrity of the physical streambed, aquatic and riparian habitat, and hydrology.
		Natural Community Objective 2.2 (N-2.2): The City of Santee will set forth and implement policies and procedures to ensure Covered Activities result in no net loss of wetland acreage and functions and values in the Subarea Plan Area.
		Natural Community Objective 2.3 (N-2.3): The City of Santee will set forth and implement policies and procedures to ensure Covered Activities result in no net loss of vernal pool/seasonal basin habitat values and acreage in the Subarea Plan Area.
Species Level Goals and Objectives		
Plants		
San Diego ambrosia	**Species Goal 1 (S-1):** Provide for the conservation of San Diego ambrosia within the Subarea Plan Area.	**Species Objective 1.1 (S-1.1):** Protect and maintain 502 acres of suitable habitat for San Diego ambrosia within Subarea Plan Preserve System.
San Diego barrel cactus	**Species Goal 2 (S-2):** Provide for the conservation of San Diego barrel cactus within the Subarea Plan Area.	**Species Objective 2.1 (S-2.1):** Protect and maintain 2,254 acres of suitable habitat for San Diego barrel cactus within Subarea Plan Preserve System.
San Diego button-celery	**Species Goal 3 (S-3):** Provide for the conservation of San Diego button-celery within the Subarea Plan Area.	**Species Objective 3.1 (S-3.1):** Protect and maintain 21.4 acres of suitable vernal pool/seasonal basin habitat within Subarea Plan Preserve System that has the potential to support San Diego button-celery.

Biological Resource	Goals	Objectives
San Diego goldenstar	**Species Goal 4 (S-4):** Provide for the conservation of San Diego goldenstar within the Subarea Plan Area.	**Species Objective 4.1 (S-4.1):** Protect and maintain 2,327 acres of suitable habitat for San Diego goldenstar within Subarea Plan Preserve System.
San Diego mesa mint	**Species Goal 5 (S-5):** Provide for the conservation of San Diego mesa mint within the Subarea Plan Area.	**Species Objective 5.1 (S-5.1):** Protect and maintain 21.4 acres of suitable habitat for San Diego mesa mint within Subarea Plan Preserve System that has the potential to support San Diego mesa mint.
San Diego thornmint	**Species Goal 6 (S-6):** Provide for the conservation of San Diego thornmint within the Subarea Plan Area.	**Species Objective 6.1 (S-6.1):** Protect and maintain 2,693 acres of suitable habitat for San Diego thornmint within Subarea Plan Preserve System.
Variegated dudleya	**Species Goal 7 (S-7):** Provide for the conservation of variegated dudleya within the Subarea Plan Area.	**Species Objective 7.1 (S-7.1):** Protect and maintain 2,493 acres of suitable habitat for variegated dudleya within Subarea Plan Preserve System.
Willowy monardella	**Species Goal 8 (S-8):** Provide for the conservation of willowy monardella within the Subarea Plan Area.	**Species Objective 8.1 (S-8.1):** Protect and maintain 215 acres of suitable habitat for willowy monardella within Subarea Plan Preserve System.
Invertebrates		
Hermes copper butterfly	**Species Goal 9 (S-9):** Provide for the conservation of Hermes copper butterfly within the Subarea Plan Area.	**Species Objective 9.1 (S-9.1):** Protect and maintain 2,477 acres of suitable habitat for Hermes copper butterfly within Subarea Plan Preserve System.
Quino checkerspot butterfly	**Species Goal 10 (S-10):** Provide for the conservation of Quino checkerspot butterfly within the Subarea Plan Area.	**Species Objective 10.1 (S-10.1):** Protect and maintain 2,368 acres of suitable habitat for Quino checkerspot butterfly within Subarea Plan Preserve System.

Biological Resource	Goals	Objectives
Riverside fairy shrimp	**Species Goal 11 (S-11):** Provide for the conservation of Riverside fairy shrimp within the Subarea Plan Area.	**Species Objective 11.1 (S-11.1):** Protect and maintain 21.4 acres of suitable vernal pool/seasonal basin habitat within Subarea Plan Preserve System that has the potential to support Riverside fairy shrimp.
San Diego fairy shrimp	**Species Goal 12 (S-12):** Provide for the conservation of San Diego fairy shrimp within the Subarea Plan Area.	**Species Objective 12.1 (S-12.1):** Protect and maintain 21.4 acres of suitable vernal pool/seasonal basin habitat within Subarea Plan Preserve System that has the potential to support San Diego fairy shrimp.
Reptiles and Amphibians		
Belding's orange-throated whiptail	**Species Goal 13 (S-13):** Provide for the conservation of Belding's orange-throated whiptail within the Subarea Plan Area.	**Species Objective 13.1 (S-13.1):** Protect and maintain 2,957 acres of suitable habitat for Belding's orange-throated whiptail within Subarea Plan Preserve System.
Blainville's horned lizard	**Species Goal 14 (S-14):** Provide for the conservation of Blainville's horned lizard within the Subarea Plan Area.	**Species Objective 14.1 (S-14.1):** Protect and maintain 2,983 acres of suitable habitat for Blainville's horned lizard within Subarea Plan Preserve System.
Southwestern pond turtle	**Species Goal 15 (S-15):** Provide for the conservation of southwestern pond turtle within the Subarea Plan Area.	**Species Objective 15.1 (S-15.1):** Protect and maintain 416 acres of a combination suitable breeding and upland habitat for southwestern pond turtle within Subarea Plan Preserve System.
Western spadefoot toad	**Species Goal 16 (S-16):** Provide for the conservation of western spadefoot toad within the Subarea Plan Area.	**Species Objective 16.1 (S-16.1):** Protect and maintain 2,424 acres of a combination of suitable breeding and upland habitat for western spadefoot toad within Subarea Plan Preserve System.
Birds		
Coastal California gnatcatcher	**Species Goal 17 (S-17):** Provide for the conservation of coastal California gnatcatcher within the Subarea Plan Area.	**Species Objective 17.1 (S-17.1):** Protect and maintain 1,992 acres of suitable habitat for coastal California gnatcatcher within Subarea Plan Preserve System.

Biological Resource	Goals	Objectives
Least Bell's vireo	**Species Goal 18 (S-18):** Provide for the conservation of least Bell's vireo within the Subarea Plan Area.	**Species Objective 18.1 (S-18.1):** Protect and maintain 259 acres of suitable habitat for least Bell's vireo within Subarea Plan Preserve System.
San Diego cactus wren	**Species Goal 19 (S-19):** Provide for the conservation of San Diego cactus wren within the Subarea Plan Area.	**Species Objective 19.1 (S-19.1):** Protect and maintain 1,865 acres of suitable habitat for San Diego cactus wren within Subarea Plan Preserve System.
Southwestern willow flycatcher	**Species Goal 20 (S-20):** Provide for the conservation of southwestern willow flycatcher within the Subarea Plan Area.	**Species Objective 20.1 (S-20.1):** Protect and maintain 259 acres of suitable habitat for southwestern willow flycatcher within Subarea Plan Preserve System.
Tricolored blackbird	**Species Goal 21 (S-21):** Provide for the conservation of tricolored blackbird within the Subarea Plan Area.	**Species Objective 21.1 (S-21.1):** Protect and maintain 495 acres of a combination suitable colony and foraging habitat for tricolored blackbird within Subarea Plan Preserve System.
Western burrowing owl	**Species Goal 22 (S-22):** Provide for the conservation of western burrowing owl within the Subarea Plan Area.	**Species Objective 22.1 (S-22.1):** Protect and maintain 1,063 acres of suitable habitat for western burrowing owl within Subarea Plan Preserve System.

5.3 Conservation Measure 1—Establish Preserve System

This conservation measure describes how the Santee Subarea Plan Preserve System will be established to benefit the Covered Species, natural communities, and ecosystems of the Subarea Plan Area. The Subarea Plan is designed to promote conservation of biodiversity and ecosystem function in the City, while allowing for continued economic development and reasonable land use in Santee. Consequently, designing the Preserve System involves balancing two sets of goals.

- Conserve natural vegetation communities and species habitat to meet the goals and objectives addressed by the Subarea Plan.
- Provide for housing, property rights, recreation, transportation, economic development, and other community and regional goals.

The approach taken in designing a functional Preserve System in the Subarea Plan Area involved identifying those properties where conservation will best achieve biological goals with the least detrimental effects on other land use, property rights, or economic goals. This approach involved carefully examining the opportunities and constraints of incorporating biologically valuable lands into the Subarea Plan Preserve System, using the following strategy:

- Start with existing preserves and currently protected open space.
- Incorporate of new preserve boundaries associated with hardline projects.
- Ensure conservation of the full range of extant vegetation types within the Subarea Plan Area.
- Maintain viable populations of Covered Species and their habitats.
- Maintain functional wildlife corridors and habitat linkages between critical biological resource areas.

Figure 5-1 is a map of the Santee Subarea Plan Preserve System, and Table 5-2 summarizes the acreage of natural habitat within the Preserve System boundaries. The following sections describe in more detail the components of the Subarea Plan Preserve System and steps associated with the assembly of the Preserve System.

Table 5-2. Habitat Conserved within Santee Subarea Plan Preserve System

Preserve Components	Acres of Natural Habitat	Acres Conserved within Preserve System	Percent Conserved
Within Preserve Boundary[a]			
Existing Preserves and Fully Managed	614.0	614.0	100.0%
Currently Protected Open Space—Not Fully Managed	501.0	501.0	100.0%
Future Preserves 100% (Hardlines)	1,616.4	1,616.4	100.0%
Future Preserves 75% (Softline Area)	438.3	328.7	75.0%
Totals Within the Preserve Boundary	3,169.7	3,060.1	96.5%

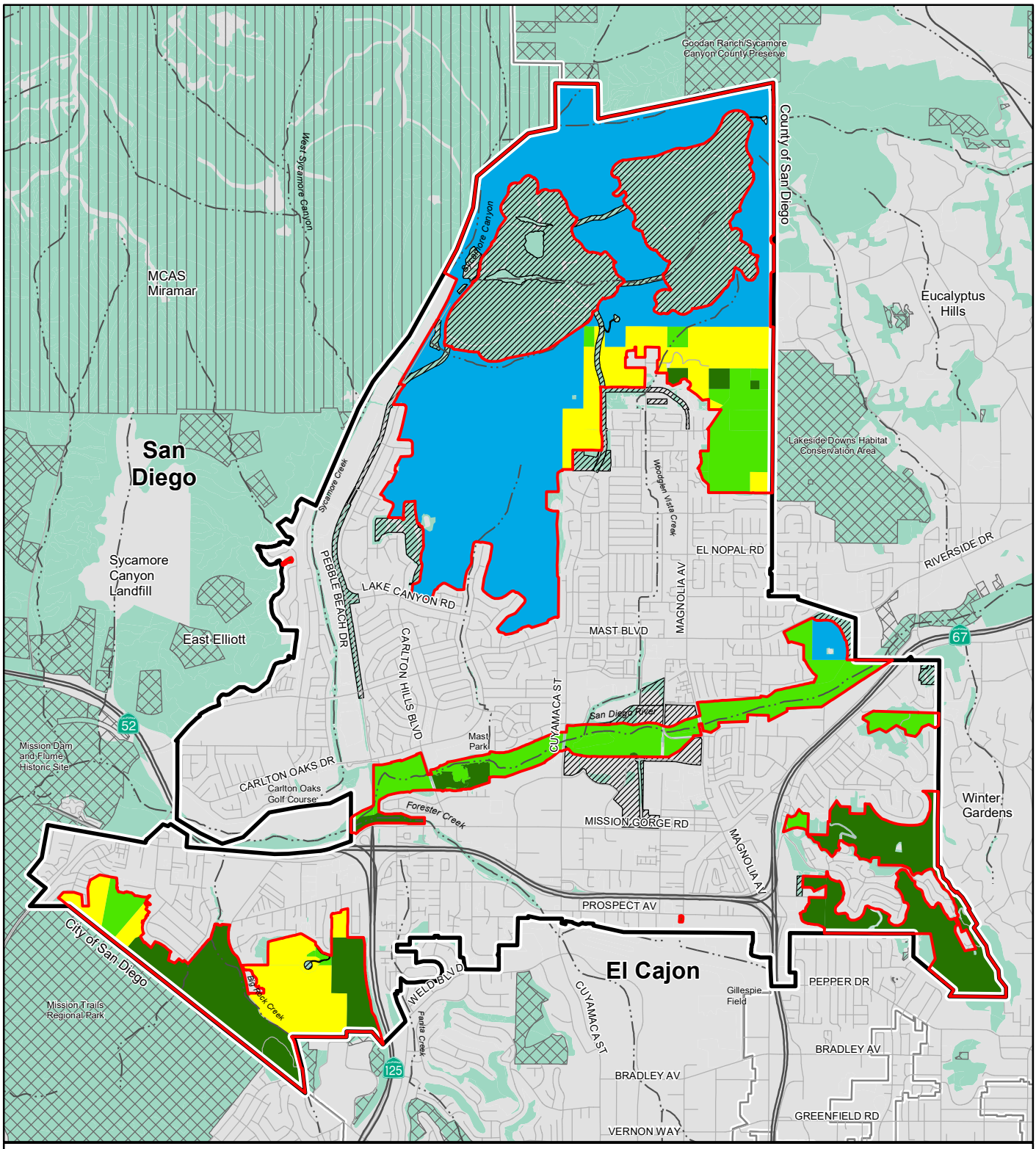


Figure 5-1
Subarea Plan Preserve System Map
Santee MSCP Subarea Plan

Preserve Components	Acres of Natural Habitat	Acres Conserved within Preserve System	Percent Conserved
Outside Preserve			
Wetlands[b]	117.4	-	0.0%
Uplands	1,220.1	-	0.0%
Totals Outside Preserve	1,337.5	-	0.0%
Totals in Plan Area	**4,507.2**	**3,060.1**	**67.8%**

[a] Areas of existing fuel management areas that overlap into existing preserves and currently protected open space (Figure 4-6) are not calculated as part of the acres of natural habitat in Preserve System.

[b] Wetland vegetation communities are protected by the Subarea Plan Wetland Protection Standards (see Section 5.5.5, *Wetland Protection Standards*) and other state and federal wetland regulations that ensure no-net-loss of these habitat types.

5.3.1 Preserve Assembly and Components

The Santee Subarea Plan Preserve System will be assembled from a variety of components, including existing preserves that are fully managed, currently protected open space that is not fully managed, lands to be set aside as onsite mitigation for known future projects (hardline areas), lands set aside as onsite or offsite mitigation as part of the future development permitting (focused within softline areas), and lands otherwise dedicated or acquired in the future for conservation purposes. This section describes these components and their expected contributions to the Preserve System.

5.3.1.1 Existing Preserves, Fully Managed

The Subarea Plan Preserve System starts with the inclusion of existing habitat preserves that are fully managed. As described in Section 2.3.3., *Protected Open Space within Santee*, there are number of properties within Santee that meet the following criteria to be categorized as fully managed:

- Managed for protection of wildlife.
- Irrevocable land protection (conservation easement, Restrictive Covenant, or equivalent land protection mechanism).
- Approved preserve management plan (PMP).
- Conducts management and monitoring including, but not limited to, general stewardship, control of public access, monitoring of wildlife species, management of sensitive biological resources, and control of invasive species.
- Secure funding for long-term management and monitoring.
- Provide annual reports to the City and Wildlife Agencies.

Table 5-3 lists the properties incorporated into the Subarea Plan Preserve System that meet the criteria of preserve category of "existing preserves and fully managed". The City of Santee will work with the land management entities of each of these properties to coordinate their management and monitoring activities on individual preserves, to the extent feasible, to establish a cohesive and standardized approach for management and monitoring within the Preserve System throughout the Subarea Plan Area (see Section 5.4, *Conservation Measure 2—Manage and Enhance Preserve System*). These properties are baseline preserves that contribute to the overall target of conservation within the Subarea Plan Area but cannot be counted towards mitigation credits of future Covered Activities.

Table 5-3. Existing Preserves, Fully Managed Included in Subarea Plan Preserve System

Property Name	Property Owner	Land Management Entity	Map ID[a]	Acres of Natural Habitat
Mast Park Wetland Restoration Project / Preserve	City of Santee	San Diego Habitat Conservancy	18	12.4
Lowes Preserve	City of Santee	San Diego Habitat Conservancy	19	9.4
Caltrans Forester Creek Mitigation Site	Caltrans	San Diego Habitat Conservancy	21	14.9
Mission Trails Regional Park	City/ County of San Diego	City of San Diego Parks and Rec.	26	185.3
CNLM Rattlesnake Mountain HCA	CNLM	CNLM	1	288.5
Lantern Crest	Private	Urban Corps of San Diego County	2	18.0
CNLM Santee Hills (Boys and Girls Club Parcel) HCA	CNLM	CNLM	11	9.8
CNLM East Mesa (Hagenmaier and Gross Parcels) HCA	CNLM	CNLM	24	65.0
Ryan Company Smooth Tarplant Preserve	Private	San Diego Habitat Conservancy	30	0.7
Cutri Onsite Preserve	Private	Endangered Habitats Conservancy	33	6.8
Railroad Avenue Ambrosia Conservation Easement	Private	Mitigation Credit Services	34	0.5
Calvary Chapel Offsite Mitigation Site	Endangered Habitats Conservancy	Endangered Habitats Conservancy	42	1.8
Weston Vernal Pool Complex	TBD	TBD	41	0.9
			Total:	**614.0**
		Percentage of Subarea Plan Preserve System:		**20.1%**

[a] See Figure 2-8.

5.3.1.2 Protected Open Space, Not Fully Managed

After incorporating the existing preserves that are fully managed, the City also inventoried other currently protected open space that is not fully managed as habitat preserve land. Properties listed as "currently protected but not fully managed" are protected from land development but do not meet one or more of the criteria listed above in Section 5.5.1.3, *Existing Preserves, Fully Managed*, to be considered fully managed (e.g., a property may have an open space easement but does not have an endowment to support long-term management and monitoring). These properties were incorporated into the Preserve System if they included sensitive biological resources and/or add to habitat connectivity within the Subarea Plan Area. Not all protected open space was incorporated into the Preserve System, however. In some instances, the open space lands had other land use priorities (e.g., flood control) that limited the potential for management for wildlife habitat, were too isolated to have adequate habitat connectivity, had potential for edge effects from surrounding

development, and/or were unlikely to increase management and monitoring due to property ownership issues.

Table 5-4 lists the properties that meet the criteria of preserve category of "protected open space, not fully managed" and were incorporated into the Subarea Plan Preserve System. The City will work with the property owners and/or land management entities of each of these properties to provide incentives, identify funding sources, and other collaborative efforts to increase the level and certainty of management and monitoring on these properties. In addition, the City will pursue other funding sources to increase the level of management and monitoring on City-owned properties that are not fully managed within the Subarea Plan Preserve System. Conservation credits may be created if an entity is able to increase the level of management and monitoring of these properties (see Section 5.4, *Conservation Measure 2—Manage and Enhance Preserve System*).

Table 5-4. Currently Protected Open Space, Not Fully Managed Properties Included in Subarea Plan Preserve System

Property Name	Property Owner	Land Management Entity	Map ID[a]	Acres of Natural Habitat
Walker Preserve	City of Santee	City of Santee	6	75.1
City Hall Open Space	City of Santee	City of Santee	10	2.6
Mast Park East (Mission Creek)	City of Santee	City of Santee	17	36.5
Mast Park West	City of Santee	City of Santee	20	42.6
City Property near Walker Preserve	City of Santee	City of Santee	43	12.5
Walker Trails Open Space Component (RCP Site)	City of Santee	City of Santee	44	5.5
Altair	City of Santee	City of Santee	3	7.7
Floodway Protection	City of Santee	City of Santee	45	20.9
MTS Restoration Site (15)	County of San Diego	None	15	4.5
MTS Restoration Site (16)	County of San Diego	None	16	4.5
County of San Diego San Diego River	County of San Diego	None	31	56.7
PDMWD Mesa Reservoir Conservation Easement	PDMWD	None	40	0.9
Cheyenne EHC Preserve[b]	Endangered Habitat Conservancy (EHC)	EHC	35	114.5
Capralis EHC Preserve[b]	EHC	EHC	36	20.5
Brown[b]	EHC	EHC	37	8.6
B. Bailey[b]	EHC	EHC	38	14.5
Gallagher[b]	EHC	EHC	39	6.0
Santee Environmental Inc.	Private	None	5	22.8
Deerpark Santee Unit #3	Private	None	8	10.3
Bella Vida HOA	Private	None	9	0.7
Prospect Hills Open Space	Private	None	25	2.7
Mission View Estates by Concordia	Private	None	27	30.5
			Total:	**501.0**

Property Name	Property Owner	Land Management Entity	Map ID[a]	Acres of Natural Habitat
		Percentage of Subarea Plan Preserve System:		**16.4%**

[a] See Figure 2-8.

[b] EHC has indicated that all properties will ultimately be managed to meet the Subarea Plan management and monitoring standards and has begun preparation of a PMP covering all of their properties within Santee along with the adjoining Lakeside Downs Habitat Conservation Area (HCA). EHC is pursuing secure funding source(s) to complete management and monitoring in perpetuity.

5.3.1.3 Hardline Preserves

For future development projects in which the biological mitigation open space is known, hardline preserve boundaries will be incorporated into the Subarea Plan Preserve System. As part of the project approval process, the City will require the hardline preserves to be managed consistent with the management and monitoring requirements set forth in this Subarea Plan (see Section 7.2, *Preserve Management and Monitoring*). Table 5-5 lists the hardline projects with onsite habitat preserves that will be incorporated into the Subarea Plan Preserve System. The City will work with the land management entities of each of these properties to coordinate their management and monitoring activities on these preserves, to the extent feasible, and to establish a cohesive and standardized approach for management and monitoring within the Preserve System throughout the Subarea Plan Area.

Table 5-5. Hardline Preserves Included in Subarea Plan Preserve System

Property Name	Property Owner	Land Management Entity	Acres of Natural Habitat
Fanita Ranch	Home Fed	TBD	1,589.4
Parkside	Lakeside Investment Co.	TBD	27.0
		Total:	**1,616.4**
	Percentage of Subarea Plan Preserve System:		**52.8%**

5.3.1.4 Softline Preserve Areas

The design of the Subarea Plan Preserve System includes softline preserve areas that meet the following three criteria.

- Areas of private ownership that are undeveloped and have natural habitat.
- Have no planned development projects but are subject to future development as guided by the General Plan.
- Are located in areas between and/or adjacent to blocks of protected open space where a meaningful percentage of conservation will benefit habitat connectivity and wildlife movement.

The softline preserve areas designation will serve two functions: (1) identifies areas where offsite mitigation and other land acquisition conservation efforts should be directed within the Subarea Plan Area, and (2) sets a 75% conservation target for the percentage of land to be set aside for preservation as part of any future development project within these areas. During Subarea Plan implementation, the conservation percentages in softline areas will be applied on a project-by-

project basis. When a development project is proposed within softline areas, the project proponents will need to coordinate closely with the City to ensure the planning of the project focuses development towards the least sensitive areas and maintains appropriate onsite conservation areas that contribute to contiguity of the remaining habitat and minimize fragmentation of the softline area. The City will need to assist in the coordination of development planning if there are multiple parcels and owners working together on a development project within softline areas to ensure that the biological and preserve design goals are met and individual property rights are addressed. As softline preserve areas are entitled and developed, the conserved areas will be reclassified as hardline (100% conservation) preserve areas as the conservation areas is placed under a conservation easements and set up with secure funding for in-perpetuity management (see Chapter 7, *Management and Monitoring*, for details). The City will track the status of development and conservation within each softline segment (using the Habitrak preserve gains/loss tracking system or similar tracking system) and provide updates as part of the annual reporting to the Wildlife Agencies.

There are two main areas of the Subarea Plan Area in which softline preserve areas have been identified. These include the North Magnolia and Mission Trails areas (Figure 5-1). Table 5-6 summarizes the amount of habitat acreage within the softline areas in each of these areas.

Table 5-6. Softline Preserve Areas Included in Subarea Plan Preserve System

Location	Total Acres of Natural Habitat within Softline Areas	Conserved Acres (75%) of Natural Habitat within Softline Areas
North Magnolia	227.6	170.7
Mission Trails	210.7	158.0
Totals:	**438.3**	**328.7**
Percentage of Subarea Plan Preserve System:		**10.7%**

5.3.2 Land Acquisition Opportunities

It is anticipated that land acquisition needed to complete the Subarea Plan Preserve System within the softline areas could be accomplished through the land entitlement process in which developers set aside a portion of their property as compensatory mitigation for approved project impacts. For all new projects within the softline areas, the City will require mitigation to also occur within the softline areas.

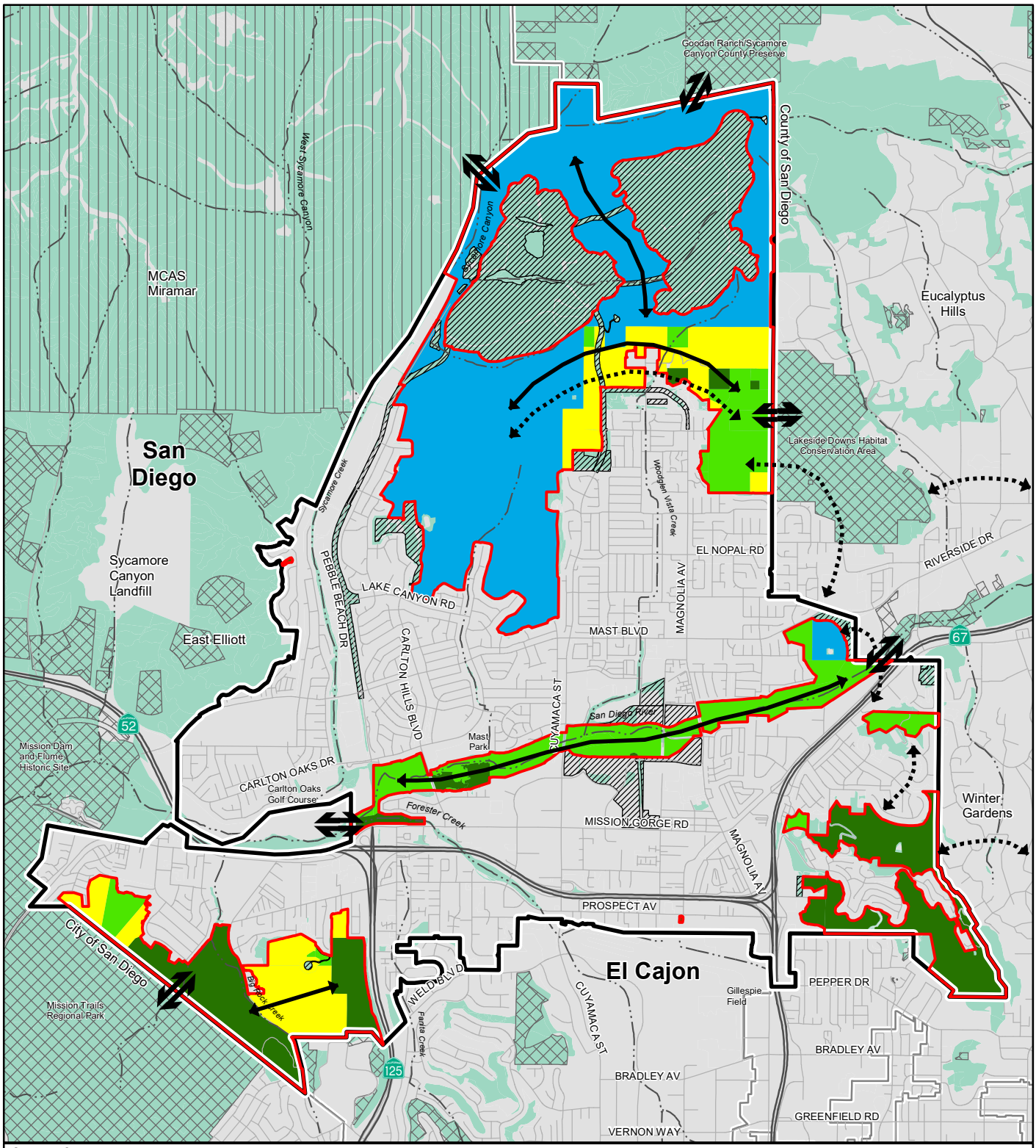
In addition to the land entitlement process, the overall conservation strategy and preserve assembly will benefit from additional acquisitions of conservation properties within the softlines areas that are not directly part of onsite compensatory mitigation of project impacts within the softline areas. The softline areas will be high-priority areas for additional land acquisitions either as offsite mitigation for projects elsewhere in the City, acquisition by the City using other funding mechanisms such as grants or in-lieu fees collected by the City, or other private/public land acquisitions for conservation purposes. These areas will be incorporated into the Subarea Plan Preserve System once placed under a conservation easement and managed in perpetuity consistent with the Subarea Plan management and monitoring requirements (see Chapter 7, *Management and Monitoring*).

5.3.3 Preserve System Habitat Connectivity and Connections

An important consideration in the configuration and functionality of the Santee Subarea Plan Preserve System is to maintain habitat linkages and wildlife movement corridors between adjacent critical biological resources areas. Much of the natural habitat in the Subarea Plan Area is highly fragmented due to previous agricultural use and more recent urban development, thus limiting the potential for north–south wildlife movement. However, large blocks of habitat remain that are adjacent to larger areas of valuable wildlife habitat. The habitat block in southwest Santee is contiguous with Mission Trails Regional Park, and the Fanita Ranch site contains a large, undeveloped habitat block adjacent to Marine Corps Air Station (MCAS) Miramar lands, City of San Diego, and County preserve areas. Riparian areas surrounding the San Diego River that make up the floodway serve as an east–west wildlife movement corridor. The remaining habitat in southeastern Santee, on Rattlesnake Mountain, is relatively isolated and surrounded by residential development but continues to function as habitat for the coastal California gnatcatcher using a stepping stone corridor of coastal sage scrub blocks of habitat.

Figure 5-2 highlights the relationship of the Subarea Plan Preserve System and important connections with blocks of open space surrounding the Subarea Plan Area and key habitat linkages and wildlife corridors within the Subarea Plan Area, including the following.

- Habitat connectivity connections to open space **adjacent to** the Subarea Plan Area.
    - Maintain habitat connections to open space on MCAS Miramar and Goodan Ranch/Sycamore Canyon County Preserve to the north of the Subarea Plan Area.
    - Maintain habitat connections to the Lakeside Downs Habitat Conservation Area (HCA) along the eastern border of the Subarea Plan Area.
    - Maintain habitat connection with Mission Trails Regional Park along southwestern border of Subarea Plan Area.
    - Maintain connections along the San Diego River linkage on the western and eastern edges for the Subarea Plan Area.
    - Protect and maintain blocks of coastal sage scrub on the eastern side of the Subarea Plan Area that function as a stepping stone linkage for coastal California gnatcatchers to nearby blocks of coastal sage scrub (e.g. Lakeside Linkages County Preserve) within a few miles east of the Subarea Plan Area.
- Habitat linkages/wildlife movement corridors **within** the Subarea Plan Area
    - Establish a wildlife movement corridor through the Fanita Ranch development that maintains north–south connectivity.
    - Establish and maintain wildlife movement functionality with east–west connectivity between open space in the southern portion of Fanita Ranch and the open space properties on the eastern portion of the Subarea Plan Area currently managed by CNLM and EHC.
    - Maintain habitat linkage and wildlife movement corridor along San Diego River.
    - Maintain habitat linkage from Mission Trail Regional Park and CNLM East Mesa HCA.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 5-2 Preserve Habitat Connectivity and Connections.mxd Date: 12/19/2018 34153

Figure 5-2
Preserve Habitat Connectivity and Connections
Santee MSCP Subarea Plan

- Protect and maintain blocks of coastal sage scrub on the eastern side of the Subarea Plan Area that function as a stepping stone linkage for coastal California gnatcatchers within the Subarea Plan Area from Rattlesnake Mountain to the EHC Cheyenne open space property.

These habitat connections, linkages, and wildlife corridors are described in more detail in Section 5.3.4, *Preserve System Subunits*.

5.3.4 Preserve System Subunits

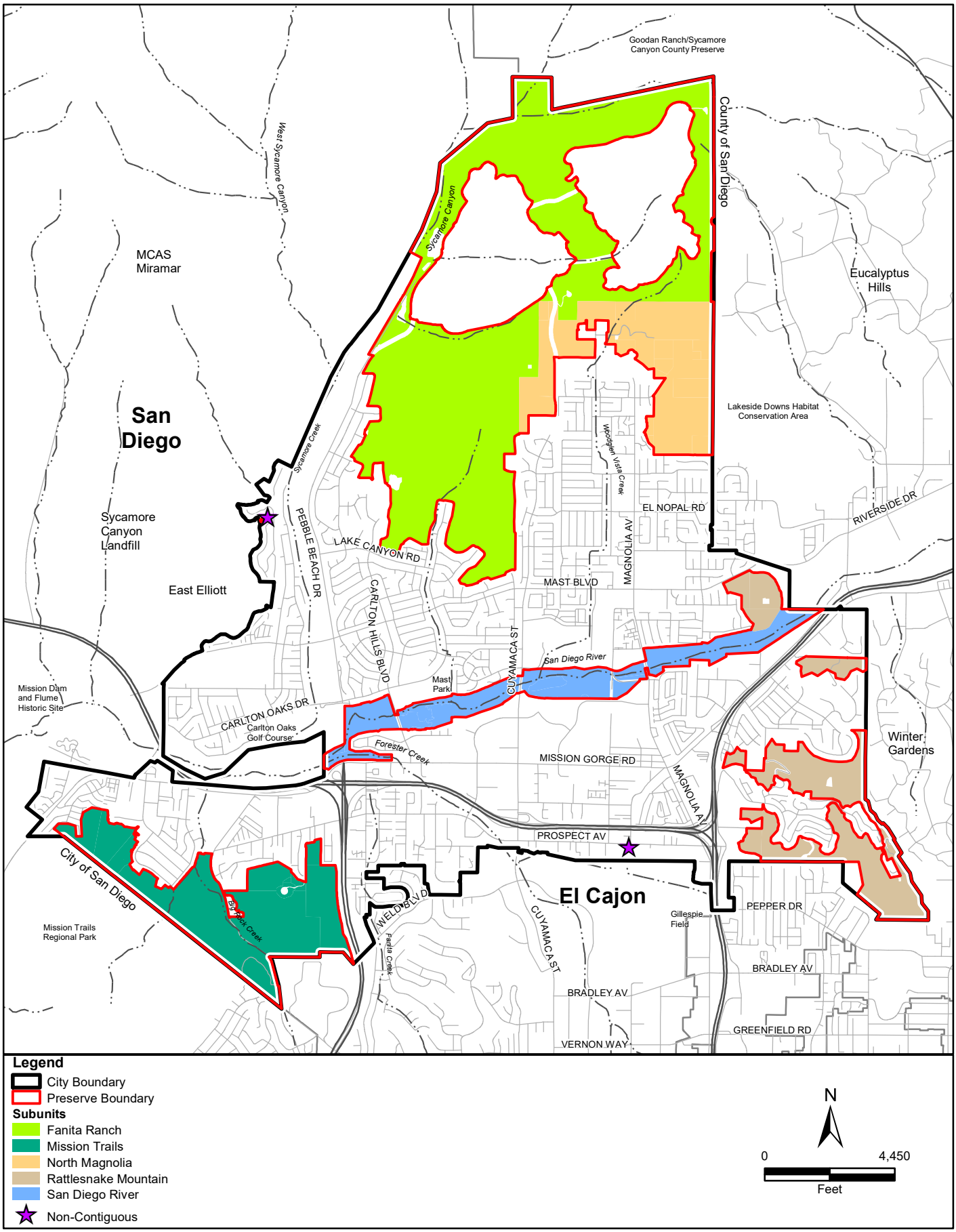
The Santee Subarea Plan Preserve System has been segmented into six subunits based on region, ownership, and habitat types to better highlight the goals and objectives for the Preserve System and steps for preserve assembly. The Preserve System subunits are shown in Figure 5-3, and Table 5-7 provides an overview of the natural habitat conserved for each subunit.

Table 5-7. Natural Habitat Conserved within Santee Subarea Plan Preserve System Subunits

Preserve Components	Mission Trails	Rattlesnake Mountain	North Magnolia	San Diego River	Fanita Ranch	Non-Contiguous	Totals
Existing Preserves and Fully Managed	250.3	306.5	18.4	37.5	-	1.3	614.0
Currently Protected Open Space—Not Fully Managed	34.1	53.3	167.3	246.3	-	-	501.0
Future Preserves100% (Hardlines)	-	27.0	-	-	1,589.4	-	1,616.4
Future Preserves 75% (Softline Area)	210.7	-	227.6	-	-	-	438.3
Totals Within the Subarea Plan Preserve System	**495.1**	**386.8**	**413.3**	**283.8**	**1,589.4**	**1.3**	**3,169.7**
Conserved Acres Within the Preserve System	**442.4**	**386.8**	**356.4**	**283.8**	**1,589.4**	**1.3**	**3,060.1**

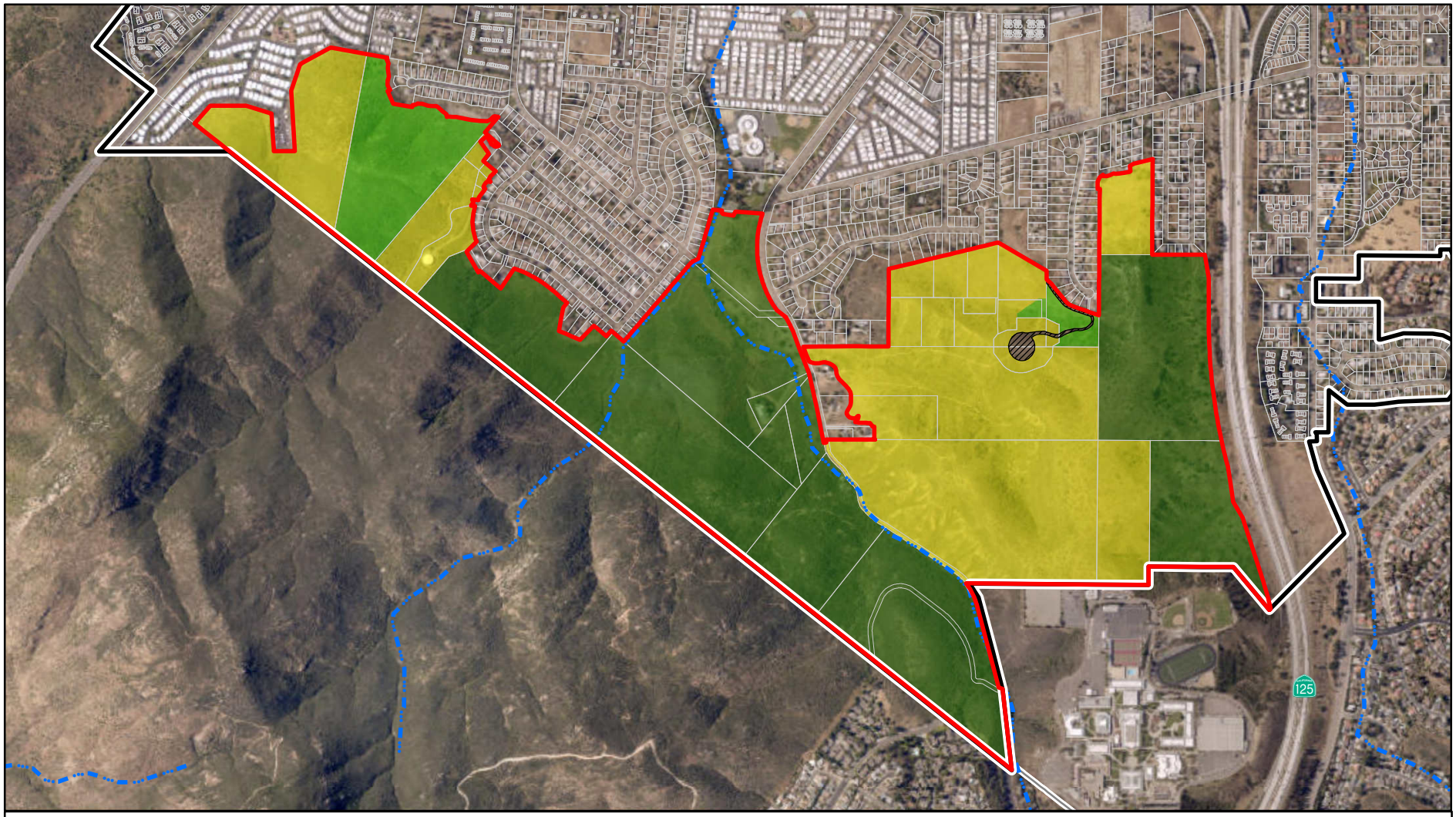
5.3.4.1 Mission Trails Subunit

The Mission Trails subunit (Figure 5-4) is located in the southwestern portion of the Subarea Plan Area adjacent to the Mission Trail Regional Park (MTRP). It includes relatively steep terrain that is connected with Cowles Mountain area of MTRP. The natural vegetation within this subunit includes mostly coastal sage scrub, chaparral, and grasslands (in addition to a vernal pool complex just north of Grossmont College). Table 5-8 summarizes the acreage of vegetation communities within the Mission Trails subunit of the Subarea Plan Preserve System.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Figure 5-3 Subunits.mxd Date: 12/19/2018 34153

Figure 5-3
Preserve Subunits
Santee MSCP Subarea Plan



Legend

- City Boundary
- Mission Trails Subunit
- Pending and Known Development Projects
- Rivers/Streams/Creeks

Preserve Type

- Existing Preserves and Fully Managed
- Currently Protected Open Space - Not Fully Managed
- Future Preserves 100% (Hardlines)
- Future Preserves 75% (Softline Area)

N

0 1,410

Feet

Basemap Source: SANDAG Imagery 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Subunits\Figure 5-4 Mission Trails Subunit.mxd Date: 12/19/2018 34153

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Figure 5-4
Mission Trails Subunit
Santee MSCP Subarea Plan

Table 5-8. Acreage of Vegetation Communities within Mission Trails Subunit

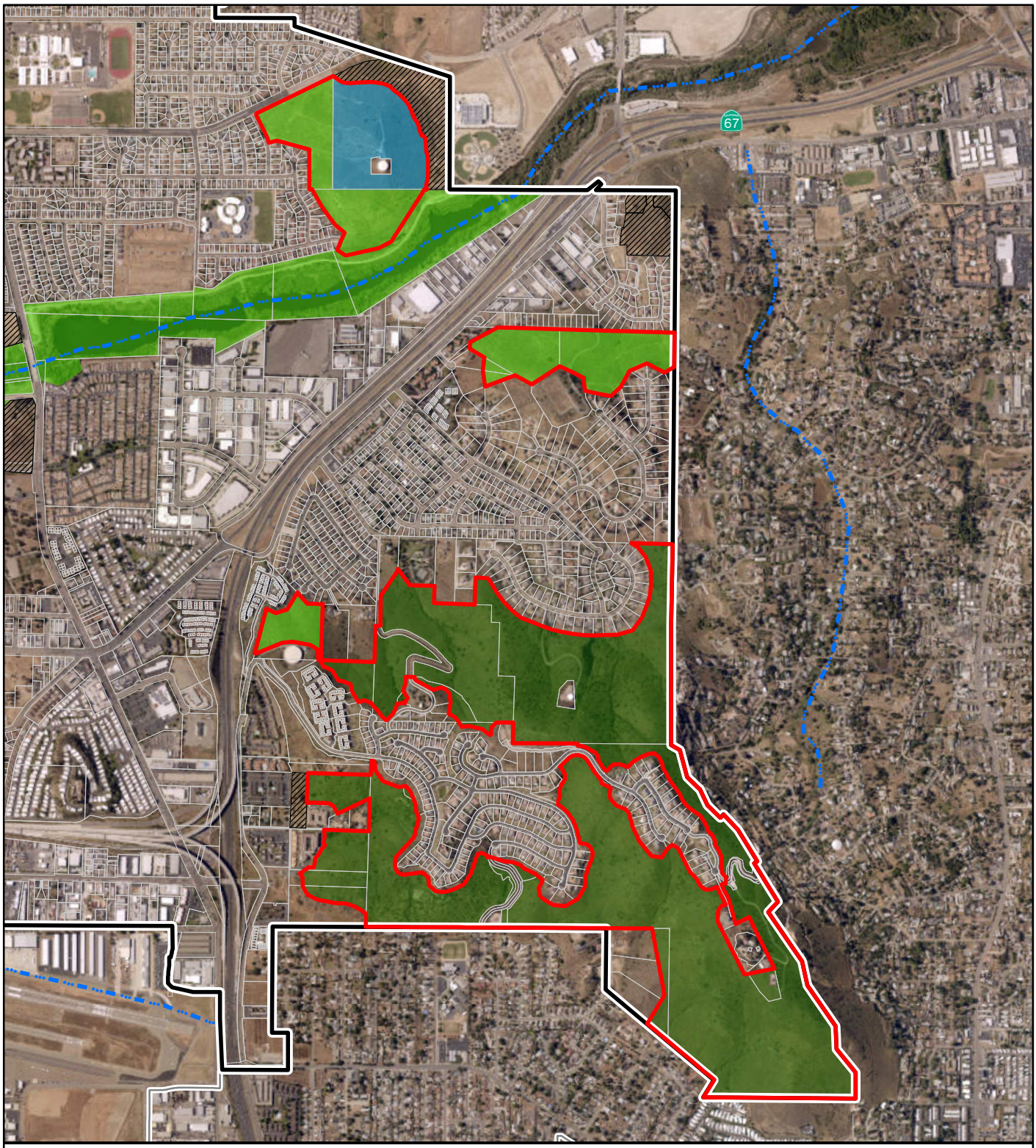
Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Coastal Sage Scrub	53.1	32.2	-	173.1	258.4
Chaparral	167.8	0.8	-	14.2	182.8
Grassland	27.1	1.1	-	23.1	51.3
Riparian	2.3	-	-	0.3	2.6
Totals Within the Mission Trails Subunit	**250.3**	**34.1**	**-**	**210.7**	**495.1**
Conserved Acres Within Subunit	**250.3**	**34.1**	**-**	**158.0**	**442.4**

The primary preserve goals and issues in this subunit are as follows.

- The majority of the Mission Trails subunit includes a portion of the MTRP that extends into the Subarea Plan Area. The City will coordinate with the City of San Diego Parks Department responsible for managing the MTRP to coordinate on issues of trails, public access, edge effects, and fire management. Trail development and improvements within the Santee portion of the MTRP are listed as Covered Activities under this Subarea Plan, although the City of San Diego has been primary steward for the trail management and monitoring and mitigation of biological impacts in conjunction with the implementation of the MTRP Master Plan.
- There are two blocks of existing habitat preserves (MTRP and the CNLM East Mesa HCA) that are separated by privately-held land designated as softline preserve area. The City will coordinate with future project developer(s) to design projects in this area to avoid disruption of wildlife movement corridors or habitat linkages into and through this subunit. Development should not constrict wildlife movement corridors or habitat linkages to less than 1,000 feet wide. Where project siting cannot avoid constricting a corridor or linkage to less than 1,000 feet, a minimum width of 400 feet must be maintained over a length not to exceed 500 feet (see Section 5.5.2, *Wildlife Corridor and Wildlife Crossing Structure Criteria*).
- Evaluate quality and functions of vernal pool habitat within the subunit that is located near Grossmont College. Protect vernal pool dependent Covered Species and vernal pool watersheds by controlling edge effects, limiting human impacts, and applying avoidance and minimization measures consistent with the Subarea Plan.
- Maintain connectivity with the adjacent open space areas of MTRP.

5.3.4.2 Rattlesnake Mountain Subunit

The Rattlesnake Mountain Subunit (Figure 5-5) includes the undeveloped lands in the southeastern portion of the City near SR-67. Natural vegetation on these lands is dominated by coastal sage scrub. Table 5-9 summarizes the acreage of vegetation communities within the Rattlesnake Mountain subunit of the Subarea Plan Preserve System.



Legend

- City Boundary
- Rattlesnake Mountain Subunit
- Pending and Known Development Projects
- Rivers/Streams/Creeks

Preserve Type

- Existing Preserves and Fully Managed
- Currently Protected Open Space - Not Fully Managed
- Future Preserves 100% (Hardlines)
- Future Preserves 75% (Softline Area)

N

0 1,650

Feet

Basemap Source: SANDAG Imagery 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Subunits\Figure 5-5 Rattlesnake Mountain Subunit.mxd Date: 12/19/2018 34153

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Figure 5-5
Rattlesnake Mountain Subunit
Santee MSCP Subarea Plan

Table 5-9. Acreage of Vegetation Communities within Rattlesnake Mountain Subunit

Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Coastal Sage Scrub	297.4	53.3	27.0	-	377.7
Grassland	8.5	<0.1	-	-	8.5
Riparian	0.6	-	-	-	0.6
Totals Within the Rattlesnake Mountain Subunit	**306.5**	**53.3**	**27.0**	**-**	**386.8**
Conserved Acres Within Subunit	**306.5**	**53.3**	**27.0**	**-**	**386.8**

The primary preserve goals and issues in this subunit are as follows.

- Protect and manage the blocks of coastal sage that function as a stepping-stone corridor for the coastal California gnatcatcher. This stepping-stone corridor connects habitat on Rattlesnake Mountain with habitat to the north in the Subarea Plan Area, as well as probable stepping-stone linkage to gnatcatcher populations to the southeast (slopes of east El Cajon near Crest and Dehesa).
- Protect habitat to support coastal sage scrub-dependent Covered Species.

5.3.4.3 San Diego River Subunit

The San Diego River Subunit (Figure 5-6) includes the undeveloped lands along the San Diego River. The majority of this natural habitat is riparian, although there is also grassland, unvegetated channel, and other non-riparian habitat as part of a buffer along the riparian corridor. Table 5-10 summarizes the acreage of vegetation communities within the San Diego River Subunit of the Subarea Plan Preserve System.

Table 5-10. Acreage of Vegetation Communities within San Diego River Subunit

Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Coastal Sage Scrub	<0.1	13.5	-	-	13.5
Grassland	1.4	17.1	-	-	18.5
Riparian	36.0	151.6	-	-	187.6
Freshwater Marsh	-	15.5			15.5
Disturbed Wetland	<0.1	-			<0.1

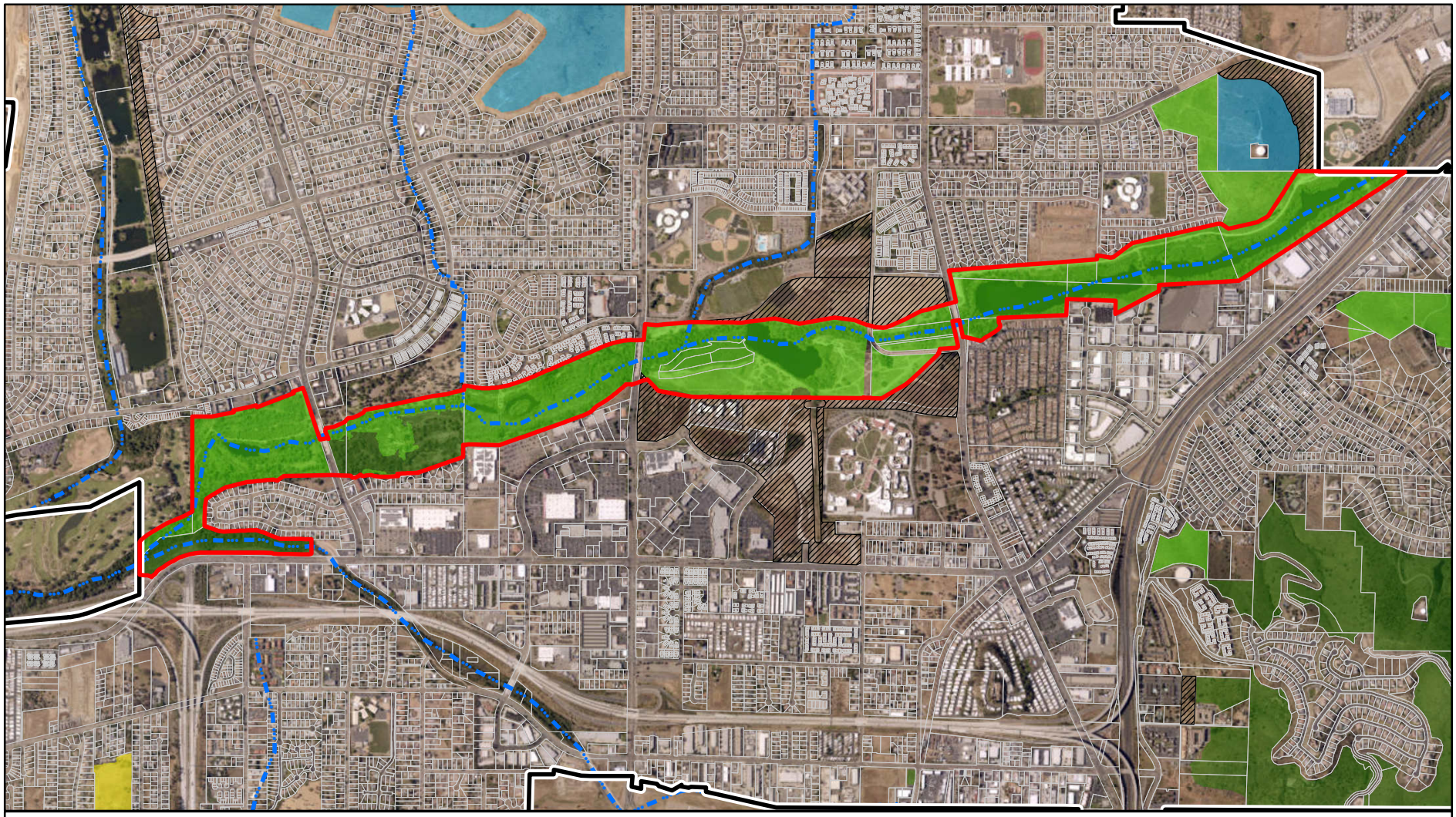

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Figure 5-6
San Diego River Subunit
Santee MSCP Subarea Plan

Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Freshwater (Open Water)	-	48.6	-	-	48.6
Non-Vegetated Channel or Floodway	-	<0.1	-	-	<0.1
Totals Within the San Diego River Subunit	**37.5**	**246.3**	**-**	**-**	**283.8**
Conserved Acres Within Subunit	**37.5**	**246.3**	**-**	**-**	**283.8**

The primary preserve goals and issues in this subunit are as follows.

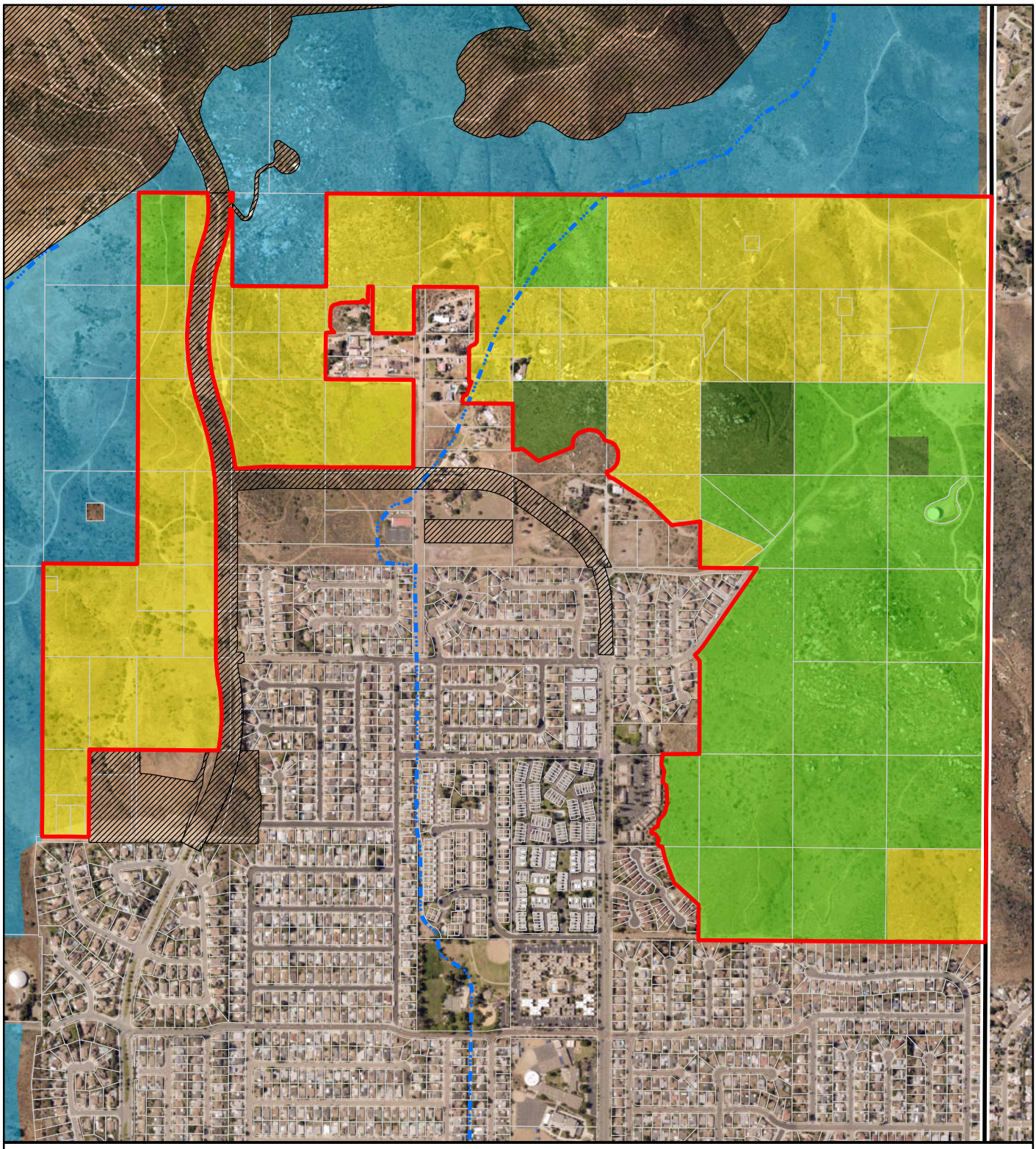
- Protect habitat to support riparian-dependent species, including least Bell's vireo, covered by the Subarea Plan.
- Preserve existing habitat quality and restore degraded habitat through management and enhancement efforts.
- Establish a trail system that balances recreational needs with protection of biological resources.
- Maintain a functional east–west habitat linkage through the Subarea Plan Area by maintaining the floodway width of the main channel of the San Diego river.
- Reduce edge effects and minimize disturbance during the nesting season.

5.3.4.4 North Magnolia Subunit

The North Magnolia Subunit (Figure 5-7) includes the undeveloped lands east and west of Summit and North Magnolia Avenues, but does not include land on Fanita Ranch. It includes relatively steep terrain. The natural vegetation within this subunit includes mostly coastal sage scrub, chaparral, and grasslands. Table 5-11 summarizes the acreage of vegetation communities within the North Magnolia subunit of the Subarea Plan Preserve System.

Table 5-11. Acreage of Vegetation Communities within North Magnolia Subunit

Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Coastal Sage Scrub	18.4	158.7	-	213.3	390.4
Chaparral	-	7.0	-	5.9	12.9
Grassland	-	1.3	-	8.4	9.7
Coast Live Oak Woodland	-	0.3	-		0.3



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\Figures\Subunits\Figure 5-7 North Magnolia Subunit.mxd Date: 12/19/2018 34153

Figure 5-7
North Magnolia Subunit
Santee MSCP Subarea Plan

Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Totals Within the North Magnolia Subunit	**18.4**	**167.3**	**-**	**227.6**	**413.3**
Conserved Acres Within Subunit	**18.4**	**167.3**	**-**	**170.7**	**356.4**

The primary preserve goals and issues in this subunit are as follows.

- Coordinate planning in softline areas. Coordinated planning will further the goals of this subunit due to the large number of small parcels and the importance of maintaining a functioning wildlife linkage through this area to connect the northeast and southwest portions of the Fanita Ranch subunit.
- Site new development to avoid disruption of wildlife movement corridors or habitat linkages into and through this subunit. Development should not constrict wildlife movement corridors or habitat linkages to less than 1,000 feet wide. Where project siting cannot avoid constricting a corridor or linkage to less than 1,000 feet, a minimum width of 400 feet must be maintained over a length not to exceed 500 feet.
- Collaborate with property owners and land managers to identify and implement a set of connected trails that allows for managing public access and recreational use that is consistent with the goal of species and habitat protection.
- Coordinate with land managers of currently protected open space to expand and organize management and monitoring actions.
- Protect and enhance habitat to support Covered Species by requiring conservation of chaparral and coastal sage scrub.
- Maintain connectivity with the Subarea Plan Preserve System in the Fanita Ranch subunit (to the west and north) and the Lakeside Downs HCA to the east.

5.3.4.5 Fanita Ranch Subunit

The Fanita Ranch subunit (Figure 5-8) includes open space to be set aside as a habitat preserve as part of the Fanita Ranch development. The subunit will represent over half of the Santee Subarea Plan Preserve System and include habitat for a number of Covered Species. Natural vegetation occurring on Fanita Ranch includes coastal sage scrub, native and nonnative grasslands, chaparral, and some riparian habitats. Table 5-12 summarizes the acreage of vegetation communities within the Fanita Ranch subunit of the Subarea Plan Preserve System.

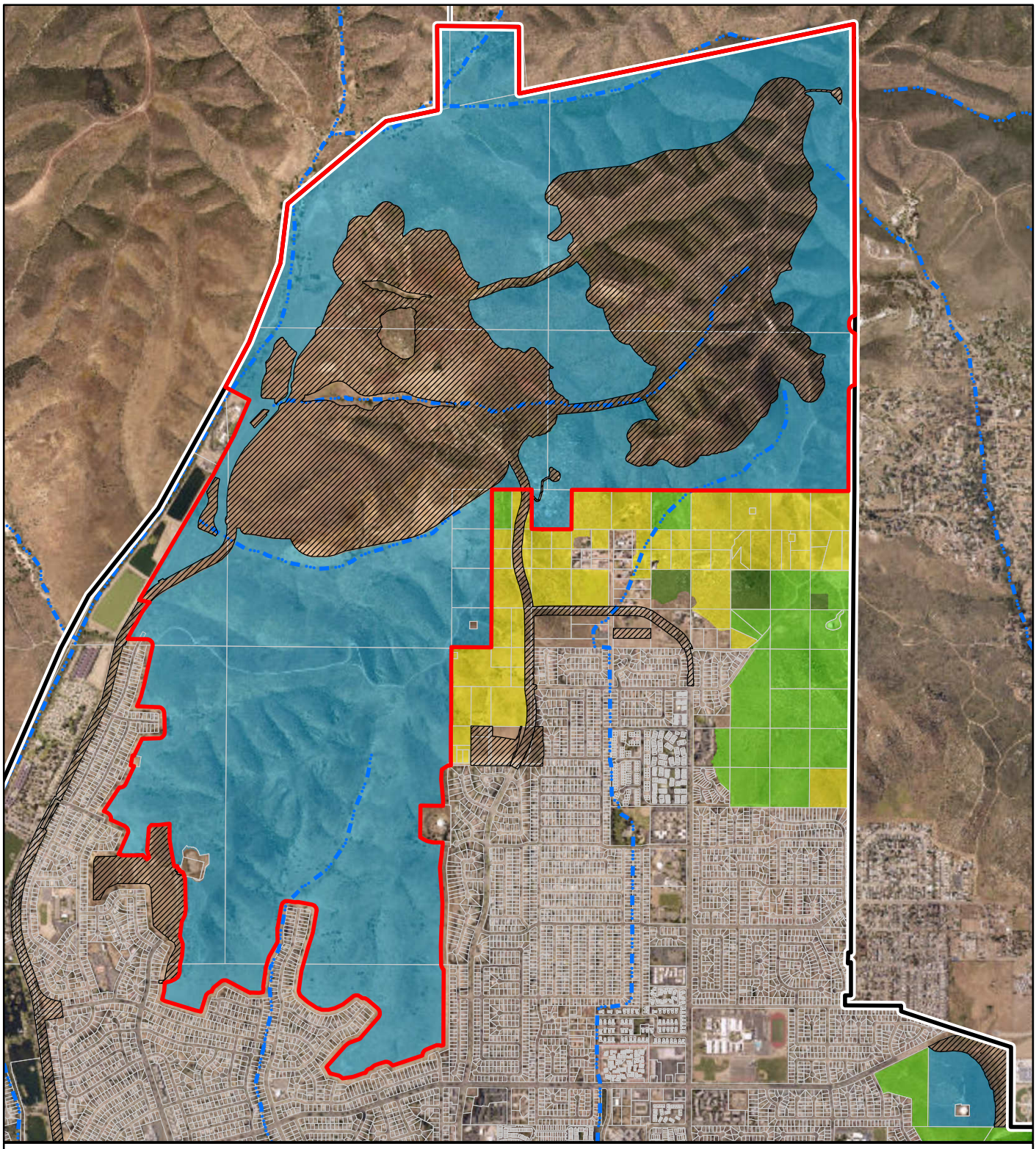


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Figure 5-8
Fanita Ranch Subunit
Santee MSCP Subarea Plan

Table 5-12. Acreage of Vegetation Communities within Fanita Ranch Subunit

Vegetation Communities	Existing Preserves and Fully Managed	Currently Protected Open Space - Not Fully Managed	Future Preserves 100% (Hardlines)	Future Preserves 75% (Softline Area)	Totals
Coastal Sage Scrub	-	-	1,052.4	-	1,052.4
Chaparral	-	-	293.9	-	293.9
Grassland	-	-	206.5	-	206.5
Coast Live Oak Woodland	-	-	26.2	-	26.2
Riparian	-	-	4.0	-	4.0
Vernal pool	-	-	0.4	-	0.4
Disturbed Wetland	-	-	0.1	-	0.1
Non-vegetated channel/floodway	-	-	5.9	-	5.9
Totals Within the Fanita Ranch Subunit	**-**	**-**	**1,589.4**	**-**	**1,589.4**
Conserved Acres Within Subunit	**-**	**-**	**1,589.4**	**-**	**1,589.4**

The primary preserve goals and issues in this subunit are as follows.

- Protect and enhance habitat to support Covered Species by requiring conservation of chaparral, coastal sage scrub, and vernal pools.
- Maintain a north-south wildlife movement corridor (with functional wildlife crossing) through the Fanita Ranch property.
- Maintain connectivity with the Subarea Plan Preserve System in the North Magnolia subunit, open space areas on MCAS Miramar (to the west), and in the County (to the north and east).
- Provide management and restoration of habitat to offset impacts to Covered Species and their habitats.
- Reduce edge effects and minimize disturbance during the nesting season.
- Implement a managing public access program that allows trail use within the preserve area that is consistent with the goal of species and habitat protection.
- Implement fire protection measures to reduce the potential for habitat degradation due to unplanned fire.

5.3.4.6 Non-Contiguous Areas Subunit

There are non-contiguous habitat preserve areas (Weston Vernal Pool Complex and Railroad Avenue Ambrosia Conservation Easement) established for the protection of rare plant and vernal pool populations (Figure 5-9). Natural vegetation occurring on these preserves includes 1.3 acres of grassland.

The primary preserve goal for this subunit is as follows.

- Protect and enhance habitat to populations of narrow endemic plants and vernal pools.

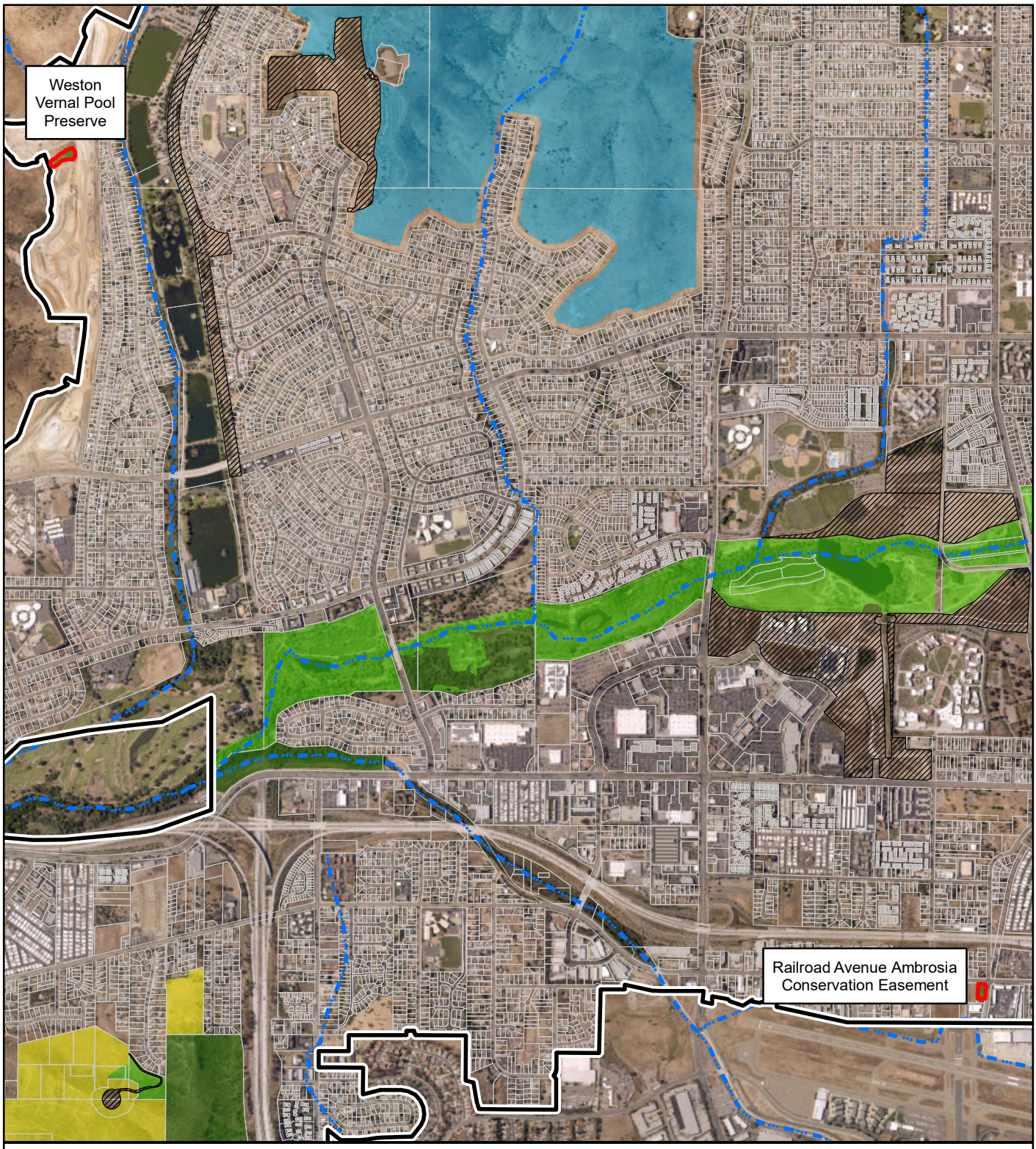

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Figure 5-9
Non-Contiguous Areas Subunit
Santee MSCP Subarea Plan

5.3.5 Relationship with Other Habitat Conservation Plans

The following describes the Santee Subarea Plan relationship with other conservation plans in the region.

5.3.5.1 San Diego Gas & Electric NCCP/HCP

The approved San Diego Gas & Electric (SDG&E) NCCP/HCP (SDG&E 1995) addresses potential impacts on sensitive species and/or habitats associated with SDG&E's on-going operation and management of its gas and electric systems throughout the SDG&E service area. As part of the SDG&E NCCP/HCP, SDG&E has been issued an incidental take permit by USFWS (Permit PRT-809637) and an NCCP permit by CDFG (Permit 2835-1995-79-5) for 110 Covered Species. SDG&E manages its operations to avoid potential impacts and provide appropriate mitigation where such impacts are unavoidable. In situations where SDG&E transmission lines extend over habitat preserve lands, SDG&E works with the underlying land management entity to address impacts on biological resources. For all temporary impacts on biological resources/habitats caused by SDG&E within the SDG&E rights-of-way or easements within habitat preserve areas, SDG&E must reseed the impact area per the requirements in SDG&E's approved NCCP/HCP and ensure that natural vegetation re-establishes itself within 3 years. The underlying land management entity will then be responsible for managing those impact areas over the long-term by keeping invasive weeds from invading the impacted areas and ensuring that the native vegetation remains intact. Any permanent impacts resulting from SDG&E facilities within a habitat preserve area will be mitigated at twice the appropriate mitigation ratios. Overall, the SDG&E power line easements do not fragment potential preserve areas and can be considered part of the Santee Subarea Plan Preserve System.

Existing SDG&E transmission facilities in the Subarea Plan Area are as follows.

- A 150-foot wide easement for electrical power transmission lines that traverses Santee in an east–west direction (Mission-Miguel Line). The easement runs through the natural habitat at the northern terminus of Magnolia Avenue in the North Magnolia Subunit and then crosses the Fanita Ranch subunit.
- A 20-foot wide easement is located behind existing residences on Ramsgate Drive. At Ramsgate Drive, the transmission line facility traverses hilly terrain and natural habitat that is located within the "Tank Hill" area that is part of the Rattlesnake Mountain subunit.

These easements can be included in the Subarea Plan Preserve System where they overlap the preserve boundaries because the Subarea Plan will add a level of habitat management where none exists; however, the operation and maintenance actions of SDG&E are only covered by the SDG&E NCCP and are not covered by the Subarea Plan.

5.3.5.2 Existing Preserve Management Plans

As described in Section 5.3.1.1, *Existing Preserves, Fully Managed*, there are 13 properties that are existing preserves that are being actively managed following existing PMPs that have been reviewed and approved by the Wildlife Agencies. These existing preserves will become part of the Subarea Plan Preserve System and the City will collaborate with the Preserve Managers to address ongoing management issues. Inclusion of these properties into the Subarea Plan Preserve System will not create additional management and monitoring responsibilities that result in an increase of funding obligations.

5.4 Conservation Measure 2—Manage and Enhance Preserve System

Implementation of the Santee Subarea Plan will result in the establishment of an approximately 3,000-acre Preserve System designed to protect and maintain natural habitat and support Covered Species and their habitats. As described in Section 5.3, *Conservation Measure 1—Establish Preserve System,* the Subarea Plan Preserve System will be assembled through a coordinated effort to combine existing preserves and protected open space with future acquisitions and land dedications into an overall Preserve System. There will be multiple land owners within the Preserve System boundaries, and each land owner will have a Preserve Manager responsible for the day-to-day management and monitoring of their properties. The City will be responsible for the management and monitoring of properties with the Preserve System owned in fee title by the City (approximately 6% of the Preserve System). The large majority of the Preserve System will be managed by the other public entities, private landowners, and/or third-party land management entities.

An important element of the Santee Subarea Plan is to improve, expand, and make more consistent the level of management and monitoring across the Subarea Plan Preserve System. This will be accomplished through the following actions.

- Define Management and Monitoring Requirements on Individual Preserve Properties (Section 5.4.1)—The Subarea Plan sets forth guidelines and requirements for how individual preserve properties within the Subarea Plan Preserve System will be managed and monitored.
- City Role for Oversight and Coordination of Preserve System (Section 5.4.2)—As part of the Subarea Plan implementation, the City will define staff positions with the role and responsibility to provide oversight and coordination of the overall Subarea Plan Preserve System.
- Create Opportunities and Incentives to Increase the Level of Management and Monitoring (Section 5.4.3)—A component of the Preserve System assembly involves the inclusion of properties that are currently protected as open space, but are not fully managed. Implementation of the Subarea Plan will create opportunities and incentives to increase, over time, the level of management and monitoring on these properties.

5.4.1 Management and Monitoring Requirements on Individual Preserves Properties

For each individual preserve property within the Subarea Plan Preserve System, the Subarea Plan defines expectations and requirements for management and monitoring. Each property should meet the following requirements.

- Be managed for protection of wildlife.
- Have an irrevocable land protection mechanism (conservation easement, Restrictive Covenant, or equivalent land protection mechanism) recorded.
- Have a completed and approved (by the City) a PMP.
- Conduct management and monitoring including general stewardship, control of public access, monitoring of Covered Species and their habitats, management of sensitive biological resources, and control of invasive species.

- Have secure long-term funding for management and monitoring.
- Provide annual reports to the City and Wildlife Agencies.

Section 7.2, *Preserve Management and Monitoring*, defines the management and monitoring requirements in more detail.

5.4.2 City Role for Overview and Coordination of Preserve System

The City will be responsible for administration and overall implementation of the Subarea Plan. This will include an active role by the City to provide oversight and coordination of the management and monitoring activities undertaken by each of the Preserve Managers operating within the Subarea Plan Preserve System. The City will staff two positions—Subarea Plan Coordinator and Preserve Steward—focused on the administration and oversight of the Subarea Plan Preserve System. These two roles will be staffed with a combination of in-house staff and/or a contractor as appropriate.

The **Subarea Plan Coordinator** will function as the main point of contact for issues relating to the Subarea Plan implementation and serve as the liaison between City departments, private landowners, Wildlife Agencies, other public agencies, and the general public to a facilitate the management and monitoring of the Subarea Plan Preserve System as well as other Subarea Plan administration issues.

The **Preserve Steward** will have a direct role in the oversight and coordination of activities within the Subarea Plan Preserve System. This position will undertake the following responsibilities.

- Be the primary point of contact and the coordinator for overseeing all preserve management and monitoring issues within the City.
- Oversee management and monitoring on all City-owned properties within the Subarea Plan Preserve System.
- Meet with the collection of Preserve Managers in the City annually to discuss coordination of city-wide management issues. Meet with Preserve Managers individually as needed to ensure implementation of individual PMPs, review status of potential threats and other issues of concern, coordinate enforcement, and address adaptive management activities, funding issues, edge effects.
- Coordinate with Preserve Managers, Wildlife Agencies, and other regional monitoring entities (e.g. SDMMP) to facilitate regional monitoring efforts to help reduce costs through the sharing of resources and ensuring access to properties within Subarea Plan Preserve System.
- Gather information from the individual Subarea Plan Preserve Managers, City staff, and other entities as needed for Subarea Plan compliance monitoring and effectiveness monitoring.
- Update the City's biological resource database as biological data is acquired for future projects to fill information gaps on a project-by-project basis.
- With citation authority, be responsible for coordination of enforcement within the Preserve (other duties may be included if compatible, such as trail patrol within City parks).

Both the Subarea Plan Coordinator and the Preserve Steward will be responsible for coordinating on the following tasks.

- Pursue grant funding opportunities to implement actions to improve and enhance management of the Subarea Plan Preserve System from a city-wide perspective. This may include activities such as control cowbirds, improvement to public access control and enforcement, restoration of habitat for Covered Species, and/or regional invasive species removal.
- Prepare annual reports for submittal to the Wildlife Agencies and organize an annual meeting with the Wildlife Agencies and/or annual public workshop.
- Meet regularly (annually, at a minimum) with Wildlife Agencies to discuss issues of concern, such as Subarea Plan implementation, conservation issues, land acquisition, financial integrity of the Subarea Plan, new and/or potential funding sources, issues regarding new developments, effectiveness of the Subarea Plan to fulfill its conservation goals, and the regional MSCP Biological Monitoring Program, once it is established.
- Coordinate with MSCP jurisdictions and other San Diego County NCCP/HCP subregional planning jurisdictions to discuss NCCP/HCP implementation, regional monitoring, and status of Covered Species and habitats. Discussions should include consistency of monitoring protocols, data collection methods, and data management.
- Coordinate with appropriate City departments (e.g., Community Services, Fire, and Public Works), Preserve Managers, local groups, and HOAs to develop public outreach program to educate the public about land stewardship, edge effects, local plants and animals, and other pertinent conservation issues.

Section 8.2, *Roles and Responsibilities*, and Section 8.4, *Subarea Plan Funding* further address the approach for staffing and funding of these positions.

5.4.3 Create Opportunities and Incentives to Increase Management and Monitoring

Approximately 16% of the Subarea Plan Preserve System consists of properties that are currently protected as open space but are not fully managed. The rest of the Preserve System includes properties that are existing preserves that are fully managed or will be future preserve properties (within hardline and softline areas) that will be established as fully managed when they are established as part of the Subarea Plan Preserve System. Through implementation of the Subarea Plan, the City will work to increase the level of management and monitoring on the currently protected, but not fully managed properties. This will involve the following actions.

- The City will maintain an inventory of the status of the currently protected, but not fully managed properties within the Subarea Plan Preserve System. The City will identify and coordinate with the property owners to determine if there are basic general stewardship actions (e.g. installation of a gate to prevent trash dumping and trespassing) that can be undertaken within existing funding constraints. The City will provide an update within the Subarea Plan annual report on the status and progress for each property.
- The City will pursue grant funding opportunities to address one-time and/or permanent management and monitoring actions on these properties.
- As part of the implementation of the Subarea Plan, the City will establish a Subarea Plan Conservation Fund (see Section 8.4.2, *Funding Sources*). The Subarea Plan Conservation Fund will allow development projects (generally smaller projects with less biological impacts or fewer

opportunities to mitigate onsite) to mitigate offsite by paying into a fund used to acquire, maintain, and/or manage the preservation of sensitive biological resources within the Subarea Plan Preserve System. The City can determine that the Conservation Fund can be used to fund additional management and monitoring on properties that are currently protected as open space, but not fully managed.

- Through the implementation of this Subarea Plan, the City will allow mitigation credits to be generated and used to offset impacts to biological resources through the funding of additional management and monitoring of properties that are currently protected open space, but not fully managed. The determination of conservation credits will based on the following.
  - Funding must result in a property (or portion of a property) to achieve a full level of management and monitoring compliant with the requirements of the Subarea Plan (see Section 7.2, *Preserve Management and Monitoring*).
  - Conservation credits will be no more than 50% of the acres of natural habitat of the property.
  - If a property currently has some level of existing management (e.g., general stewardship only) but does not meet the full level of management and monitoring required under the Subarea Plan, the amount of conservation credits will be discounted as determined by the reduction of funds needed to achieve a full level of management and monitoring. Table 5-13 provides example calculations to demonstrate how conservation credits will be determined by the City based on additional funding provided for management and monitoring.

Table 5-13. Example Calculations of Conservation Credits Achieved through Funding Management and Monitoring

Currently Protected, But Not Fully Managed Property	Acres of Natural Habitat	Level of Existing Management and Monitoring	Additional Funding Needed to Achieve Management and Monitoring Compliant within Subarea Plan	Conservation Credits
Scenario A	10.0 CSS 2.0 Riparian 12.0 Total	None	$100,000	5.0 CSS 1.0 Riparian 6.0 Total
Scenario B	10.0 CSS 2.0 Riparian 12.0 Total	Partial	$50,000	2.5 CSS 0.5 Riparian 3.0 Total

5.5 Conservation Measure 3—Avoidance, Minimization, and Mitigation

This Section describes the avoidance and minimization measures to be implemented for all Covered Activities and discretionary projects undertaken within the Subarea Plan Area that have the potential to result in take of Covered Species and/or their habitat. Avoidance and minimization of effects on Covered Species and their habitats will be implemented through a process that verifies that project implementation adhere to a set of protection measures outlined in this Section. If impacts are unavoidable, this section outlines the appropriate mitigation measures required to offset impacts.

5.5.1 Avoidance and Minimization

The Subarea Plan includes measures to minimize take of Covered Species. Avoidance and minimization of effects on Covered Species and their habitats will be implemented through a process that verifies that development activities undertaken as part of Covered Activities adhere to a set of protection measures. The avoidance and minimization measures are requirements that will be evaluated and implemented on a project-by-project basis for each Covered Activity. The City will be responsible for reviewing project-specific environmental documents, per environmental compliance requirements (e.g., CEQA and/or NEPA), in which avoidance and minimization measures will be identified. These measures will include avoidance and minimization of sensitive biological areas, conformance with nesting bird protections, and stormwater and water quality BMPs.

5.5.1.1 Avoidance and Minimization of Sensitive Biological Resources

Prior to final design of a development project, the project proponent will complete project-specific biological surveys to identify biologically sensitive areas within the Covered Activity footprint, as required under the Subarea Plan. These surveys are typically completed as part of the preparation of the project environmental compliance documentation (CEQA/NEPA) or permitting process. The biological surveys will include, at a minimum, an initial field survey to map natural communities and determine if potential habitat of Covered Species exists within the project area. These biological surveys will produce a Biological Resources Technical report completed during the planning development phase of each of a project. Based on the results of the field surveys, the project proponent will identify and implement appropriate adjustments to project design and scheduling to avoid and minimize effects on biological resources while taking into consideration the degree of sensitivity of biological resources within the project area. Habitat types with a higher degree of sensitivity, such as rare/limited vegetation types (e.g., native grasslands, cactus scrub) and riparian/wetland features, will be avoided if possible.

Standard BMPs that will be implemented to avoid and minimize impacts on biological resources will include, but not be limited to:

- **Delineation of Environmentally Sensitive Areas.** Prior to clearing or construction, highly visible barriers (such as orange construction fencing, stakes, or flagging) will be installed around areas adjacent to the project footprint to designate environmentally sensitive areas to be protected. No project activity of any type will be permitted within these environmentally sensitive areas. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the environmentally sensitive areas. All construction equipment will be operated in a manner so as to prevent accidental damage to environmentally sensitive areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed, as appropriate, at the environmentally sensitive area boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities.
- **Restoration of Temporary Impacts.** Areas of natural habitat that are temporarily affected by construction activities will be restored to a natural condition. The restoration effort will emulate surrounding vegetation characteristics and/or return to previous conditions. Revegetation plans will be completed as part of the project design for review and approval by the City.
- **Invasive Species Control.** Invasive species will be removed from the project work area and controlled during construction. The use of known invasive plant species (i.e., plant species listed

in California Invasive Plant Council's [Cal-IPC's] California Invasive Plant Inventory with a High or Moderate rating) will be prohibited for construction, revegetation, and landscaping activities. Project measures will be included to ensure invasive plant material is not spread from the project site to other areas by disposal off site or by tracking seed on equipment, clothing, and shoes. Equipment/material imported from an area of invasive plants must be identified and measures implemented to prevent importation and spreading of nonnative plant material within the project site. All construction equipment will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving to and leaving the project site. Eradication strategies (i.e., weed abatement programs) will be employed should an invasion occur during construction.

- **Trash Control**. To avoid attracting predators of Covered Species and other sensitive species, the project site will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site(s).
- **Onsite Training.** When in or near natural habitat areas, all personnel involved in the onsite project construction will be required to participate in a preconstruction training program to understand the avoidance and minimization obligations on the project.
- **Construction Monitoring.** A qualified biologist will monitor construction activities when necessary, as determined during the project-specific environmental review, for the duration of the project to ensure that practicable measures are being employed to avoid and minimize incidental disturbance of habitat and Covered Species inside and outside the project footprint. Opportunities to further avoid and minimize impacts on Covered Species will be explored.

5.5.1.2 Conformance with Nesting Birds Regulations

The City will ensure implementation of Covered Activities conforms to existing regulations and procedures for protection of nesting birds. Migratory native bird species are protected by international treaty under the MBTA of 1918 (see Section 1.3.2.4, *Migratory Bird Treaty Act*). Proposed development activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season, which generally runs from March 1 to September 15 (as early as January 1 for some birds) to avoid disturbance to breeding birds or destruction of the nest or eggs. Depending on the avian species present, a qualified biologist may determine that a change in the breeding season dates is warranted. A list of migratory birds protected under the MBTA is published by USFWS (USFWS 2018).

If a project proponent determines that avoidance of the avian breeding season is not feasible, at least 2 weeks prior to the initiation of project activities, a qualified biologist with experience in conducting breeding bird surveys will conduct weekly bird surveys to detect presence/absence of native bird species occurring in suitable nesting habitat that is to be directly or indirectly disturbed and (as access to adjacent areas allows) any other such habitat within an appropriate buffer distance of the disturbance area. Generally the buffer distance should be 300 feet (500 feet for raptors); however, certain projects will may necessitate a narrower buffer distance due to site configuration and adjacent habitat. If a narrower buffer distance is warranted, the project proponent will have a qualified biologist identify the appropriate buffer distances for raptors and non-raptors and notify the City and Wildlife Agencies. The surveys should continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of project activities. If a

native or nesting bird species is found, the project proponent will do one of the following to avoid and minimize impacts on native birds and the nest or eggs of any birds:

a. Implement default 300-foot minimum avoidance buffers for all birds and 500-foot minimum avoidance buffers for all raptor species. The breeding habitat/nest site will be fenced and/or flagged in all directions, and this area will not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the project.

b. If a narrower buffer distance is determined appropriate by the qualified biologist, the project proponent will develop a project-specific Nesting Bird Management Plan. The site-specific nest protection plan will be developed collaboratively with and submitted to the City and Wildlife Agencies, although the City and Wildlife Agencies will not be responsible for approving the narrower buffer distance and the Nesting Bird Management Plan.

c. The project proponent may propose an alternative plan for avoidance and nesting birds for City and Wildlife Agencies' review and approval.

Flagging, stakes, and/or construction fencing should be used to demarcate the inside boundary of the buffer between the project activities and the nest. The project proponent personnel, including all contractors working on site, should be instructed on the sensitivity of the area. The project proponent will document the results of the recommended protective measures described above to demonstrate compliance with applicable state and federal laws pertaining to the protection of native birds.

A biological monitor will be present on site during all grubbing and clearing of vegetation to ensure that these activities remain within the project footprint (i.e., outside the demarcated buffer) and that the flagging/stakes/fencing is being maintained, and to minimize the likelihood that active nests are abandoned or fail due to project activities. The biological monitor will send weekly monitoring reports to the City during the grubbing and clearing of vegetation and will notify the City immediately if project activities take, possess, or needlessly destroy the nest or eggs of any bird as well as birds-of-prey and their nest or eggs. Within 48 hours of damage to an active nest or eggs or observed death or injury of birds protected under state law or the MBTA (which includes, but not is limited to, the birds on the Covered Species list), the City will notify the Wildlife Agencies.

5.5.1.3 Stormwater and Water Quality Best Management Practices

Potential effects of Covered Activities on water quality and sedimentation can impact Covered Species (e.g., western pond turtle) dependent upon natural hydrological processes and wetland/riparian natural communities. A project proponent will identify structural and nonstructural BMPs to control sediment and non-stormwater discharges from the site to protect water quality. Actions to prevent sediment from entering watercourses during and after construction may include, but are not limited to, the following BMPs: sedimentation basins, silt fencing, fiber rolls, gravel bag berms, sand bag barriers, tracking controls, stockpile management, dry season scheduling, proper material delivery and storage, solid waste management, concrete waste management, preservation of existing vegetation, temporary soil stabilization, dust and erosion control, soil binders, and straw mulch. No site personnel will discard solid or liquid materials into jurisdictional water features or any ESA lands. Temporary, construction-related BMPs may include, but will not be limited to, the following:

- **Silt Fence**. A silt fence is made of a filter fabric that has been entrenched, attached to supporting poles, and sometimes backed by a plastic or wire mesh for support. The silt fence detains sediment-laden water, promoting sedimentation behind the fence.
- **Fiber Rolls**. A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll and wrapped by netting, which can be photodegradable or natural. Fiber rolls with plastic netting that poses a wildlife entanglement hazard will not be used. Fiber rolls used for erosion control will be certified as free of noxious weed seed. When fiber rolls are placed at the toe and on the face of slopes along contours, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff. By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.
- **Gravel Bag Berms**. A series of gravel-filled bags are placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out and release runoff slowly as sheet flow, preventing erosion.
- **Preservation of Existing Vegetation**. Careful planned preservation of existing vegetation minimizes the potential removal or injury to existing trees, vines, shrubs, and grasses that protect soil from erosion.
- **Stockpile Management**. Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials such as Portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, and pressure-treated wood.
- **Vehicle and Equipment Maintenance**. Contamination of stormwater resulting from construction vehicle and equipment maintenance can be prevented or reduced by running a "dry and clean site." The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

In addition to temporary construction-related BMPs, permanent treatment BMPs will be included in the project design as part of the upgrading and installation of storm drain system facilities and storm drain controls associated with a project. Permanent BMPs would be implemented for the protection of water quality designed to meet RWQCB and NPDES permit requirements. The probable selection of permanent treatment BMPs includes infiltration devices (infiltration trenches), biofiltration swales, and biofiltration strips. Infiltration trenches are basins or trenches that store runoff and allow it to infiltrate into the ground, thus preventing pollutants in the captured runoff from reaching surface waters. Biofiltration strips are vegetated land areas, over which stormwater flows as sheet flow. Biofiltration swales are vegetated channels, typically configured as trapezoidal or v-shaped channels that receive and convey stormwater flows while meeting water quality criteria and other flow criteria. Pollutants are removed by filtration through the vegetation, sedimentation, adsorption to soil particles, and infiltration through the soil. Strips and swales are effective at trapping litter, total suspended sediment, and particulate metals. Biofiltration strips and swales would be considered wherever site conditions and climate allow vegetation to be established and where flow velocities will not cause scour. The intent of the BMPs implemented for the Covered

Activity projects would be to reduce pollutants in stormwater discharge to the maximum extent practicable (MEP).

The City implements the Guidelines for Surface Water Pollution Prevention (City of Santee 2015) to support the City's Storm Water Management and Discharge Control Ordinance (Storm Water Ordinance), codified as Santee Municipal Code Chapter 13.42. This program establishes what dischargers must do to comply with the City ordinance and to receive permits for projects and activities that are subject to them.

5.5.2 Uniform Mitigation Standards for Vegetation Communities

For Covered Activities in which full avoidance is not feasible and unavoidable impacts to natural habitat will be necessary, mitigation of impacts will be determined based on the uniform mitigation ratios listed in Table 5-14. Uniform Mitigation Standards are the established mitigation ratios that will be applied uniformly for each vegetation communities type throughout the Subarea Plan Area for the life of the Plan. Mitigation will be achieved through one of the following options:

1. Impacts resulting from hardline projects will be offset through the establishment of onsite habitat preserves, as shown in this Subarea Plan, which will be incorporated into the Subarea Plan Preserve System.

2. Impacts resulting from Covered Activities within softline areas will be offset through the dedication of a portion of the property (onsite mitigation) which will be incorporated into the Subarea Plan Preserve System.

3. Impacts resulting from Covered Activities outside of the Subarea Plan Preserve System will be offset by either:

    a. Acquisition of an offsite property within the softline areas and establishing this property as a habitat preserve within the Subarea Plan Preserve System.

    b. Payment of an appropriate 'in-lieu' fee through this Subarea Plan Conservation Fund (see Section 8.4.2, *Funding Sources*, for a description of how the Subarea Plan Conservation Fund will be administered and implemented). The Subarea Plan Conservation Fund will allow development projects (generally smaller projects with less biological impacts or fewer opportunities to mitigate onsite) to mitigate offsite by paying into a fund used to acquire, maintain, and/or manage the preservation of sensitive biological resources within the Subarea Plan Preserve System.

    c. Purchase of mitigation credits from a mitigation bank if one is established within the Subarea Plan Preserve System.

    d. Funding of additional management and monitoring of properties within the Subarea Plan Preserve System that are currently protected open space, but not fully managed (see Section 5.4.3, *Opportunities and Incentives to Increase Management and Monitoring*).

The City facilitate and promote opportunities for mitigation that will complete the assembly of the Preserve System. Project proponents must demonstrate they have exhausted all options for mitigation within the City before pursuing mitigation outside of the Subarea Plan Area.

Any impacts to Critical Habitat within the Subarea Plan Area must be mitigated with Critical Habitat for the species impacted in accordance with the mitigation ratios in Table 5-14.

Table 5-14. Uniform Mitigation Ratios

Vegetation Type[1]	Habitat Criteria	Type of Impact	Mitigation Ratio
Riparian Forest/Woodland	All riparian forest, including oak riparian	Temporary impacts	2:1
	All riparian forest, including oak riparian	Permanent impacts	3:1
Riparian Scrub	Drainages with riparian scrub	Temporary impacts	2:1
	Drainages with riparian scrub	Permanent impacts	3:1
Freshwater Marsh, Freshwater Seep, Disturbed Wetlands, Natural Channel, Open Water	Absence of native species or small (< 0.25 acre) amount of habitat	Temporary impacts or mitigation prior to or upon impact or impacts limited to open water with no emergent vegetation	1:1
	Presence of native species or large (> 0.25 acre) amount of habitat	Permanent impacts or mitigation delay in excess of 1 year after impact	2:1
Vernal Pools[2]	Natural vernal pool	Permanent and temporary impacts	4:1
	Man-made vernal pools with indicator plant species	Permanent and temporary impacts	3:1
	Man-made pools with covered wildlife species	Permanent and temporary impacts	2:1
Oak Woodland	Oak woodland containing any Engelmann oaks	All impacts	3:1
	Coast live oak woodland	All impacts	3:1
Individual Oaks	Trees with at least one trunk of 6" or more Dbh[3] or multi-trunked native oaks with aggregate diameter of 10" or more.	All Impacts	3:1
Coastal Sage Scrub Coastal Sage / Chaparral Scrub	Habitat small (<1 acre) isolated patches	All impacts and temporary impacts to all others	1:1
	Habitat patches >1 acre	All impacts except temporary	2:1
Chaparral	All	All impacts	1:1
Native Grassland	All	All impacts	2:1
Non-native Grassland	Isolated patches < 1 acre outside of the Preserve	All impacts	0.5:1
	Patches > 1 acre outside the Preserve, and all patches inside the Preserve	All impacts	1:1
Disturbed lands[4]	No habitat value	All impacts	none
	Habitat value for or presence of burrowing owls	All impacts	1:1

Vegetation Type[1]	Habitat Criteria	Type of Impact	Mitigation Ratio

[1] Vegetation types based on the Holland vegetation classification system. See Appendix E, *Vegetation Communities Descriptions*, for descriptions of each of the vegetation communities types that exist in the Subarea Plan Area. All other natural habitat types not listed in this table have a 1:1 mitigation requirement.[2]

[2] Vernal pool mitigation must meet a 'no net loss' criteria through creation of new vernal pool habitat and/or restoration or enhancement of existing vernal pool habitat. Preservation of existing vernal pool alone does not provide mitigation credits. If an existing vernal pool is significantly disturbed, enhancement of the existing pool can be implemented to provide up to a 1:1 mitigation credits.

[3] Dbh = Diameter at Breast Height. Tree diameter is measured at 4 ½ feet above ground level. This measure is known as diameter at breast or DBH. Diameter can be measured with diameter tape.

[4] Disturbed land may include agricultural lands, ruderal, eucalyptus, and previously authorized graded areas.

Temporary Impacts. Temporary impacts are those impacts associated with a proposed project that are intended and designed to be fully mitigated in place (i.e. restoration of the exact area impacted) after the project is completed. These types of impacts are often associated with development of public utility projects like pipelines or facility maintenance; although private projects often have impacts that qualify as temporary. Temporary impacts shall be mitigated at the ratios identified in Table 5-14. A 1:1 mitigation credit may be achieved through restoration of the affected area in place (whether part of the Subarea Plan Preserve System or not) with the habitat type that was impacted by the project subject to a restoration plan, prepared by a qualified biologist and approved by the City. If habitat cannot be restored in place, then the impact would be considered permanent. Note that in some cases where impacts are temporary but repeated with regularity (such as regular maintenance grading of dirt roads or firebreaks where sensitive habitats may have reestablished during the period between repeated impacts), the impacts will be counted once as permanent (requiring mitigation ratios accordingly) and then not considered as impacts (permanent or temporary) following additional repeated impact disturbances (assuming future repeated impacts do not affect previously unimpacted habitat areas or mitigation sites).

Temporal Loss and Unauthorized Activities. Areas where temporary impacts remain impacted longer that one year will be considered permanent impacts. Areas where temporary impacts from illegal or unauthorized grading has occurred will be restored, if possible (as determined by the City). Otherwise such impacts will be required to mitigate as outlined in Table 5-14 to address temporal loss of habitat (the restoration shall count as a 1:1 credit towards the Uniform Mitigation Standards obligation).

Alternative Habitat Mitigation. In the event that a project proponent would like to propose an alternative approach for habitat mitigation, the project proponent shall be required to submit a proposal to the City for a biologically equivalent or superior mitigation approach ("alternative mitigation approach"). Any such deviation from the ratios in Table 5-14 would require case-by-case City review and approval prior to the City's issuance of a Habitat Loss and Incidental Take (HLIT) permit (see 8.3.1, *Habitat Loss and Incidental Take Ordinance*). The City will review the alternative mitigation approach and submit it to the Wildlife Agencies for concurrence. 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. Written finding of infeasibility of mitigating in accordance with the Uniform Mitigation Standards (Table 5-14).
5. Quantification of impacts to natural communities and Covered Species associated with the project, including direct and indirect effects.
6. A written description of project design features that reduce indirect effects, such as edge treatments, landscaping, elevation differences; minimization; and/or compensation through restoration or enhancement.
7. 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 preserve design for the species of concern that is functionally equivalent to or better than the preserve design that would occur in the absence of the identified impact. The equivalency analysis will be based on the particular habitat requirements of the species of concern and expertise of a qualified biologist.
8. A summary conclusion, including findings of consistency.

5.5.3 Wildlife Corridor and Wildlife Crossing Structure Criteria

The Subarea Plan Preserve System has been designed taking into consideration habitat linkages and wildlife movement corridors between adjacent critical biological resources areas (see Section 5.3.3, *Preserve System Habitat Connectivity and Corridors*). For this to be accomplished, the portions of the Subarea Plan Preserve System where future development and open space will be established (i.e. hardline and softline areas) will have to be designed in a manner that maintains the functionality of the movement corridors. This section addresses the criteria and methods for proponents of future development projects to design of wildlife corridors to maintain wildlife movement through their project area. In addition, criteria for wildlife crossing structures for roadways that cross open space is described. The wildlife corridor and wildlife crossing structure criteria will be applied during the project design process.

5.5.3.1 Preserve Connectivity

As described above, one of the landscape-level objectives for the Subarea Plan is to "Conserve interconnected habitat areas that contribute to the preservation of wide ranging species." The overarching and interrelated goals of connectivity among conserved habitat areas are to:

- ensure the persistence of populations and communities of covered species and other native species across the Preserve, and
- preserve ecosystem functions across the landscape.

It is important to conserve large, connected blocks of habitat to maximize the habitat available for Covered Species, and other native plant and animal species, and to preclude the need for future listings of species as threatened or endangered. Protecting connectivity among blocks of habitat areas within the Subarea Plan Area, and to conserved lands outside of the Subarea Plan Area, is essential for maintaining the biodiversity and ecological functions of the overall Santee Subarea Plan Preserve System.

In addition to conserving large, connected blocks of habitat, it is also important to conserve corridors along rivers and creeks within the Subarea Plan Area. Although it is ideal for linkages and

corridors to be comprised of continuous natural habitat, habitat patches may still be important where fragmentation prevents continuous connectivity. It is also important to consider and provide for roadway wildlife crossings.

Connectivity Concepts

The terminology for describing connectivity is presented in various peer-reviewed literature although the definitions vary. The terminology used in this Subarea Plan is drawn from the San Diego Monitoring and Management Program (SDMMP) established by SANDAG for the purpose of providing regional consistency. The SDMMP is a science-based program seeking to provide a coordinated approach to management and biological monitoring of lands within the San Diego region that have been conserved through various programs including the MSCP, the MHCP, the TransNet Environmental Mitigation Program, and various other conservation and mitigation efforts.

For purposes of the Santee Subarea Plan, connectivity terminology is defined as follows:

Core Area – A core area is a habitat area supporting a high concentration of biological resources, which, if lost or fragmented, could not be replaced or mitigated elsewhere.

Linkage – A linkage is an area of habitat that provides connectivity between core areas and provides breeding and foraging habitat for resident species. Linkages facilitate the movement of larger animals and the continuance of ecosystem processes and serve as habitat for smaller species that live within them. Linkages prevent genetic isolation of plants and animal populations and improve gene flow among populations. They also provide resiliency to ecosystems recovering from natural and anthropogenic environmental disturbances such as fire, flood, and climate change.

Corridor – A corridor is a connection that allows for native species movement, dispersal and migration of wildlife species, and is generally narrower in width than a linkage.

Wildlife Crossing Area – A crossing area is a portion of a core area, linkage, or corridor traversed by a road and that features an undercrossing, overcrossing, bridge, or other type of crossing.

Structural Connectivity – Structural connectivity refers to the physical relationship between habitat patches.

Functional Connectivity – Functional connectivity describes the degree to which landscapes actually facilitate or impede the movement of organisms and processes.

5.5.3.2 Wildlife Corridor Design Criteria

Wildlife corridors will be conserved through land acquisitions and incorporated into the design of future development projects within the Subarea Plan Area. The following conservation actions and criteria will be considered in the establishment and design of wildlife corridors:

- Promote wildlife corridor(s) with a minimum width of 1,000 feet along the entire corridor length, excluding vegetation fire management zones, accessory uses, limited building zones, and other uses not compatible with long-term biological preservation of the conserved lands to provide for the movement of larger wildlife species, including some edge buffering.

- Allow for corridor pinch points less than 1,000 feet for relatively short distances, where it is not feasible to provide a width of 1,000 feet along entire length of corridor. Ensure corridor has a minimum width of 400 feet for no more than 500 feet of linear distance.
- Conserve a diversity of topographic features such as streams, washes, ridges, canyons, steep slopes, and ridgelines to provide connectivity for a range of species that move along different features of the landscape.
- Ensure wildlife corridor design considers a variety of species representing a range of habitat associations and movement behaviors because corridor requirements vary by the species that use them.
- Wildlife corridor design shall plan for those wildlife species with the largest corridor width requirements.
- Wildlife corridor design shall consider factors that may impact wildlife passage including but not limited to human developments, and edge effects from human developments, roads and driveways, fencing, reduced structural and compositional diversity of vegetation, free roaming pets, exterior nighttime lighting, and noise.
- Wildlife corridor design shall consider maintenance and vegetation management that may occur within the corridor that could impact wildlife passage, such as fire hazard vegetation reduction, roadside vegetation management (mowing or spraying), pesticide use, and vector control.
- Whenever possible, wildlife corridor design will include deliberate redundancies by looking for opportunities to link core areas in more than one way to establish and/or retain functional connectivity for multiple species, at multiple scales, and in multiple locations.

5.5.3.3 Wildlife Crossing Criteria

The effects of roadway infrastructure on fish and wildlife result in myriad negative effects on natural resources including habitat loss, movement barriers, habitat fragmentation, edge effects and habitat avoidance, degradation of habitat and water quality, and direct mortality of a wide-variety of wildlife species due to wildlife-vehicle collisions. Table 5-15 provides guidance for structural improvements recommended to minimize impacts to wildlife by facilitating their safe passage across roadways that cut across open space areas.

Table 5-15. Impact Minimization Measures for Facilitate Wildlife Movement Across Roadways

Wildlife Crossing Criteria - Impact Minimization Measures
General Wildlife Crossing Measures
• Keep bridged undercrossings and undercrossing structures as natural as possible and contiguous with surrounding landscape.
• Retain natural surfaces, avoid use of riprap and energy dissipaters, and minimize solid fences and signage or other structures that may obstruct animal movement.
• Retain or install native vegetation, including trees, shrubs and herbaceous species, on bridged overcrossings and undercrossing structures, and maintain vegetation contiguity near side of the crossing.
• Plant and maintain appropriate native vegetative cover, including trees, shrubs and herbaceous species, near the entrances/exits of the crossing structures, without visually or physically obstructing the entries.
• To retain ecosystem structural and functional connectivity, crossing structures should be as high, wide, short, and open as possible.

Wildlife Crossing Criteria - Impact Minimization Measures

- Install traffic calming measures such as speed bumps reduced speed limits, and wildlife crossing signs to slow cars near wildlife crossing areas.
- Without jeopardizing public safety, minimize street lighting/night lighting and limit road noise near wildlife crossing structures to facilitate animals' use of the crossing, prevent avoidance of species, and reduce predation of prey species.
- Where necessary, install appropriate directional wildlife fencing at least 12 feet high to direct animals towards the crossing structures and prevent access to roadway.
- Wildlife fencing must be buried (24") and at angle to prevent wildlife from digging beneath the fence
- Wildlife fencing must be regularly inspected and maintained to ensure optimal function.
- Wildlife crossings must be perpendicular to the road to reduce the length of the crossing and to improve visibility; animals must be able to see the other side of the crossing when entering and passing through the crossing. In shorter underpasses, skylights may not be necessary; however, longer underpasses should incorporate skylights if necessary and kept straight to maximize daylight within the structure to increase visibility.
- Where appropriate, wildlife movement and roadkill monitoring should be conducted, using tracking stations, camera traps, etc., to evaluate the functionality of the crossings and to determine whether future adaptive measures should be taken.
- Corrugated metal pipes (CMPs) should be avoided as a culvert material. Reverberation occurs inside of these pipes, deterring wildlife from entering and moving through these structures.
- Road and culvert maintenance activities should be conducted when wildlife is least active but should be conducted regularly to remove obstructions and facilitate wildlife movement.
- Wildlife fencing end points must be placed in a manner that prevents wildlife from accessing roadways. Fencing can be ended in areas where most wildlife movement is not expected to occur such as steep areas or ends of suitable habitat.
- Fencing occurring over a long linear area (greater than 0.5 miles) must incorporate escape structures such as jump out ramps at appropriate regular intervals to allow any entrapped wildlife to safety exit the roadway.

Large Mammals (Mountain Lions and Mule Deer)

- Keep overpasses, bridged overcrossings and undercrossings as open as possible by maximizing height and width and minimizing length.
- Directional wildlife fencing should be installed in areas likely to be traveled by large mammals in order to minimize access and crossing over the roadway. Fencing should be effective at blocking large mammals from climbing and jumping over fencing. Fencing should remain clear of vegetation and trees.

Small and Medium Mammals (Coyotes, Bobcats, American Badger, Foxes, Rabbits, etc.)

- Culverts should be at least 6 feet wide and no longer than 200 feet for wildlife movement; however, 6' x 6' foot box culverts are most preferable.
- All culverts must have a dry ledge to allow passage of terrestrial animals during wet/flow conditions.
- Directional wildlife fencing may be necessary to direct small animals toward crossing structures and to prevent roadkill.
- Fencing must extend underground to prevent animals from digging under the fence and accessing the road. Fencing may be modified along the bottom to exclude smaller wildlife from penetrating the fencing and accessing the roadway and guide towards crossing structures.
- Vegetative cover and other types of cover must be provided in longer and larger crossings to provide shelter for small wildlife such as rodents, birds, and reptiles. Examples of other types of cover include small piles rocks or small boulders arranged to provide interstices and spaced every few meters along one side of a structure.
- Roadway median barriers must be staggered to allow wildlife movement. For smaller wildlife, scuppers (small openings at the base of the median walls) may be used to allow small wildlife, such as rodents, passage across the road surface.

Wildlife Crossing Criteria - Impact Minimization Measures
Amphibians and Reptiles (including western spadefoot toad)
• Install smooth vertical retaining walls along roads near waterways and in appropriate upland areas to prevent movement of wildlife onto the roadway and to direct them to cross roads through appropriate safe passages over or under the road. Walls must be approximately 3 ½ feet high with a 6-inch lip at the top.
• Fencing must extend underground to prevent animals from digging under the fence and accessing the road. Fencing may be modified along the bottom to exclude smaller animals from penetrating the fencing and accessing the roadway and guide towards crossing structures.
• Untreated roadway runoff must not enter amphibian passage areas, as it can be toxic to these species.

5.5.4 Fire and Fuel Management Standards

In October of 2016, with the adoption of the California Fire Code (Ordinance #545), the City amended Chapter 49 of the California Fire Code, which includes standards for fire-safe development in Wildlands Urban Interface (WUI) areas. Two key elements of the ordinance, as they relate to the Subarea Plan, are the special building construction regulations and the fuel modification provisions.

Brush management is required to be undertaken in the City in areas where urban development interfaces with open space to reduce fire fuel loads and to reduce fire hazard to homes. The City defines two zones requiring different levels of brush management/fuel reduction activity, representing a total minimum of 100 feet (Zone 1 = 50 feet; Zone 2 = 50 feet). The width of the fuel modification zone is measured starting from inhabited structures, with Zone 1 being closest to the structure. Uninhabited structures (e.g., sheds, gazebos) are not allowed within the fuel modification zone, unless they are constructed of approved non-combustible materials. These zones are intended to accomplish three essential functions: (1) provide fire protection of residents and communities; (2) provide safer conditions for fire response agencies to access areas and fight fires; and (3) protect the habitat and species inhabiting the preserved lands from adjacent, burning structures. The two fuel modification zones (also known as *fuel modified defensible space*) are described below.

- **Zone 1**: Zone 1 (closest to the inhabited structure) is the least flammable, and shall consist of pavement and permanently landscaped, irrigated, and maintained ornamental planting. This area is typically maintained by individual property owners. The vegetation should be kept in a well-watered condition and cleared of dead material. This zone requires year-round maintenance. Fire resistant trees are allowed if placed or trimmed so that crowns are maintained more than 10 feet from the structure. Highly flammable trees such as conifers, eucalyptus, cypress, and junipers are not allowed in the urban-wildland interface areas.
- **Zone 2**: Zone 2 (beginning generally 50 feet beyond the structure and out to a minimum of 100 feet), shall consist of low-growing, fire-resistant shrubs and ground covers (refer to the suggest plant list for a defensible space included in the County of San Diego Department of Planning and Land Use (DPLU) publication #99, "Fire, Plants, Defensible Space, and You", [County of San Diego 2004]). Average height of new plants for re-vegetation should be less than 24 inches. In this zone, 30% of the native, non-irrigated vegetation cover should be retained. This zone requires inspection and periodic maintenance. This area shall be maintained by individual property owners or homeowner's associations.

In addition to the zones described above, the City Fire Code requires that an area of 50 feet from each side of fire apparatus access roads and driveways be maintained clear of all but fire resistant vegetation so residents have a safe evacuation route and that fire engines have adequate access.

Any deviations of defensible space are subject to a Fire Management Plan to be approved by the City's fire chief. The Fire Management Plan will consider unique conditions resulting from the location, topography, geology, flammable vegetation of the site, and the climatic conditions experienced at the site.

For all future development projects' plans and approvals, fuel modification zones must be considered part of the development footprint for determining project impacts and mitigation requirements. Fuel modification zones shall not be counted as biological open space for the purpose of determining onsite or offsite credit toward mitigation requirements. Future fuel modification zones are not allowed inside the hardline preserve areas (100% conservation areas). Inside the softline preserve areas, the fuel modification zones are considered a portion of the 25% area of allowable development. Project impacts and mitigation ratios will include the impacts associated with the establishment of new fuel modification zones. Fuel modification zones should take advantage of existing roads, disturbed or developed habitats, and avoid sensitive habitats, to the degree feasible.

The establishment of fuel modification zones requires vegetation clearing or thinning, including natural vegetation, and may reduce habitat quality, and directly or indirectly harm Covered Species. Seasonal restrictions on vegetation clearing will apply in conformance with nesting bird regulations (see Section 5.5.1, *Avoidance and Minimization*).

5.5.5 Wetlands Protection Standards

A goal of the Subarea Plan is to assist in the region's effort to sustain and enhance the habitat for species dependent on wetland and aquatic resources with a focused effort on the conservation and management of wetlands[1]. As specified in the MSCP Subregional Plan, wetlands will be conserved to achieve no-net-loss of acreage, function (e.g., ecosystem services, such as water quality or floodplain protection), or value (to support corridor maintenance, biodiversity, ecosystem services, and aesthetics) within the geographic boundaries of each MSCP Subareas. Pursuant to the Wetlands Protection Standards in this section, the City will achieve no-net-loss of wetland functions and values within the Subarea Plan Area.

Wetlands protection under the Subarea Plan will be provided through individual project entitlement reviews and the associated CEQA process. As part of the CEQA review, development projects which contain wetlands will address wetlands based on the following priorities and approaches:

1. Development projects which contain wetlands within their project boundaries will be required to demonstrate that impacts to wetlands have been avoided to the greatest extent practicable.
2. If a development project has unavoidable impacts to wetlands, the project proponent will prepare a wetlands mitigation program that will be included in the project's MMRP and

[1] Wetlands are defined as wetland vegetation communities (i.e. vernal pools, freshwater marsh, riparian forest, riparian woodland, riparian scrub, disturbed wetlands, and natural flood channel) and aquatic resources per CDFW jurisdiction.

incorporated as a condition of the project's entitlement permits from the City. The project proponent is required to demonstrate that such impacts have been minimized.

3. The City will determine wetlands mitigation requirements by applying the mitigation ratios identified in Table 5-14. Wetlands mitigation must include component of restoration and/or creation to adequately meet a no-net-loss criterion. The mitigation ratios provide a standard for each wetland habitat type but may have to be adjusted depending on the functions and values of both the impacted wetlands as well as the wetlands mitigation proposed for the project. The City may also consider the wetland habitat type(s) being impacted and utilized for mitigation in establishing whether these standards have been met.

4. Wetlands mitigation will be preferably accomplished within the Subarea Plan Preserve System. If impacts are mitigated within the Subarea Plan Area but outside of the Subarea Plan Preserve System boundaries, a boundary line adjustment may be implemented to incorporate these mitigation areas into the Subarea Plan Preserve System. The strategy of the Subarea Plan is to consider and minimize project-specific impacts to wetland habitat in the context of a landscape-level plan that conserves both upland and wetlands habitats. The emphasis is on making project-level and Subarea Plan-level decisions that will be result in the optimal habitat value. The Subarea Plan is not intended to result in subjecting projects to additive or, in some measure, duplicative, mitigation requirements for the same wetlands impacts evaluated under the Federal and/or State wetland permitting process. Thus, the City reserves the right to provide flexibility in the CEQA mitigation analysis and the MMRP requirements to enable a project applicant to substitute the mitigation measures imposed by another Federal or State agency for the same wetlands impacts for the mitigation imposed under the Subarea Plan; provided that the Federal or State agency mitigation measures are equivalent or greater than those imposed by the City.

The City will review and approve the wetlands mitigation program as part of the CEQA public review or permitting process. Projects that document highly degraded habitat value may request a reduced mitigation ratio from those shown in Table 5-14. If a reduced mitigation ratio has been proposed, the City may submit a letter of concurrence or non- concurrence to the Wildlife Agencies. If a letter of non-concurrence is received by the City from the Wildlife Agencies during the CEQA public review period, the City will not approve the mitigation ratio reduction. If no written concurrence or non-concurrence is received by the City from the Wildlife Agencies during the CEQA public review process, the mitigation ratio reduction may be approved by the City.

5.5.5.1 Compliance with Existing Federal Wetlands Regulations

In addition to the Subarea Plan Wetland Protection Standards, wetlands are afforded protection under existing Federal law and regulatory programs. The Federal Clean Water Act provides protection to wetland habitats and species through Federal regulatory permitting and agreements. Mitigation for impacts to wetlands must be consistent with the Federal policy of no overall net loss of wetland functions and values, and Section 404(b)(1) guidelines (40 C.F.R. Part 230). Habitats and species that are the subject of these permits require, as conditions of their approval, conservation and/or mitigation resulting in avoidance or functional equivalent value mitigation. Projects that require Federal agency regulation, including ACOE permits, will continue to be subject to section 7 consultations under the ESA. Where applicable, the City or project proponents in the City must submit an application for and receive Federal Section 404 permits prior to receiving a grading permit from the City.

Those projects that are subject to a section 7 consultation will be evaluated by the USFWS to ensure that the project is consistent with this Subarea Plan and the Wetlands Protection Standards. The level of conservation afforded by the provisions of the Subarea Plan to Covered Species has been established through extensive consultation with, and review by, the Wildlife Agencies. Therefore, projects undergoing section 7 consultations that are consistent with the provisions of this Subarea Plan will receive Take Authorization from the USFWS for Covered Species through this Subarea Plan. Consistency with this Subarea Plan will constitute the full extent of mitigation measures for the take of Covered Species required or recommended by the USFWS. However, the ACOE may impose additional mitigation measures as permit conditions not directly related to Covered Species requirements.

5.5.5.2 Compliance with Existing State Wetlands Regulations

In addition to the City's Wetlands Protection Standards and federal regulations, wetlands are afforded protection under existing State law and regulatory programs. The California Porter-Cologne Water Quality Control Act (Water Code section 13000 *et seq*.) and the California Fish and Game Code provide protection to wetland habitats and species through State regulatory permitting and agreements. Where applicable, the City or project proponents in the City must submit an application for and receive Fish and Game Code Section 1600 *et seq*. agreements prior to receiving a grading permit from the City. The City or other project proponent must also apply to the RWQCB for Waste Discharge Requirements prior to any discharges, including discharges from land that may affect any waters of the State. Water Discharge requirements must implement RWQCB Basin Plans that designate beneficial uses and water quality criteria for water-bodies, including wetlands.

State guidelines for wetland permitting also adhere to a "no-net-loss" policy for wetland acreage, functions and values. The California Fish and Game Code (Section 1600 *et seq*.) states that projects that substantially alter the flow or bed, bank or channel of any river, stream or lake designated by the CDFG should first notify the CDFG, which may determine that a Streambed Alteration Agreement is required. As part of the Wetland Protection Standards, compliance with conditions of the Federal Section 404, Fish and Game Code Section 1600 *et seq*., and RWQCB permits must be demonstrated through the CEQA process and other project-specific permitting.

5.5.6 Narrow Endemic Species Standards

Narrow endemic species include native species that are confined to a specific geographic region, soil type, and/or habitat. The additional conservation standards described in this section will apply to the species listed in Table 5-16. For vernal pools and species associated with vernal pools, conservation standards are addressed in Section 5.5.7, *Vernal Pool Conservation Standards*.

Table 5-16. Narrow Endemic Species Covered by the Santee Subarea Plan

Type	Common Name	Scientific Name
Plants	San Diego ambrosia	*Ambrosia pumila*
	San Diego thornmint	*Acanthomintha ilicifolia*
	Variegated dudleya	*Dudleya variegata*

For all Covered Activities, the Narrow Endemic Species Standards require avoidance of impacts, minimization of impacts, and species-specific mitigation measures for unavoidable impacts, with no

more than 20% gross loss of any individual population. The standards for protection and species conservation are as follows:

- For species identified as "narrow endemic species," the City will require, in priority order: avoidance of impacts, minimization of impacts, and species-specific mitigation measures for unavoidable impacts. Avoidance and minimization shall be interpreted as avoidance of impacts to the maximum degree practicable without precluding reasonable use of the property (not reducing the usable property area below 25%). Translocation of a narrow endemic species may be included in a mitigation package, but does not qualify as part of the required avoidance in the requirements of the Narrow Endemic Species Standards.
- The City shall not permit more than 5% loss of narrow endemic species locations, population numbers, or occupied acreage (whichever is most appropriate for the species) within the established preserve areas of Subarea Plan Preserve System unless a project-specific Biologically Preferred Alternative is agreed to with the Wildlife Agencies at the time of project-specific environmental review or other permitting process. No more than 20% impact of a narrow endemic species population or occupied acreage is allowed outside of the Subarea Plan Preserve System or within the softline areas (i.e. 80% conservation), unless a Biologically Superior Alternative is agreed to with the Wildlife Agencies at the time of project-specific environmental review or other permitting process.
- Areas conserved for narrow endemic species shall include biologically justified buffer zones (i.e., as required by the particular species and site characteristics as determined by a qualified biologist) around the population sites to allow for natural expansion and contraction of populations, persistence of pollinators, and other essential ecological functions (e.g., conservation of vernal pool watersheds). Biological buffer zones will be determined based on the species and environmental context (adjacent land uses, etc). Buffer zones for vernal pools shall include and protect the watershed needed to maintain the functionality of the vernal pool. In no case shall the biological buffer zone be less than 50 feet without specific concurrence of the Wildlife Agencies. Any conserved lands that support narrow endemic species (including the buffer zones) shall be added to the Subarea Plan Preserve, provided a conservation easement is placed on the property and managed in perpetuity pursuant to the management and monitoring requirements of the Subarea Plan.
- Impact avoidance and mitigation standards for narrow endemic species may vary from the standards established through these standards only if a Biologically Preferred Alternative is available. A determination of Biologically Superior Alternative by the City will be based upon information provided by the project proponent that demonstrates that although the proposed project would exceed the Narrow Endemic Species Standards impact threshold, it would result in an overall Preserve design and configuration biologically superior to that which would occur under a project alternative within the given threshold. Demonstration that the Biologically Superior Alternative would provide benefits with respect to Preserve design and configuration should be considered in the context of the effects on following factors:
    1. Conserved habitats;
    2. Covered Species;
    3. Habitat linkages and function of Preserve areas;
    4. Preserve configuration and management;

5. Ecotones or other conditions affecting species diversity;
6. Species of concern not on the Covered Species list.

- Third party participants under this Subarea Plan (i.e., individual project applicants) will provide protection of narrow endemic species through consideration of such species in the project design. Take of Covered Species, including narrow endemic Species, will be extended at the time of development project approval, as long as the project is consistent with the provisions of this Subarea Plan.

The following describes the implementation procedures of the Subarea Plan Narrow Endemic Species Standards.

Determining impacts. Species population size, number of individuals, or occupied acreage will be used as a metric of impact depending on the species, whichever measure is biologically most appropriate for the species based on the best available science (see Conservation Analysis for more information). For annual plants and geophytes (i.e., perennial bulb and corm plants, e.g., Brodiaea spp.), the allowable impact shall be based on occupied acreage because a portion of the population may only be present in the seed bed and not assessable by census at the time of surveys (note that surveys must be conducted during the period at which the species is most likely to be identified, see Chapter 3, *Covered Species*). For perennial plants other than geophytes, the allowable impact shall be based on population size (i.e., number of individuals) in a contiguously occupied area of habitat. For animals, the allowable impact shall be based on occupied acreage of habitat in combination with the habitat requirements of the species (e.g., vernal pools, burrows, cactus patches, etc.).

Species-specific mitigation requirements. No species-specific mitigation is required for impacts to the narrow endemic species population size or occupied acreage up to 5% within the Subarea Plan Preserve System and up to 20% outside of the Preserve System boundaries. Any species-specific mitigation required by the Conservation Analysis (see Chapter 6) should be designed to minimize adverse effects to species viability and to contribute to species recovery. All impacts to vegetation communities associated with impacts to narrow endemic species (species habitats) will be mitigated according to the Uniform Mitigation Ratios (see Table 5-14). The Uniform Mitigation Ratios will apply to impacts both within and outside the Subarea Plan Preserve System.

Unavoidable impacts. Unavoidable impacts within the softline areas of the Santee Subarea Plan Preserve System and areas that are outside of the Subarea Plan Preserve System must be designed to achieve minimal loss of narrow endemic species individuals/populations, occupied acreage, and population viability. The City will require, through implementation of the Subarea Plan, maximum avoidance and minimization of project impacts to narrow endemic species covered by the Subarea Plan. Maximum avoidance and minimization shall be interpreted as avoidance of impacts to the degree practicable without precluding reasonable use of the property (defined as restricting the usable portion of the property to less than 25%).

Areas conserved for narrow endemic species shall include biologically justified buffer zones (i.e., as required by the particular species and site characteristics as determined by a qualified biologist and consistent with the species-specific conditions in Conservation Analysis) around the population sites to allow for natural expansion and contraction of populations, persistence of pollinators, and other essential ecological functions (e.g., conservation of vernal pool watersheds). Biological buffer zones will be determined based on the species and environmental context (adjacent land uses, etc) consistent with the species-specific conditions. Buffer zones for vernal pools shall include and

protect the watershed needed to maintain the functionality of the vernal pool consistent with Section 4.4.3.1.

Exceptions to the Narrow Endemic Species Standards. In some cases, even 100% avoidance of a narrow endemic species population will result in a "postage stamp preserve" isolated by development, where there is no reasonable opportunity to establish a viable preserve area where the narrow endemic species population would have reasonable connectivity via proximity or direct contiguity with other parts of the Preserve. Such small preserve areas may not maintain viable habitat over time, as a result of habitat degradation caused by urban edge effects. Additionally, there may be cases where, due to the limited number of individuals there are onsite or their location relative to the developable portions of a given property (e.g., in the center of the project site or adjacent to the only access point), it may be infeasible to avoid impacting all of or a majority of the onsite population/acreage.

In either of these cases, it may be biologically preferable to identify off-setting mitigation, restoration, translocation, or enhancement actions within other parts of the Preserve. In such cases, the above Biologically Superior Alternative determination must be adhered to and the proposed mitigation plan must be developed by a qualified biologist with Wildlife Agency input, and a 30-day review for Wildlife Agency concurrence, before any portion of the narrow endemic species population may be disturbed.

Implementation procedure. The City will follow a standardized procedure in order to implement the Narrow Endemic Species Standards in a manner to ensure that narrow endemic species are not impacted beyond the limits set forth through these standards. Site-specific project design should avoid at least 95% of the narrow endemic species locations within the Subarea Plan Softline Preserve and at least 80% of the narrow endemic species locations outside the Subarea Plan Preserve, while allowing up to 25% of the parcel to be developed. This procedure will be repeated on a project-by-project basis and will contain the following steps:

1. As a part of the project-specific environmental review or other permitting process, the City will use the data collected from previous species baseline monitoring and current (within one year) focused surveys for all narrow endemic species (see Chapter 3, *Covered Species*) submitted by the project applicant to determine if any narrow endemic species may be impacted by a proposed project. A focused survey is defined here as a species-specific survey of a given parcel following accepted survey protocols for the target species. Any baseline surveys for a given site will include focused surveys for narrow endemic species as well as all other Covered Species.
2. If the biologist does not find evidence of one or more narrow endemic species even though predicted habitat is modeled on the project site, the biologist will be required to provide a habitat assessment that explains why the species is unlikely to be found onsite. The habitat assessment includes a written evaluation of biological resources present onsite and known from adjacent properties, conserved sensitive biological resources on adjacent lands, and adjacent land uses. If there is a dispute between the project applicant's biologist and the City, the City will confer with the Wildlife Agencies for resolution.
3. If any narrow endemic species are present within a project's proposed footprint or will be indirectly affected by a proposed project (e.g., impacts would occur within a 100-foot distance from the narrow endemic), the project applicant's biologist will delineate the population(s) based on a species population size or occupied acreage, whichever measure is biologically most appropriate for the species based on the best available science.

4. After the population has been delineated, the City will allow take of the narrow endemic species population size or occupied acreage within the project site, as outlined above. The City will be responsible for tracking the take level of a delineated area and including take information in the annual report. While allowable impact provisions are outlined above, the priority would be to design the project to avoid all impacts to the narrow endemic species.
5. If the applicable 95% or 80% conservation standards described in these standards cannot be met for a given project, the project applicant shall present a Biologically Superior Alternative and biological equivalency findings consistent with the guidelines of these standards (see above). The City shall obtain approval of the deviation from these standards from the Wildlife Agencies at the time of project-specific environmental review or other permitting process.
6. All conserved areas containing narrow endemic species will be placed in the Preserve and managed in perpetuity consistent with the Subarea Plan and project-specific PMP.

5.5.7 Vernal Pool Conservation Standards

The Vernal Pool Conservation Standards for the Santee MSCP Subarea Plan provides a framework to protect, enhance, and manage vernal pool resources within the City, while streamlining the environmental permitting process for impacts to covered species associated with vernal pools. These standards have been developed in a manner to closely follow definitions and requirements included in the City of San Diego Vernal Pool Habitat Conservation Plan (VPHCP) (City of San Diego 2017) which was finalized in October 2017. The Vernal Pool Conservation Standards are summarized below and set forth in detail in Appendix G, *Vernal Pool Conservation Standards*.

Vernal pools are 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. The features occur most often on level ground and are often associated with hillocks known as mima mounds; however, sometimes these wetlands can occur on former landslide areas and are then referred to as "slump" pools. Vernal pools are primarily associated with clay soil series, and the basins are sealed either by subsurface layers of impervious hardpan, or clay that expands to seal the basin when saturate. See Section 2.4.2, *Vernal Pools*, for a summary of the known distribution of vernal pools within Santee.

5.5.7.1 Vernal Pool Field Survey Protocols

If a project site has potentially suitable habitat for vernal pools or for man-made pools that could support Covered Species, field surveys will be completed following the current protocols described in the USFWS "Survey Guidelines for the Listed Large Branchiopods" (USFWS 2015), or any subsequent revisions.

5.5.7.2 Vernal Pool Definition

For the purposes of the Santee MSCP Subarea Plan, the following definitions and categorization of vernal pools will be used:

- **Natural vernal pools** – The Santee Subarea Plan considers a seasonally flooded depression to be a natural vernal pool if ponding is a result of natural conditions and topography (i.e. ponding is not based on anthropogenic disturbance such as a dirt road) and includes one or more of the

vernal pool covered species (i.e. San Diego button-celery, San Diego mesa mint, Riverside fairy shrimp, San Diego fairy shrimp, western spadefoot toad) or vernal pool indicator plant species (USACE 1997), which are listed in Appendix G. In addition, if a natural vernal pool does not have covered or indicator species but is part of a larger vernal pool complex and located adjacent to other natural vernal pools with covered and/or indicator vernal pool species, it will be considered a natural vernal pool.

- **Man-made vernal pools with indicator plant species** – If a seasonally flooded depression is formed as a result of anthropogenic disturbance (e.g. road ruts) and includes vernal pool indicator plant species, it will be treated as a vernal pool.
- **Man-made pools with covered wildlife species** - If a seasonally flooded depression formed through anthropogenic disturbance (e.g. road ruts) does not include indicator plant species, but includes covered vernal pool wildlife species (i.e. San Diego fairy shrimp, Riverside fairy shrimp, and/or western spadefoot toad), the Santee Subarea Plan vernal pool policy addresses how these man-made seasonal depressions will be managed and mitigated.
- **Vernal pool complex** – For convenience of reference, groups of vernal pools are sometimes referred to as vernal pool complexes that may include two to several hundred individual vernal pools (Keeler-Wolf et al. 1998). Vernal pool complexes are defined as a series of similarly situated pools that have a similar influence on the physical, chemical and biological integrity of downstream waters and are similarly situated on the landscape (USACE/EPA 2015). They may have hydrologic (surface or subsurface) or ecological connection between pools, from processes including overflow, animal vectors, or wind dispersal. They often have soils, topography, and landscape positions that are similar. The uses of complexes are a helpful tool for planning and management, but it is recognized that a complex can be subjective.

5.5.7.3 Avoidance and Preservation of Vernal Pools

The Santee Subarea Plan Vernal Pool Conservation Standards includes measures to avoid and minimize to vernal pools. Direct and indirect impacts from covered activities shall be designed to avoid and minimize natural vernal pools to the maximum extent practicable. Impacts to man-made vernal pools or pools with covered wildlife species should also be avoided, if feasible.

If existing vernal pools are protected through onsite habitat protection, the area of habitat protection that will include the vernal pools, as well as associated watershed, habitat buffers, and adjacent uplands will be included in the Subarea Plan Preserve System. The project proponent shall ensure the long-term protection and management of the on-site vernal pool preservation areas shall occur in perpetuity.

5.5.7.4 Compensatory Mitigation of Unavoidable Impacts to Vernal Pools

If a proposed project includes unavoidable impacts to vernal pools, the following measures will be implemented as mitigation to offset impacts:

- Vernal pool mitigation must meet a 'no net loss' criteria through creation and/or enhancement of vernal pool habitat. Preservation of existing vernal pool does not provide mitigation credits.
- Mitigation will be based on size and type of vernal pools based on the following table:
    - Natural vernal pools: 4:1

- Man-made vernal pools with indicator plant species: 3:1
- Man-made pools with covered wildlife species: 2:1

- If an existing vernal pool is disturbed, enhancement of an existing pool can be implemented to provide up to a 1:1 mitigation credits. Enhancement actions may include weeding, improvements to watersheds, and upland restoration. A determination of enhancement effort to achieve mitigation credits will be determined on a case-by-case basis in coordination with the City and Wildlife Agencies.
- A vernal pool mitigation plan will be prepared for review and approval by the City and concurrence from the Wildlife Agencies.

5.5.7.5 Long-Term Management and Monitoring of Vernal Pool Habitats

The management and monitoring approach for vernal pools within protected open space will be completed in a manner consistent with the methodologies established in the City of San Diego VPHCP (City of San Diego 2017). To assess the status and need for management actions, the following standards will be implemented and monitored:

- Annually identify threats (invasive species, trampling, OHV activity, etc.) to all pools monitored, as well as to overall watershed integrity, and implement actions to prevent or reduce those threats.
- Prevent an average decline of at least one cover class of any covered plant species within vernal pools over 3 years for years having at least 55% average rainfall.
- Prevent a 20% decline in the density of the covered shrimp species over 3 years (average within complex).
- At complexes with 10% or greater average total nonnative species cover, prevent an increase in one cover class for nonnative cover over 3 consecutive years, regardless of rainfall.
- Maintain vernal pool watershed and hydrological network (i.e., inlet and outlet features) and water storage (maximum depth within +/-10% of baseline) functions.

The Santee Subarea Plan Vernal Pool Conservation Standards outlines a tiered three-level approach for adaptive monitoring and management of vernal pools and vernal pool complexes that are protected within the Subarea Plan Preserve System (see Appendix G for more detail). The monitoring and management actions required at each level are determined by achievement of the Santee Subarea Plan vernal pool standards and triggers.

5.5.8 Species-Specific Conservation Standards

In general, it is accepted that securing comparable habitat based on the Uniform Mitigation Ratios (Table 5-14) will mitigate for the direct impact to most Covered Species. While this is true for species with wide geographic distributions and/or large territory sizes, species with very limited geographic ranges (narrow endemic species) would require additional efforts designed to protect these species per the Narrow Endemic Species Standards (Section 5.5.6) and Vernal Pool Conservation Standards (Section 5.5.7). General conditions for Covered Species Conservation Standards are listed below. In addition, for the Covered Species not included as part of the Subregional MSCP and other species with unique mitigation requirements/options, species-specific conservation standards are set forth below that define methods for conducting project-specific

habitat assessment, determination of impacts, and species-specific mitigation requirements and methods.

5.5.8.1 General Conditions for Covered Species Conservation Standards

The following conditions for coverage apply to all Covered Species:

1. A habitat assessment will be conducted by a City-approved biologist for every newly proposed project. The habitat assessment must include a survey of the proposed project site for Covered Species and suitable habitat. If no individuals or suitable habitat are found, the project applicant must submit a letter from the project biologist substantiating the claim. If individuals or suitable habitat are found or the City does not agree with the conclusions of a negative habitat assessment, focused surveys for this species must be conducted within suitable habitat (including modeled habitat) by a City-approved biologist during the appropriate field conditions for detection prior to any proposed impacts (e.g., as a component of CEQA review).
2. Impacts to occupied habitat will be avoided to the maximum extent feasible when developing the project footprint. Unavoidable impacts to habitat shall be mitigated consistent with the Uniform Mitigation Standards of the Subarea Plan (Table 5-14).
3. Monitoring for Covered Species within preserves will be completed as specified in Table 7-1, *Type and Frequency of Periodic Monitoring for Effectiveness Monitoring*.
4. Populations of Covered Species within a preserve property are enhanced, and damaged habitat restored, through the adaptive management program, if determined appropriate through monitoring by the Preserve Manager (see Section 7.2.6, *Management Actions and Adaptive Management Strategies for Covered Species)*.

5.5.8.2 Western Spadefoot Toad Conservation Standards

The following conservation standards for potential impacts to western spadefoot toad have been developed based on input from the Independent Science Advisor Report (Rochester et al. 2017) (see Appendix F.3). Proposed development projects will implement the following actions for avoidance, minimization, and mitigation of impacts to western spadefoot toad:

1. Determine if there are occurrences of western spadefoot toad
    a. If a project site has potentially suitable habitat (see Figure 3-16), then the site will be evaluated to determine if there are potential breeding locations (seasonal depressions that hold water) within the project boundaries.
    b. If a project site has potentially suitable breeding habitat, surveys for western spadefoot toad will be conducted surveys as part of project biological resource surveys. It is not typically difficult to determine if spadefoot are present (Rochester et al. 2017). During the winter, spadefoot tadpoles can be observed in the breeding pools for up to eight to ten weeks after breeding, but can be as little as 40 days. Surveys for spadefoot will begin within a week of the first significant winter rain, as early as October or November. Surveys for spadefoot eggs and tadpoles can be done during the day and do not require nighttime surveys. If spadefoot are not detected after the first rains, surveys will be repeated with the next rain event. Once breeding has been confirmed, surveys will be repeated at four to six week intervals to document the success or failure of the breeding effort. It is not uncommon for spadefoot to fail to breed every year. Nighttime surveys for adult spadefoot can be done at the onset of

the rainy season if desired or if breeding pools do not fill. Listening for calling males is a fast way to determine whether the species is present or not. The presence of eggs and tadpoles is also a positive sign that adults are present (Rochester et al. 2017). Pool size, depth, water temperature, and notes on habitat type and vegetation in and near the pools will be recorded. Surveys will be completed by a qualified biologist.

c. If a known breeding site occurs within 1,200 feet outside of the project boundaries, the project site will be evaluated as suitable upland habitat.

d. If there is no known breeding habitat onsite as determined through field surveys and/or no known breeding sites occurring within 1,200 feet of the project boundaries, then no specific avoidance, minimization, and mitigation measure specific to western spadefoot toad will be required.

2. If there are occurrences of western spadefoot toad, the project site will be mapped into following categories:

   a. Breeding Habitat

      1) *Known Breeding Habitat* – Vernal pool and seasonal basins identified as having western spadefoot toads during field surveys.

      2) *Potentially Suitable Breeding Habitat* – Other vernal pool, seasonal basins, and vernal complexes within project area that could support western spadefoot toad breeding.

   b. Upland Habitat

      1) Suitable Upland Habitat: Based on the following factors:

         a) *Vegetation Type* – Include scrub, chaparral, grassland, woodland, riparian scrub, freshwater marsh, and vernal pools types. The denser riparian forest, open water, and developed areas should be excluded.

         b) *Slope* – Exclude areas with greater than 30 degrees slope.

         c) *Patch Size* – Exclude areas that are not part of a patch of natural habitat greater than 500 acres. Consider roadway a barrier for patch size unless appropriately sized and designed wildlife crossings are included that connect patches of natural habitat.

      2) Suitable Upland Habitat Adjacent to Areas of Known Breeding Habitat – Suitable upland habitat within 1,200 feet of known breeding habitat.

3. Vernal pools and/or seasonal basins with western spadefoot toad will be treated as vernal pools under the Santee Subarea Plan and the vernal pool conservation standards (see Section 5.5.7, *Vernal Pool Conservation Standards*) will apply. This includes:

   a. Avoidance of pools occupied by western spadefoot toad to maximum extent practible.

   b. Protection of preserve pools and their watersheds.

   c. Compensatory mitigation of unavoidable impacts that includes:

      1) No-net-loss of breeding habitat.

      2) 2:1 mitigation ratio. For impacts to western spadefoot toad, creation and/or enhancement must offset to total area of the pools.

3) Preparation of a vernal pool enhancement/mitigation plan to be reviewed and approved by the City and Wildlife Agencies.

4) Long-term management and monitoring of vernal pools (existing preserved/enhanced and created).

4. In addition to the meeting the vernal pool conservation standards, additional conservation standards for impacts to western spadefoot toad breeding habitat include:

   a. Compensatory mitigation of unavoidable impacts that includes:

      1) 1:1 mitigation ratio for the **number** of pools supporting western spadefoot toad.

5. Impacts to upland suitable habitat and upland suitable habitat within 1,200 feet of occupied pools will be at a 1:1 ratio. Mitigation will be achieved through preservation of in-kind habitat onsite and/or within an approved offsite mitigation site within the Plan Area.

6. Occupied and created pools must demonstrate that they maintain functionality for western spadefoot toad. The project proponent will include in the vernal pool enhancement plan an analysis that shows how each meets the following:

   a. Breeding habitat is connected to upland habitat.

   b. Breeding habitat is part of a large patch (greater than 500 acres) of protected natural habitat.

   c. Breeding habitat locations are protected from edge effects and trail users.

5.5.8.3 Hermes Copper Butterfly Conservation Standards

The following conservation standards for Hermes copper butterfly are based on Independent Scientific Advisory Report for the Conservation Strategy for Hermes Copper Butterfly in the City of Santee (EDAW AECOM 2009) (see Appendix F.2) and the County of San Diego Guidelines for Hermes Copper (*Lycaena hermes*) (County of San Diego 2010). The following project approval process will be implemented for the avoidance, minimization, and conservation of Hermes copper butterfly and its habitat:

1. Determine if potential Hermes copper butterfly habitat occurs on the project site based on existing data (see Section 3.4.1, *Hermes Copper Butterfly*), previous surveys or documentation, and a field survey habitat assessment of the project site. Potentially suitable habitat will be mapped based on the following:

   a. Any woody (mature) spiny redberry shrub (*Rhamnus crocea*) with California buckwheat (*Eriogonum fasiculatum*) within 15 feet (approximately 3 meters) that occur within areas of coastal sage scrub or chaparral vegetation communities.

2. If potential Hermes copper butterfly habitat occurs on the project site, conduct focused surveys to determine presence of Hermes per the following guidelines:

   a. Surveys will be completed within areas mapped as potentially suitable habitat.

   b. Four surveys will be completed from eight to 14 days apart beginning during the third full week of May and with the last survey being during the first full week of July. Additional surveys should be conducted if necessary for accurate mapping of occupied habitat.

c. Surveys should be conducted when temperatures are between 70 and 95 degrees Fahrenheit, which is the range of temperature during which Hermes coppers generally fly. Surveys should not be conducted during adverse weather conditions, such as fog, drizzle, rain, or cloud cover greater than 25 percent, or during sustained winds greater than 15 miles (24 kilometers) per hour measured 4-6 feet (1.2-1.8 meters) above ground level. Surveys should be conducted at an average walking rate of 10-15 acres per hour.

d. Flight season surveys should not be conducted concurrently with surveys for other species by the same person. The surveyor's attention must be on searching for the Hermes copper throughout the survey. Surveyor(s) must have the knowledge and field skills in surveying for Lepidoptera.

e. Note: If the Wildlife Agencies and/or other agencies responsible for monitoring of sensitive species develop a regional protocol for Hermes copper butterfly, it will replace the survey protocols listed above.

3. If Hermes is observed, it is considered an existing population and not migrant. This is due to its sedentary nature. Mapping of occupied habitat is based on the following:

   a. Habitat within 500 feet [approximately 150 meters] of a Hermes copper sighting should be mapped as occupied Hermes copper habitat. Habitat extending out from the mapped Hermes copper population/observation location to spiny redberry and California buckwheat that are three meters or less from each other should be mapped as one polygon and will be considered one population. Occupied spiny redberry with California buckwheat nearby that occur more than three meters away from each other should be mapped as a separate polygon and considered a separate population/colony. Spiny redberry with California buckwheat nearby but beyond 150 meters of a Hermes copper sighting should be mapped as potential habitat.

   b. The number of individual spiny redberry or California buckwheat plants of any size or age within each polygon should be counted, or estimated by a subsample count if the number is high. Native and nonnative plant species diversity and cover should be noted for each polygon. The acreage of the habitat includes the spiny redberry, California buckwheat, and any other plant species growing between those species or within three feet of either of those species.

   c. Habitats to be excluded from mapping beyond the 150 meter radius from the spiny redberry patches include habitats other than coastal sage scrub and chaparral that do not have spiny redberry or habitats that are barriers to dispersal, such as dense tall trees, grasslands, or other habitats without spiny redberry or California buckwheat, or the habitat beyond these barriers.

4. If no Hermes is observed but potentially suitable habitat conditions exist (e.g., vegetation cover, redberry with buckwheat within 15 feet of the redberry), potentially suitable habitat will be mapped into the following categories:

   a. Potentially suitable habitat - potentially suitable habitat conditions exist (e.g., vegetation cover, redberry with buckwheat within 15 feet of the redberry).

   b. Potentially suitable habitat, previously occupied. Includes areas of potentially suitable habitat within 500 feet of a previously known occurrence of Hermes copper butterfly but was not identified during subsequent and more recent focused survey.

5. Any impact to occupied or potentially suitable habitat for Hermes copper butterfly is significant and requires avoidance and minimization, as feasible, and mitigation, if unavoidable. Mitigation measures will be based on the following criteria:
    a. Currently occupied habitat should be avoided to maximum extent practicable. Any impact requires mitigation by preservation of occupied habitat at a ratio 3:1.
    b. Any impact to potentially suitable habitat requires mitigation by preservation of suitable habitat at a ratio of 1:1, or 2:1 if the suitable habitat was previously occupied.
    c. Preserved areas will be established with the largest and most continuous blocks of habitat as possible. Proposed preserve areas must be approved by the City prior to project permitting.
    d. If a proposed project is determined to be unable to provide the required occupied and/or potential Hermes copper butterfly habitat preservation onsite, offsite mitigation may be considered. Offsite mitigation will prioritized within the city, then outside the city.
6. For purposes of assessing impacts of a project, a negative survey will be valid for one year if the site is within one mile of a known Hermes copper location and for three years if the site is more than one mile from a known Hermes copper location.

5.5.8.4 Quino Checkerspot Butterfly Conservation Standards

[TBD in consultation with Wildlife Agencies].

5.5.8.5 Western Burrowing Owl Conservation Standards

Impacts to occupied Western Burrowing Owl Habitat shall be avoided to the maximum extent practicable. Where impacts are unavoidable, the following mitigation measures shall be required: (1) any impacted individuals must be relocated out of the impact area using passive or active methodologies consistent with steps outlined by CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) and the approval by the City; and (2) mitigation for impacts to occupied habitat, must be through the conservation of occupied burrowing owl habitat or lands appropriate for restoration, management and enhancement of burrowing owl nesting and foraging requirements at a ratio of no less than 1:1 for the territory of the burrowing owl.

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Chapter 6
Conservation Analysis

6.1 Introduction

This section includes a conservation analysis to determine if the conservation strategy (establishment of Preserve System, management and monitoring of Preserve System, and avoidance, minimization, and mitigation measures) results in the conservation and management of the Covered Species and their habitats to a level that meets the biological goals and objectives established for this Subarea Plan (see Section 5.2, *Biological Goals and Objectives*). The conservation analysis evaluates how, at a landscape and natural community level, the assembly and management of a Preserve System is able to achieve the biological goals and objectives for broader conservation of natural communities, ecological functions, habitat connectivity, and local biodiversity. The species-level conservation analysis further considers how the assembly of the Subarea Plan Preserve System and the Subarea Plan's avoidance, minimization, and mitigation measures are able to achieve the biological goals and objectives for each Covered Species. The conservation analysis is organized hierarchically according to the landscape, natural community, and species-level biological goals and objectives, and links the analysis of the objectives to criteria identified in the NCCPA and USFWS's coverage determinations for Covered Species.

6.2 Landscape-Level Conservation Analysis

The landscape-level conservation analysis evaluates how the landscape-level goals and objectives have been accomplished through implementation of the Subarea Plan conservation strategy.

6.2.1 Consistency with MSCP Subregional Plan

Landscape Goal 1 (L-1): Conserve and protect natural vegetation communities and Covered Species populations that is consistent with and contributes to the MSCP Subregional Plan.

> **Landscape Objective 1.1 (L-1.1)**: Over the permit term, the City of Santee will establish a Subarea Plan Preserve System totaling at least 3,060 acres of protected natural habitat, which exceeds the target of 2,067 acres of natural habitat established as part of the 1998 MSCP Subregional Plan based on the Multi-Habitat Planning Area (MHPA) boundaries.

As described in Section 1.1.3, *Consistency with the MSCP Subregional Plan*, the MHPA was delineated as part of the development of the 1998 Subregional MSCP Plan (City of San Diego 1998) to define areas in which habitat conservation and preserve assembly is encouraged. These boundaries were intended as an initial expectation for each subarea of the MSCP and any modifications to the MHPA preserve design must result in an equal or better level of conservation of species and habitats. Overall, the Subarea Plan Preserve System will result in a nearly 50% increase of conserved natural habitat over the targets established in MSCP Subregional Plan. Table 6-1 provides a summary of the vegetation communities that will be conserved under the Subarea Plan Preserve System versus the targets set forth in the MSCP Subregional Plan based on the MHPA boundaries.

Table 6-1. Conserved Vegetation Communities Within Subarea Plan Preserve System Compared with 1998 MHPA

Vegetation Communities	Total Acres within Subarea Plan Area	Conserved Habitat within Subarea Plan Preserve System	Acreage Targets Based on 1998 MHPA[a]	Difference in Acreage[b]
Coastal Sage Scrub	2,689.0	1,995.7	1,141.0	+854.7
Chaparral	813.8	484.5	544.0	-59.5
Grassland	583.3	288.0	178.0	+110.0
Coast Live Oak Woodland	36.8	26.6	2.0	+24.6
Riparian	293.9	194.8	121.0	+73.8
Freshwater Marsh	19.8	15.5	2.0	+13.5
Vernal Pool	0.8	0.4	-	+0.4
Disturbed Wetland	10.8	0.1	0.0	+0.1
Freshwater (Open Water)	48.8	48.6	58.0	-9.4
Non-Vegetated Channel or Floodway	10.2	5.9	21.0	-15.1
Natural Habitat Totals	4,507.2	3,060.1	2,067.0	+993.1
		Percent Change of Natural Habitat Totals:		+48%

[a] Categories of Coastal Sage/Chaparral aggregated to Coastal Sage Scrub; Riparian Forest, Oak Riparian Forest, and Riparian Scrub aggregated to Riparian.

[b] Differences for individual vegetation communities can result from changes to the preserve boundaries as well as updates and refinements to the vegetation communities mapping.

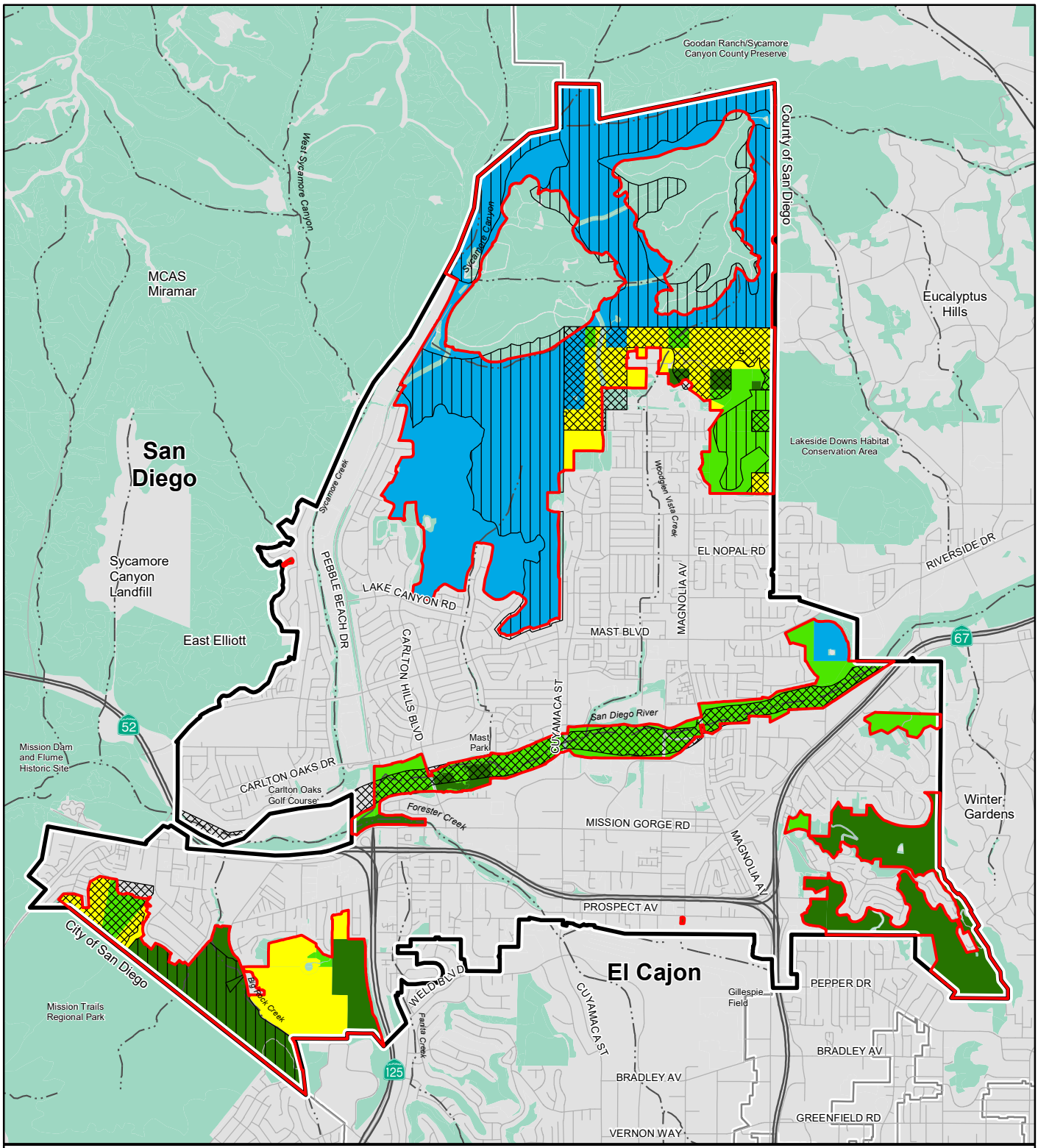
Figure 6-1 displays a comparison of the Subarea Plan Preserve System relative to the MHPA boundaries. In many respects the overall Preserve System is consistent with the MHPA, with the following notable exceptions that generally resulted in an increase of conserved habitat:

- Rattlesnake Mountain Subunit – The area of the Rattlesnake Mountain Subunit (totaling 386.8 acres) has been included in the Subarea Plan Preserve System and is the most significant area added to the Preserve System that was not included in the MSCP MHPA. This portion of the Preserve System includes blocks of primarily coastal sage scrub on hillsides that form a functioning stepping stone linkage for the coastal California gnatcatcher.

- Mission Trails Subunit – The Mission Trails Subunit is substantially increased (by approximately 150 acres) from the boundaries in the MSCP MHPA. The Subarea Plan Preserve System includes the existing CNLM East Hills Habitat Conservation Area (HCA), plus the City has designated the area between the CNLM preserve and Mission Trails Regional Park (MTRP) as a softline preserve area that will result in a minimum of 75% conservation.

- Fanita Ranch Subunit – The development plan footprint for the Fanita Ranch property that was included in the 1998 MSCP MHPA included three development bubbles. In the current configuration of the Fanita Ranch development, the southern development area has been removed and the overall portion of the property to be incorporated into the Subarea Preserve System is approximately 250 acres greater than boundaries in the 1998 MSCP MHPA.

- North Magnolia Subunit – The Cheyenne Property has been acquired by Endangered Habitat Conservancy (EHC), and the entire property will be protected as open space. This property had originally been anticipated to be partially developed as part of the MSCP MHPA. The acquisition



Legend

- City Boundary
- Subarea Plan Preserve System Boundary

Subarea Plan Preserve System

- Existing Preserves and Fully Managed
- Currently Protected Open Space - Not Fully Managed
- Future Preserves 100% (Hardlines)
- Future Preserves 75% (Softline Area)

- Natural Vegetation
- Developed/Disturbed/Agriculture

MSCP MHPA 1998

- 100 Percent Conserved
- 90 - 95 Percent Conserved

N

0 4,450

Feet

Source: City of San Diego 1998. MSCP Subregional Plan.

Figure 6-1
Subarea Plan Preserve System Compared with MHPA
Santee MSCP Subarea Plan

of this property as open space adds approximately 100 acres to the Subarea Plan Preserve System that had not been included in the MSCP MHPA.

- Softline Areas Partially Filled In – Since the 1998 MSCP MHPA was originally approved, a number of properties have been established as protected open space within softline areas in the North Magnolia and Mission Trails Subunits. This has increased the acres of protected habitat by approximately 50 acres above what had been estimated through the MSCP MHPA.

6.2.2 Representative of Natural Landscapes

Landscape Goal 2 (L-2): Conserve and manage representative natural and semi-natural landscapes to maintain the ecological integrity of large habitat blocks, ecosystem function and biological diversity.

Landscape Objective 2.1 (L-2.1): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that conserves a representative percent of extant vegetation communities (not more than a 10% difference), with a focus on habitats considered sensitive, rare, or declining.

Table 6-2 summarizes the representative percent of the vegetation communities that will be conserved under the Subarea Plan Preserve System versus the overall Subarea Plan Area.

Table 6-2. Comparison of Representative Percentages of Vegetation Communities in Subarea Plan Area and Preserve System

Vegetation Communities	Total Acres within Subarea Plan Area	Percent of Remaining Natural Habitat	Conserved Habitat within Preserve System	Percent of Conserved Habitat	Change in Representative Percent
Coastal Sage Scrub	2,689.0	59.7%	1,995.7	65.2%	+5.6%
Chaparral	813.8	18.1%	484.5	15.8%	-2.2%
Grassland	583.3	12.9%	288.0	9.4%	-3.5%
Coast Live Oak Woodland	36.8	0.8%	26.6	0.9%	+0.1%
Riparian	293.9	6.5%	194.8	6.4%	-0.2%
Freshwater Marsh	19.8	0.4%	15.5	0.5%	+0.1%
Vernal Pool	0.8	<0.1%	0.4	0.0%	0.0%
Disturbed Wetland	10.8	0.2%	0.1	0.0%	-0.2%
Freshwater (Open Water)	48.8	1.1%	48.6	1.6%	+0.5%
Non-Vegetated Channel or Floodway	10.2	0.2%	5.9	0.2%	0.0%
Natural Habitat Totals	4,507.2	100.0%	3,060.1	100.0%	0.0%

The Subarea Plan Preserve System matches the overall percentages of natural habitat within Subarea Plan Area, with protection of the more sensitive vegetation communities. The Preserve System will end up protecting a slightly higher representative percentage of coastal sage scrub and slightly less representative percentage of chaparral and grassland. The differences are within the objective of no more 10% change of representative percentages.

6.2.3 Sustain Wildlife Movement and Connectivity

Landscape Goal 3 (L-3): Sustain effective wildlife movement and interchange between habitat areas to maintain ecological integrity within the Subarea Plan Area.

> **Landscape Objective 3.1 (L-3.1)**: Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that protects biological core and linkage areas consistent with targets of the MSCP Subregional Plan.

The MSCP Subregional Plan also identifies targets for conservation of biological core and linkage areas within each subarea plan area (see Table 3-2 of the MSCP Subregional Plan included in Appendix B). The Santee Subarea Plan has a target to conserve 55% (1,753 acres) of the Mission Trails/Kearny Mesa/E. Elliot/Santee biological core area that intersects with the Subarea Plan Area (see Figure 2-12, *MSCP Biological Core and Linkage Areas*). Figure 6-2 and Table 6-3 display and summarize how the Subarea Plan Preserve System will protect the Santee portions of the MSCP biological core and linkage areas.

A total of 66.5% (2,117.9 acres) of the Mission Trails/Kearny Mesa/E. Elliot/Santee biological core area will be conserved as a result of the Subarea Plan implementation. Table 6-3 also summarizes acreages and percent conserved for biological core areas and habitat linkages that have been more recently mapped by the San Diego Management and Monitoring Program (SDMMP) in the Management Strategic Plan (MSP), Loss of Connectivity Chapter (SDMMP 2017) (see Figure 2-13) and by the Institute for Ecological Monitoring and Management at San Diego State University (SDSU) as part of the Comprehensive Multi-species Connectivity Assessment and Planning for the Highway 67 Region of San Diego County, California (Jennings and Zeller 2017). The overall level of protection of the biological core areas mapped as part of these more recent regional core and linkage area assessment also meets the level of conservation anticipated under the MSCP Subregional Plan.

While the development anticipated and approved under the Subarea Plan in the northern portions of the Subarea Plan Area will result in a loss and fragmentation of a portion of a large block of natural habitat that extends from Mission Trails Regional Park through the east side MCAS Miramar and towards San Vicente Reservoir, the development in the Subarea Plan Area represents a relatively small fraction of this block of habitat (see Table 6-3). Through the implementation of the Subarea Plan Wildlife Corridor and Wildlife Crossing Structure Criteria (see Section 5.5.3), these impacts will be minimized by maintaining a functional level of habitat connectivity within the Subarea Plan Area with appropriate crossing structures for roadways that intersect portions of the Subarea Plan Preserve System.

Table 6-3. Conservation of Biological Core Areas

Biological Core Area	Total Acres	Acres within Subarea Plan Area	Conserved Habitat Acres within Subarea Plan Area	Percent Conserved within Subarea Plan Area	Percent of Total Core Area Impacted
MSCP Subregional Plan					
10 - Mission Trails /Kearny Mesa /E. Elliot/Santee	17,629.0	3,181.0	2,117.9	66.5%	6.0%

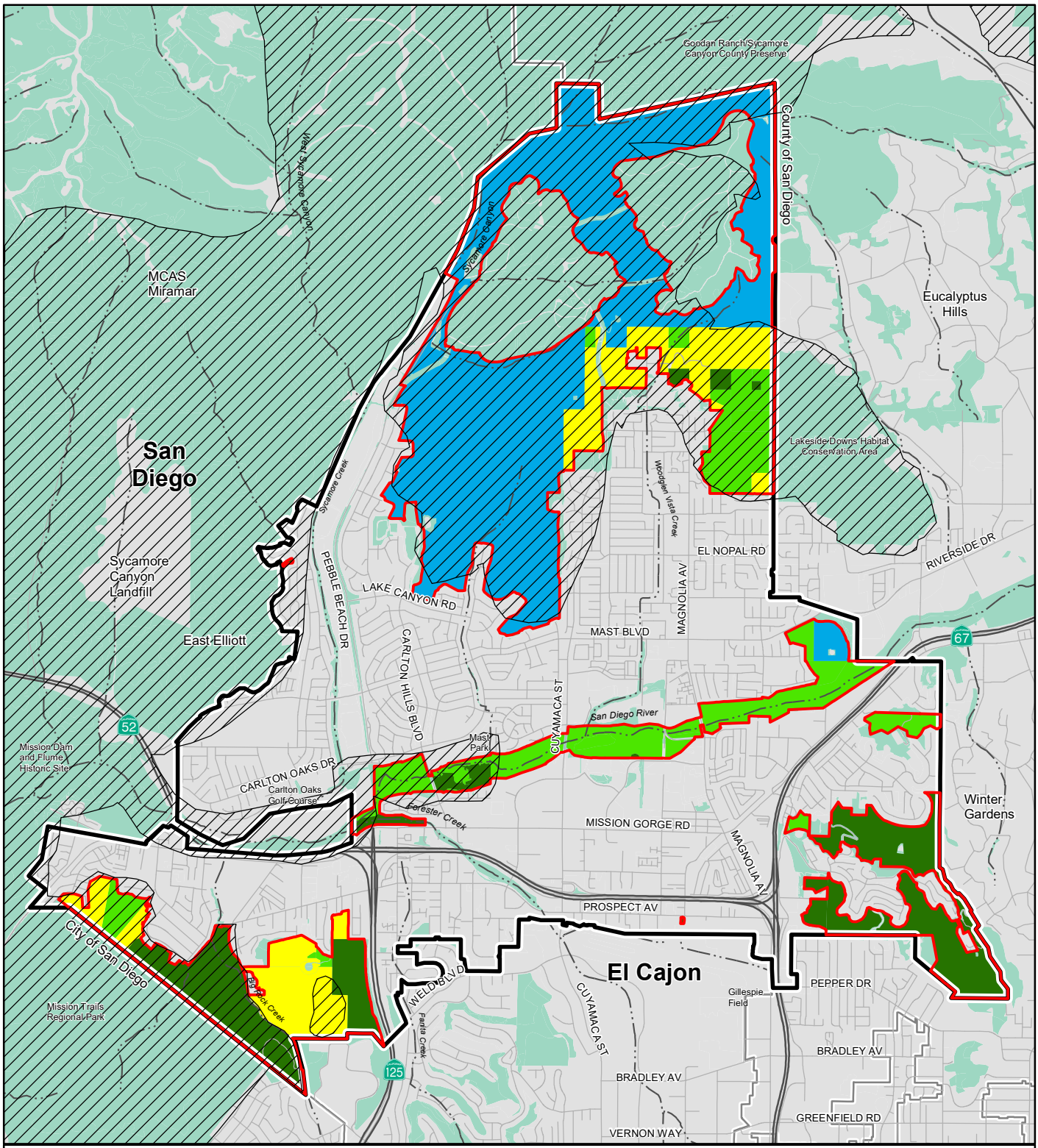


Figure 6-2
MSCP Biological Core and Linkage Areas Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Biological Core Area	Total Acres	Acres within Subarea Plan Area	Conserved Habitat Acres within Subarea Plan Area	Percent Conserved within Subarea Plan Area	Percent of Total Core Area Impacted
SDMMP Management Strategic Plan (MSP)					
N - Goodan Ranch /Sycamore Canyon	29,106.0	2,808.5	1,851.1	65.9%	4.4%
R - Mission Trails	5,370.0	244.2	224.7	92.0%	<0.1%
Totals	34,476.0	3,052.7	2,095.8	68.7%	4.4%
SDSU IEM Corridors from Highway 67 Study					
Segment 9 Corridor Isopleths[1]:					
Top 10%	8,188.5	636.0	328.9	51.7%	3.8%
Top 10-20%	12,661.9	1,114.7	575.8	51.7%	4.3%
Top 20-30%	6,881.8	1,142.5	642.9	56.3%	7.3%
Totals	27,732.2	2,893.2	1,547.6	53.5%	4.9%

[1] Isopleths = Results of the SDSU IEM corridor study included a multi-species connectivity movement surface which was organized into connectivity value ranges (isopleths) from high to low.

Landscape Objective 3.2 (L.3.2): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that secures important wildlife movement corridors and landscape connectivity both within and adjacent to the Subarea Plan Area.

As described in Section 5.3.3, *Preserve System Habitat Connectivity*, an important consideration in the configuration and functionality of the Subarea Plan Preserve System is to maintain habitat linkages and wildlife movement corridors both within and adjacent to the Subarea Plan Area. As shown in Figure 5-2, the relationship of the Subarea Plan Preserve System and important connections with blocks of open space surrounding the Subarea Plan Area and key habitat linkages and wildlife corridors within the Subarea Plan Area is highlighted. Within implementation of the Subarea Plan, the following key connections and corridors will be protected:

- Habitat connectivity connections to open space **adjacent to** the Subarea Plan Area.
    - Maintain habitat connections to open space on MCAS Miramar and Goodan Ranch/Sycamore Canyon County Preserve to the north of the Subarea Plan Area.
    - Maintain habitat connections to the Lakeside Downs Habitat Conservation Area (HCA) along the eastern border of the Subarea Plan Area.
    - Maintain habitat connection with Mission Trails Regional Park along southwestern border of Subarea Plan Area.
    - Maintain connections along the San Diego River linkage on the western and eastern edges for the Subarea Plan Area.
    - Protect and maintain blocks of coastal sage scrub on the eastern side of the Subarea Plan Area that function as a stepping stone linkage for coastal California gnatcatchers to nearby blocks of coastal sage scrub (e.g. Lakeside Linkages County Preserve) within a few miles east of the Subarea Plan Area.
- Habitat linkages/wildlife movement corridors **within** the Subarea Plan Area
    - Establish a wildlife movement corridor through the Fanita Ranch development that maintains north–south connectivity. As described in the Fanita Ranch BTR (Dudek 2018), a

wildlife movement corridor through the central portion of the property that meets the wildlife movement and wildlife crossing criteria (see Section 5.5.3, *Wildlife Corridor and Wildlife Crossing Structure Criteria*). This wildlife corridor will maintain the north-south connectivity. In addition, a secondary corridor will be maintained along the eastern border of the Fanita Ranch development and Subarea Plan Area.

- Establish and maintain wildlife movement functionality with east–west connectivity between open space in the southern portion of Fanita Ranch and the open space properties on the eastern portion of the Subarea Plan Area currently managed by CNLM and EHC. The Fanita Ranch development will include a wildlife crossing beneath the Cuyamaca Street extension and includes protected open space forming an east-west wildlife movement corridor. The City will apply general preserve design and configuration criteria (refer to Section 8.3.1, *Habitat Loss and Incidental Take (HLIT) Ordinance*) for future development within the softline preserve areas of the North Magnolia Subunit to maintain and protect a wildlife movement corridor meeting the criteria of the Subarea Plan.
- Maintain habitat linkage and wildlife movement corridor along San Diego River.
- Maintain habitat linkage from Mission Trails Regional Park and CNLM East Mesa HCA. The City will apply preserve design and configuration criteria for future development within the softline preserve areas of the Mission Trails Subunit to maintain and protect a wildlife movement corridor meeting the criteria of the Subarea Plan.
- Protect and maintain blocks of coastal sage scrub on the eastern side of the Subarea Plan Area that function as a stepping stone linkage for coastal California gnatcatchers within the Subarea Plan Area from Rattlesnake Mountain to the EHC Cheyenne open space property.

6.2.4 Maintain Range of Environmental Gradients

Landscape Goal 4 (L-4): Protect natural landscapes within a range of environmental gradients and contiguous to other protected areas to allow for shifting species distributions in response to catastrophic events (e.g., fire, prolonged drought) or changed circumstances (e.g., climate change).

Landscape Objective 4.1 (L-4.1): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System that conserves natural habitat representative of the current distribution of natural habitat within elevation ranges (not more than a 5% difference).

Assembly of the Subarea Plan Preserve System will result in the conservation of natural habitat across a range of environmental gradients. This will include riparian and freshwater marsh habitat along the San Diego River within the valley floor portions of the Subarea Plan, grassland, oak woodland, and coastal sage scrub habitats on lower slopes of the adjoining hillsides, and coastal sage scrub and chaparral habitats on the higher elevations and ridgelines of the Subarea Plan Area. The location and distribution of the Preserve System captures a range of environmental gradients that is representative of the existing habitat distributions. Inclusion of a range of environmental gradients protects a greater diversity of environmental conditions and greater species diversity, and provides opportunities for species to adapt to changed circumstances including climate change by dispersing along environmental gradients. As described in 6.2.3, *Sustain Wildlife Movement and Connectivity*, the Subarea Plan Preserve System will maintain habitat linkages and wildlife movement corridors both within and adjacent to the Subarea Plan Area that will allow for species movement along environmental gradients. Table 6-4 summarizes the elevation ranges of the Subarea Plan Preserve System.

Table 6-4. Representative Percentages of Natural Habitat Across Elevation Ranges in Subarea Plan Area and Preserve System

	Total Acres within Subarea Plan Area	Percent of Remaining Natural Habitat	Conserved Habitat within Preserve System	Percent of Conserved Habitat	Change in Representative Percent[a]
Less than 450 feet	575.9	12.8%	348.4	11.4%	-1.4%
450-600 feet	1,036.0	23.0%	665.5	21.7%	-1.2%
600-750 feet	1,289.0	28.6%	952.1	31.1%	2.5%
750-900 feet	695.1	15.4%	595.6	19.5%	4.0%
900-1,050 feet	603.8	13.4%	408.3	13.3%	-0.1%
More than 1,050 feet	307.4	6.8%	90.2	2.9%	-3.9%
Totals	4,507.2	100.0%	3,060.1	100.0%	0.0%

[a] A change of 5% or below within objective.

6.3 Natural Communities-Level Conservation Analysis

6.3.1 Upland Vegetation Communities

Natural Community Goal 1 (N-1): Protect, manage, and enhance natural communities to promote native biodiversity.

Natural Community Objective 1.1 (N-1.1) (Chaparral): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 484 acres of chaparral habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the chaparral natural community.

Natural Community Objective 1.2 (N-1.2) (Grassland): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 288 acres of grassland habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the grassland natural community.

Natural Community Objective 1.3 (N-1.3) (Riparian): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 194 acres of riparian habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the riparian natural community.

Natural Community Objective 1.4 (N-1.4) (Scrub): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 1,995 acres of coastal sage scrub habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the scrub natural community.

Natural Community Objective 1.5 (N-1.5) (Woodland): Over the permit term, the City of Santee will establish a Subarea Plan Preserve System to protect at least 26 acres of woodland habitat and promote conservation of native biodiversity and connectivity that benefit Covered Species of the woodland natural community.

Assembly of the Subarea Plan Preserve System will result in the conservation of natural habitat that will meet the natural community objectives for upland vegetation communities. The conservation of natural habitat will promote conservation of native biodiversity and benefit Covered Species. Table 6-5 summarizes amount of natural vegetation communities to be protected within the Subarea Plan Preserve System.

Table 6-5. Natural Habitat Protected in Subarea Area Preserve System

Vegetation Communities	Existing Habitat Preserves	Currently Protected, Not Fully Managed	Hardline Preserve (100%)	Softline Preserve Areas (75%)	Total Conserved within Preserve System
Coastal Sage Scrub	368.9	257.6	1,079.4	289.8	1,995.7
Chaparral	167.8	7.7	293.9	15.1	484.5
Grassland	38.3	19.6	206.5	23.6	288.0
Coast Live Oak Woodland	-	0.4	26.2	-	26.6
Riparian	39.0	151.6	4.0	0.2	194.8
Freshwater Marsh	-	15.5	-	-	15.5
Vernal Pool	-	-	0.4	-	0.4
Disturbed Wetland	-	-	0.1	-	0.1
Freshwater (Open Water)	-	48.6	-	-	48.6
Non-Vegetated Channel or Floodway	-	-	5.9	-	5.9
Natural Habitat Totals	614.0	501.0	1,616.4	328.7	3,060.1

6.3.2 Riparian, Wetland, and Vernal Pool Habitats

Natural Community Goal 2 (N-2): Maintain and enhance riparian and wetland function and values to benefit Covered Species and promote native biodiversity.

> **Natural Community Objective 2.1 (N-2.1):** Over the permit term, the City of Santee will conserve, restore and/or enhance areas within the Santee Subarea Plan Preserve Area with aquatic resources (per CDFW jurisdiction). These conservation actions will protect riparian and wetlands functions and values by improving the condition and integrity of the physical streambed, aquatic and riparian habitat, and hydrology.

Assembly of the Subarea Plan Preserve System will result in the conservation of natural habitat that will meet the natural community objectives for riparian and wetland vegetation communities. The conservation of natural habitat will promote conservation of native biodiversity and benefit Covered Species. Table 6-5 also summarizes amount of riparian and wetland vegetation communities to be protected within the Subarea Plan Preserve System.

> **Natural Community Objective 2.2 (N-2.2):** The City of Santee will set forth and implement policies and procedures to ensure Covered Activities result in no net loss of wetland habitat acreage, and functions and values in the Subarea Plan Area.

The Subarea Plan sets forth the Wetland Protection Standards (Section 5.5.5) to ensure wetlands will be conserved to achieve no-net-loss of acreage, function (e.g., ecosystem services, such as water quality or floodplain protection), or value (to support corridor maintenance, biodiversity, ecosystem services, and aesthetics) within the Subarea Plan Area. Wetlands protection under the Subarea Plan

will be provided through individual project entitlement reviews and the associated CEQA process. As part of the CEQA review, development projects which contain wetlands will address wetlands through priorities of first avoidance, then minimization, and if impacts are unavoidable, through wetlands mitigation that includes a component of enhancement, restoration and/or establishment to adequately meet a no-net-loss criterion. In addition to the Subarea Plan Wetland Protection Standards, wetlands are afforded protection under existing Federal and State laws and regulatory programs.

> **Natural Community Objective 2.3 (N-2.3):** The City of Santee will set forth and implement policies and procedures to ensure Covered Activities result in no net loss of vernal pool/seasonal basin habitat values and acreage in the Subarea Plan Area.

The Subarea Plan sets forth the Vernal Pool Conservation Standards (Section 5.5.7 and Appendix G) to provide a framework to protect, enhance, and manage vernal pool resources within the Subarea Plan Area. These standards have been developed in a manner to closely follow definitions and requirements included in the City of San Diego Vernal Pool Habitat Conservation Plan (VPHCP) (City of San Diego 2017). As part of the CEQA review, development projects which contain vernal pools/seasonal basins will address these habitats through priorities of first avoidance, then minimization, and if impacts are unavoidable, through mitigation that includes a component of restoration and/or creation to adequately meet a no-net-loss criterion.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of known vernal pool/seasonal basin habitat areas. This will include a total of 19.6 acres of known vernal pool complexes near the Weston project and Grossmont College areas, and 0.8 acres of potential vernal pool/seasonal basin features within the Fanita Ranch property. This percent of conservation of vernal pool habitat exceeds the amount that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA.

Impact Analysis

The vernal pool complex associated with the Weston will be protected as a vernal pool preserve and not impacts are expected. Future development within the Fanita Ranch property and within the Mission Trails Subunit softline area that includes the vernal pool complex near Grossmont College could potentially impact vernal pool habitat and will be addressed through the avoidance, minimization, and mitigation measures of the Vernal Pool Conservation Standards. A Vernal Plan Mitigation Plan will be implemented projects have direct and unavoidable impacts to vernal pools similar to the following:

- **Vernal Pool Mitigation Plan**: A Vernal Pool Mitigation Plan (VPMP) will be prepared prior to issuance of any grading permits that would allow disturbance of seasonal basin features (i.e. natural vernal pools and man-made features containing vernal pool indicator plant and wildlife species). The Vernal Pool Mitigation Plan, which will be prepared following the Vernal Pool Conservation Standards (see Appendix F), will describe opportunities for preservation, rehabilitation or enhancement, and creation of new seasonal basin resources within the Preserve as mitigation for anticipated development impacts. The Vernal Pool Mitigation Plan will be focused on seasonal basin features and associated upland habitat enhancement opportunities and cover the following: conceptual level vernal pool design, planting plan (planting palettes for both vernal pool and upland habitats), and supplemental water program; maintenance and monitoring guidelines; San Diego fairy shrimp and

western spadefoot toad translocation; and ownership arrangements and long-term management strategy.

Natural vernal pools will be mitigated at a 4:1 ratio, including preservation and management of existing pools, rehabilitation/enhancement of existing features within the Preserve and creation of new features. Man-made pools (i.e. artificial features and road ruts) will be mitigated through rehabilitation/enhancement and/or creation at a 3:1 or 2:1 ratio, depending on whether the feature supports plant or wildlife indicator species. Rehabilitation/enhancement may occur in existing features within the Preserve that are not included as vernal pools (i.e. road ruts lacking vernal pool indicator species). This would entail repairing degraded features through the manipulation of surface topography to improve the overall ecological function of the vernal pool, control of invasive species, and planting of appropriate native species. Creation would consist of establishing new vernal pools in areas where they did not previously occur and/or the returning of areas to a pre-existing condition through manipulation of surface topography to support inundation and ponding for vernal pools. Created features shall exhibit the same or improved characteristics as those within the impact area currently supporting fairy shrimp, indicator vernal pool plant species, and western spadefoot toad and will maintain comparable individual pool sizes and watersheds.

Existing permanently impacted features that support San Diego fairy shrimp and vernal pool indicator plant species will have the top 1 to 3 inches of soil removed and set aside prior to mass grading. This soil will be kept in a dry location until it is deposited into the new features. Once the created or enhanced pools are proven to hold water for the appropriate amount of time, they will be inoculated with the soil from the impacted features. The acreage of surface area that will be created shall be verified using on-site soil hydrologic properties and modeling of rainfall seasons.

6.4 Species-Level Conservation Analysis

6.4.1 San Diego Ambrosia

Federal: Endangered—2002.

State: None.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: Critical habitat was been designated in 2010 by USFWS for this species (USFWS 2010a).

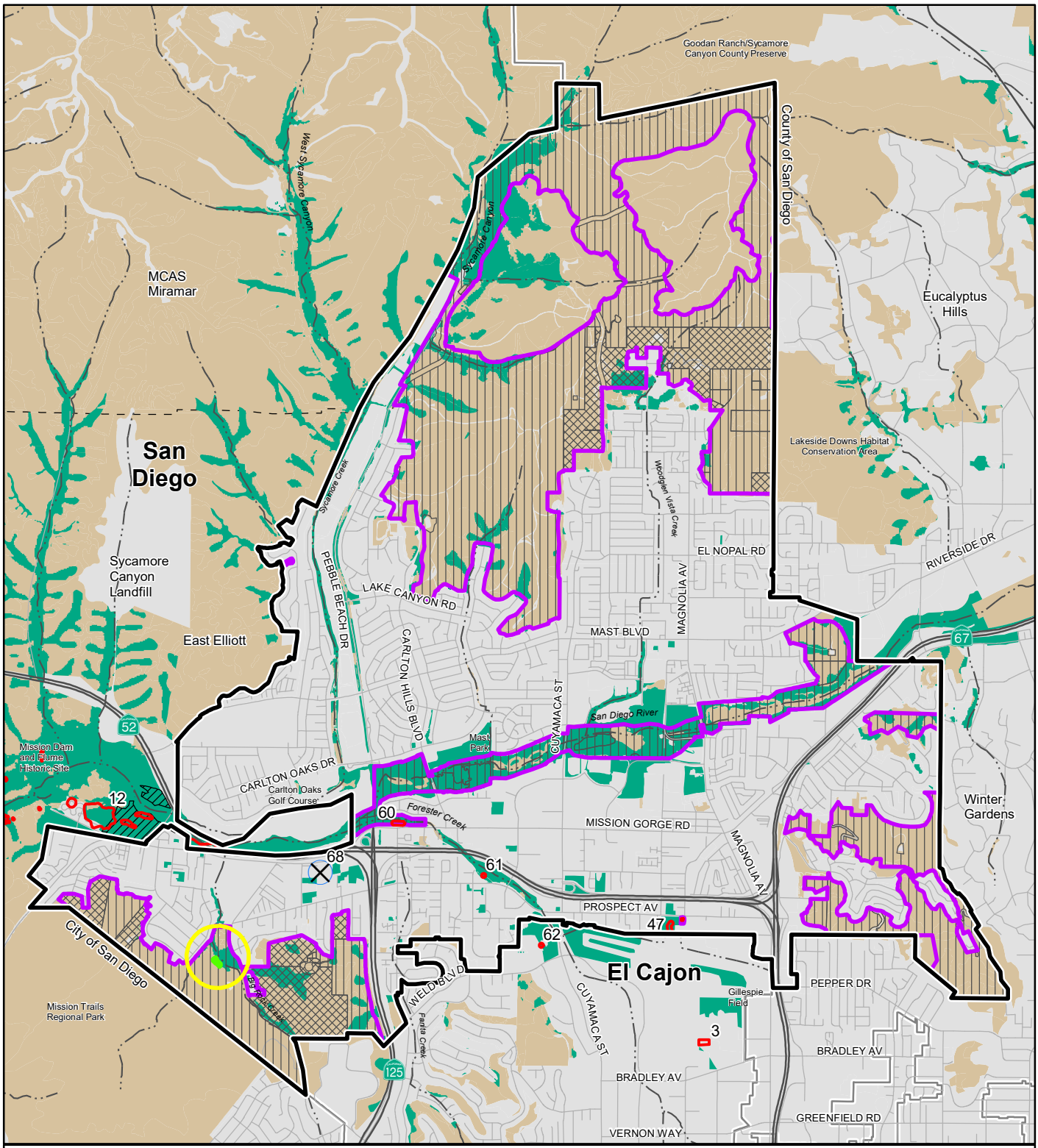
Species Background: San Diego ambrosia is typically associated with upper terraces of rivers and drainages, where it is associated with open coastal sage scrub, grassland, or disturbed habitats. This species typically occupies low-lying areas where winter and spring soil saturation levels are high, although it generally is not associated with perennial wetlands (CalFlora 2017). A habitat suitability model was developed for this Subarea Plan based on factors of vegetative cover, topography, proximity to rivers and drainages, and elevation range limits. See section 3.4.1, *Plant Species Profile: San Diego Ambrosia*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 1 (S-1): Provide for the conservation of San Diego ambrosia within the Subarea Plan Area.

6.4.1.1 Conservation of Suitable and Occupied Habitat

Species Objective 1.1 (S-1.1): Protect and maintain 502 acres of suitable habitat for San Diego ambrosia within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 502.0 acres of suitable habitat for San Diego ambrosia (see Figure 6-3). This is 50.3% of the suitable habitat within the Subarea Plan Area and exceeds the amount of San Diego ambrosia habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are 4 current known occurrences of San Diego ambrosia within the Subarea Plan Area and 2 (50%) are located within the Subarea Plan Preserve System boundaries. This includes a healthy population (estimated greater than 10,000 stems) in the Caltrans Forester Creek Mitigation Area and a translocated population within the Railroad Avenue Ambrosia Conservation Preserve. Plus there is a population within the city-owned Forester Creek Restoration Area that is protected open space, but are not within the Subarea Plan Preserve System boundaries. Table 6-6 summarizes the total amount of suitable habitat, critical habitat, and known occurrences of San Diego ambrosia within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Suitable Habitat
- Final Critical Habitat (USFWS 2010a)
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations*

- Current (post-1999)
- Historic (pre-2000)
- CNDDB 2010 #36
- Proposed Transplantation Area
- Translocated

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

* CNDDB occurrence number

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-3 San Diego Ambrosia.mxd Date: 12/19/2018 34153

Figure 6-3
San Diego Ambrosia: Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-6. Conservation Analysis Summary: San Diego Ambrosia

	Suitable Habitat (acres)	Natural Habitat within Critical Habitat (acres)	Current Known Occurrences	
			Locations	Population (stems)
Total in Subarea Plan Area	997.5	0.2	4	20,315
Conservation				
Conserved through Subarea Plan Preserve System				
Existing Preserves	64.9	-	2	20,000
Currently Protected Open Space, Not Fully Managed	215.6	-	-	-
Hardline Preserves (100%)	186.5	-	-	-
Softline Areas (75%)	35.0	-	-	-
Total Conserved	502.0	0.0	2	20,000
Percent Conserved	50.3%	0.0%	50.0%	98.4%
Anticipated Conservation Based on MSCP MHPA				
Total Conserved	310.9	0.0	0	0
Percent Conserved	31.2%	0.0%	0%	0%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA				
Total Conserved	+191.1	0.0	+2	+20,000
Percent Conserved	+19.1%	0.0%	+50.0%	+98.4%
Impacts [a]				
Estimated Impacts from Covered Activities				
Covered Development Projects	146.4	-	-	-
Covered Street Projects	3.1	-	-	-
Covered Drainage Projects	8.8	-	-	-
New Trail Segments	1.9	-	-	-
Future Development Activities	66.7	-	-	-
Total Impacted	226.9	0	0	0
Percent Impacted	22.7%	0%	0%	0%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.1.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.1.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [X] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.1.3 Impact Analysis

There is a total of 160.2 (16.1%) acres of potentially suitable habitat for San Diego ambrosia estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. There are no known occurrences of San Diego ambrosia that are anticipated to be impacted by the Covered Activities.

6.4.1.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego ambrosia and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego ambrosia.

6.4.2 San Diego Barrel Cactus

Federal: None.

State: None.

California Rare Plant Ranking (CRPR): 2B.1.

Critical Habitat: None. This species has not been listed by USFWS.

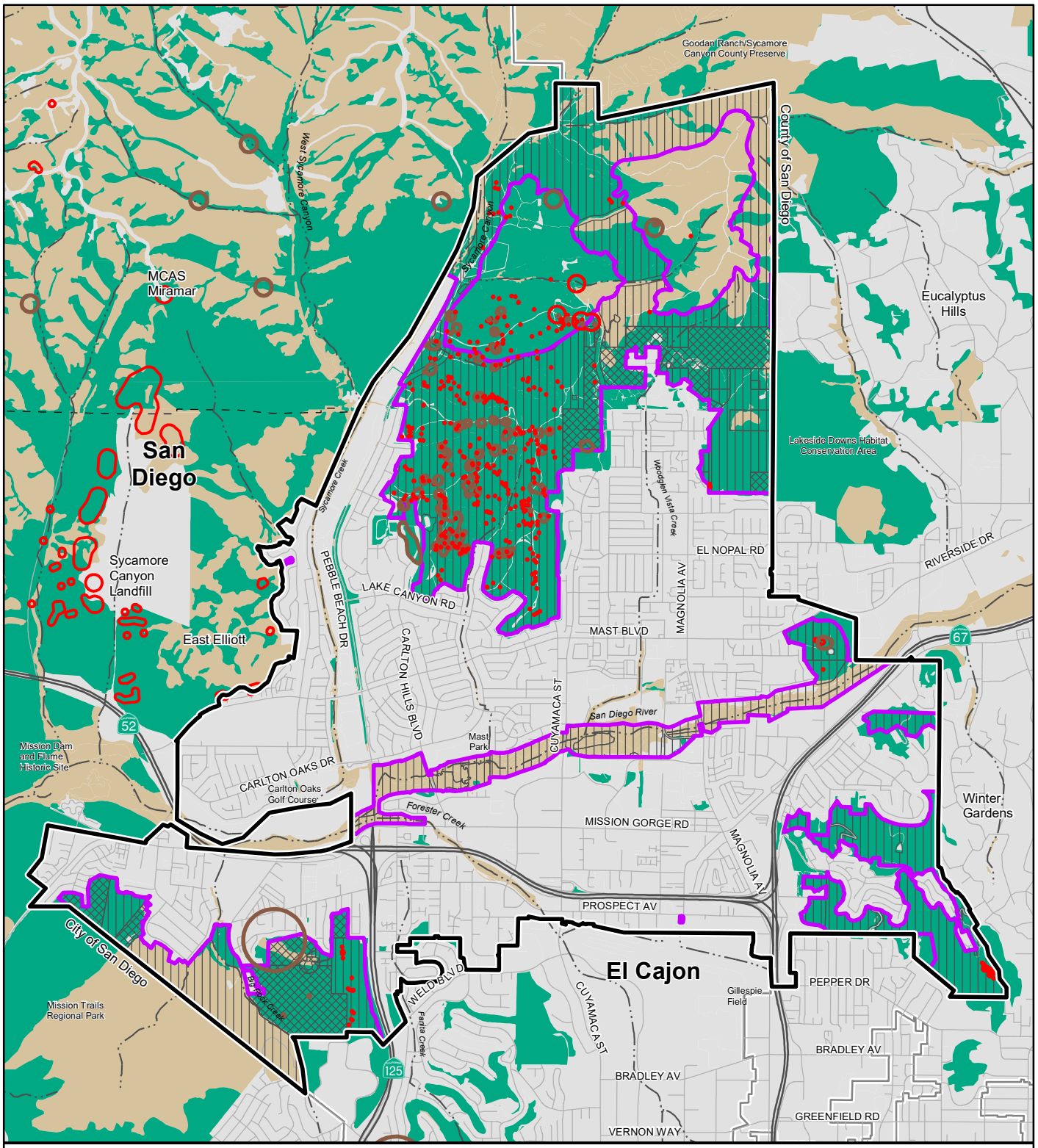
Species Background: San Diego barrel cactus is a small, stout barrel cactus, generally not taller than wide. Optimal habitat for this species appears to be hillsides in the coastal slope dominated by Diegan coastal sage scrub. A habitat suitability model was developed for this Subarea Plan based on factors of vegetative cover, soil type, and elevation range limits. See section 3.4.2, *Plant Species Profile: San Diego Barrel Cactus*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 2 (S-2): Provide for the conservation of San Diego barrel cactus within the Subarea Plan Area.

6.4.2.1 Conservation of Suitable and Occupied Habitat

Species Objective 2.1 (S-2.1): Protect and maintain 2,254 acres of suitable habitat for San Diego barrel cactus within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,254.7 acres of suitable habitat for San Diego barrel cactus (see Figure 6-4). This is 69.8% of the suitable habitat within the Subarea Plan Area and exceeds the amount of San Diego barrel cactus habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There is a current population of approximately 5,174 individuals of San Diego barrel cactus within the Subarea Plan Area. There is a large number of individual plants (4,866) observed within the Fanita Ranch project area. Other locations of known occurrences include CNLM Rattlesnake Mountain HCA, CNLM East Mesa HCA, and "Tank Hill" area. Table 6-7 summarizes the total amount of suitable habitat and known occurrences of San Diego barrel cactus within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-4 San Diego Barrel Cactus-Unique.mxd Date: 12/19/2018 34153

Figure 6-4
San Diego Barrel Cactus - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-7. Conservation Analysis Summary: San Diego Barrel Cactus

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	3,231.7	388	5,174
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	406.0	2	95
Currently Protected Open Space, Not Fully Managed	251.0	3	5
Hardline Preserves (100%)	1,286.5	334	4,358
Softline Areas (75%)	311.2	1	15
Total Conserved	2,254.7	340	4,473
Percent Conserved	69.8%	87.6%	86.5%
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	1,337.4	162	2,077
Percent Conserved	41.4%	41.8%	40.2%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+917.3	178	2,396
Percent Conserved	+28.4%	45.8%	46.3%
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	579.1	46	598
Covered Street Projects	0.1	-	-
Covered Drainage Projects	2.0	-	-
New Trail Segments	0.4	-	-
Future Development Activities	199.7	1	50
Total Impacted	781.3	47	648
Percent Impacted	24.2%	12.1%	12.5%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.2.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.2.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.2.3 Impact Analysis

There is a total of 781.3 (24.2%) acres of potentially suitable habitat for San Diego barrel cactus estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. Impacts to known occurrences (598 individuals) are anticipated from the Fanita Ranch development project. These impacts will be offset through conservation of 4,267 individuals (88%) within the onsite habitat preserve (Dudek 2018).

6.4.2.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego barrel cactus and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego barrel cactus.

6.4.3 San Diego Button-celery

Federal: Endangered—1993.

State: Endangered—1979.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: No critical habitat rules have been published.

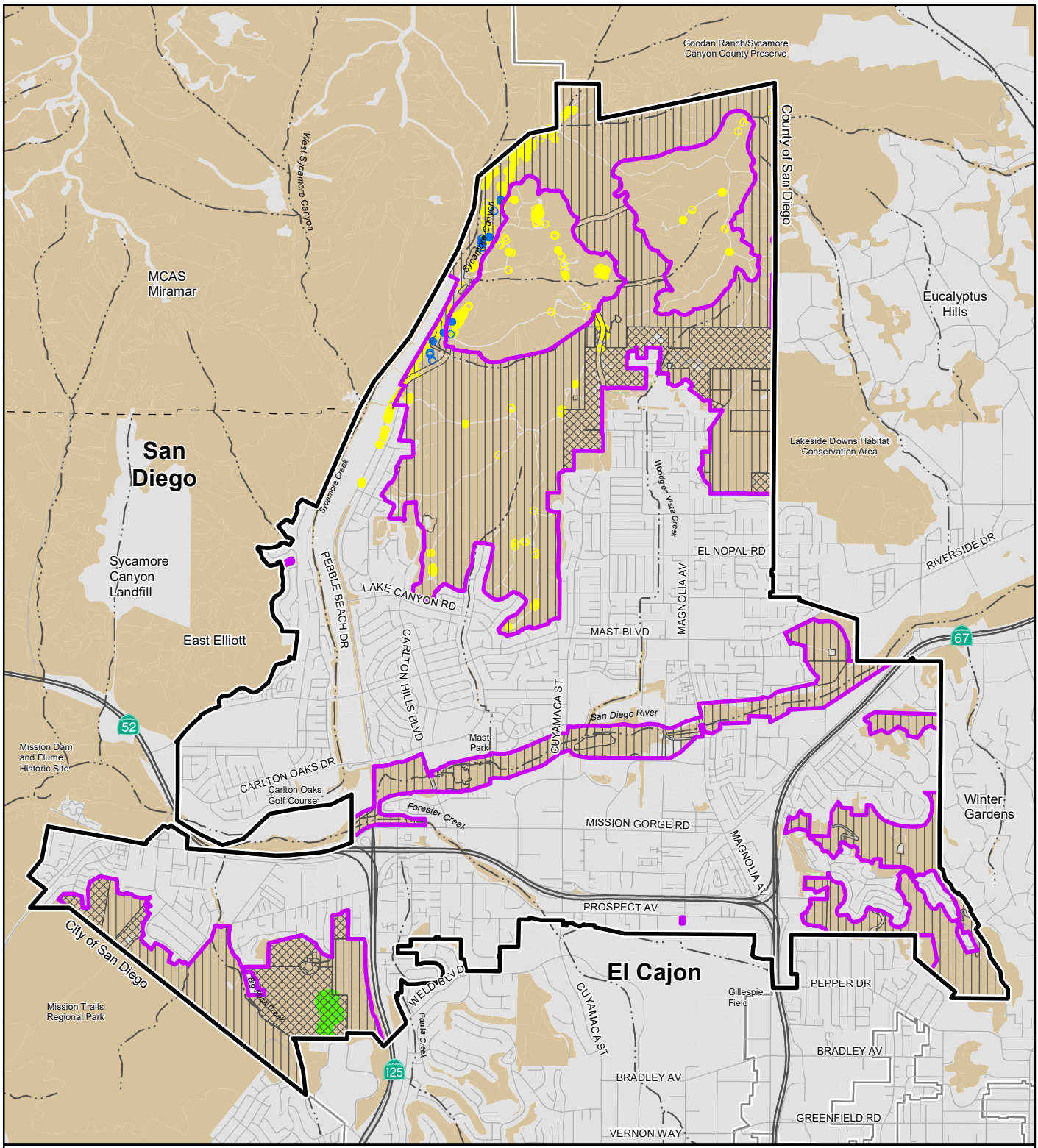
Species Background: San Diego button-celery is a biennial or longer-lived or perennial herb in the carrot family. It has long, light-green leaves that often protrude from pools, which develop into highly toothed gray-green mature leaves. This species occurs nearly exclusively in or adjacent to vernal pool wetlands; it was listed by the USACE as an indicator of vernal pools (USACE 1997) and is considered a vernal pool obligate (USFWS 2010b). This species is more tolerant of peripheral mesic vernal pool habitat than most vernal pool species with which it grows (Reiser 2001). It is able to tolerate the seasonal inundation of vernal pools and blooms after pools have dried. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-3. See section 3.4.3, *Plant Species Profile: San Diego Button-celery*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 3 (S-3): Provide for the conservation of San Diego button-celery within the Subarea Plan Area.

6.4.3.1 Conservation of Suitable and Occupied Habitat

Species Objective 3.1 (S-3.1): Protect and maintain 21.4 acres of suitable vernal pool/seasonal basin habitat within Subarea Plan Preserve System that has the potential to support San Diego button-celery.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of suitable vernal pool/seasonal basin habitat that has the potential to support San Diego button-celery (see Figure 6-5). This will include a total of 19.6 acres of known vernal pool complexes near the Weston project and Grossmont College areas, and 1.6 acres of potential vernal pool/seasonal basin features within the Fanita Ranch property (0.8 acre determined to meet vernal pool criteria). The conservation of vernal pool habitat exceeds the amount that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are no currently no known occurrences of San Diego button-celery within the Subarea Plan Area but there is the potential for this species to occur in the future within the protected vernal pool habitats. Table 6-8 summarizes the total amount of suitable habitat and known occurrences of San Diego button-celery within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

None within Plan Area

Pool Type

- Natural Pool
- Road Rut
- Vernal Pool Complex

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-5 San Diego Button Celery.mxd Date: 12/19/2018 34153

Figure 6-5
San Diego Button-Celery - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-8. Conservation Analysis Summary: San Diego Button-celery

	Complexes (Weston and Grossmont College)		Fanita Ranch Vernal Pools and Seasonal Basin Features			
			Potential Features		Occupied Features	
	Number	Acres	Pools	Acres	Pools	Acres
Total in Subarea Plan Area	2	19.6	229	1.6	0	0.0
Conservation						
Conserved through Subarea Plan Preserve System						
Existing Preserves	1	1.9	-	-	-	-
Currently Protected			-	-	-	-
Hardline Preserves (100%)			127	0.8	-	-
Softline Areas (75%)	1	17.7	-	-	-	-
Total Conserved	2	19.6	127	0.8	-	-
Percent Conserved	100%	100%	55.5%	50.0%	-	-
Anticipated Conservation Based on MSCP MHPA						
Total Conserved	0	0	105	0.6	-	-
Percent Conserved	0.0%	0.0%	45.8%	37.5%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA						
Total Conserved	2	19.6	+22	+0.2	-	-
Percent Conserved	100%	100%	+9.7%	+12.5%	-	-
Impacts [a]						
Estimated Impacts from Covered Activities						
Covered Development Projects	-	-	102	0.8	-	-
Covered Street Projects	-	-	-	-	-	-
Covered Drainage Projects	-	-	-	-	-	-
New Trail Segments	-	-	-	-	-	-
Future Development Activities	avoidance		-	-	-	-
Total Impacted	-	-	102	0.8	-	-
Percent Impacted	-	-	44.5%	50%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.3.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.3.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [X] Vernal Pool Conservation Standards
- [ ] Species-Specific Conservation Standards

6.4.3.3 Impact Analysis

Covered Activities may result in direct and unavoidable impacts to vernal pool/seasonal basin habitat that will be addressed based on the avoidance, minimization, and mitigation measures including the Vernal Pool Conservation Standards. See description in Section 6.3.2, *Riparian, Wetland and Vernal Pool Habitats*, that outlines the mitigation approach and actions.

6.4.3.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego button-celery and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego button-celery.

6.4.4 San Diego Goldenstar

Federal: None.

State: None.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: None. This species has not been listed by USFWS.

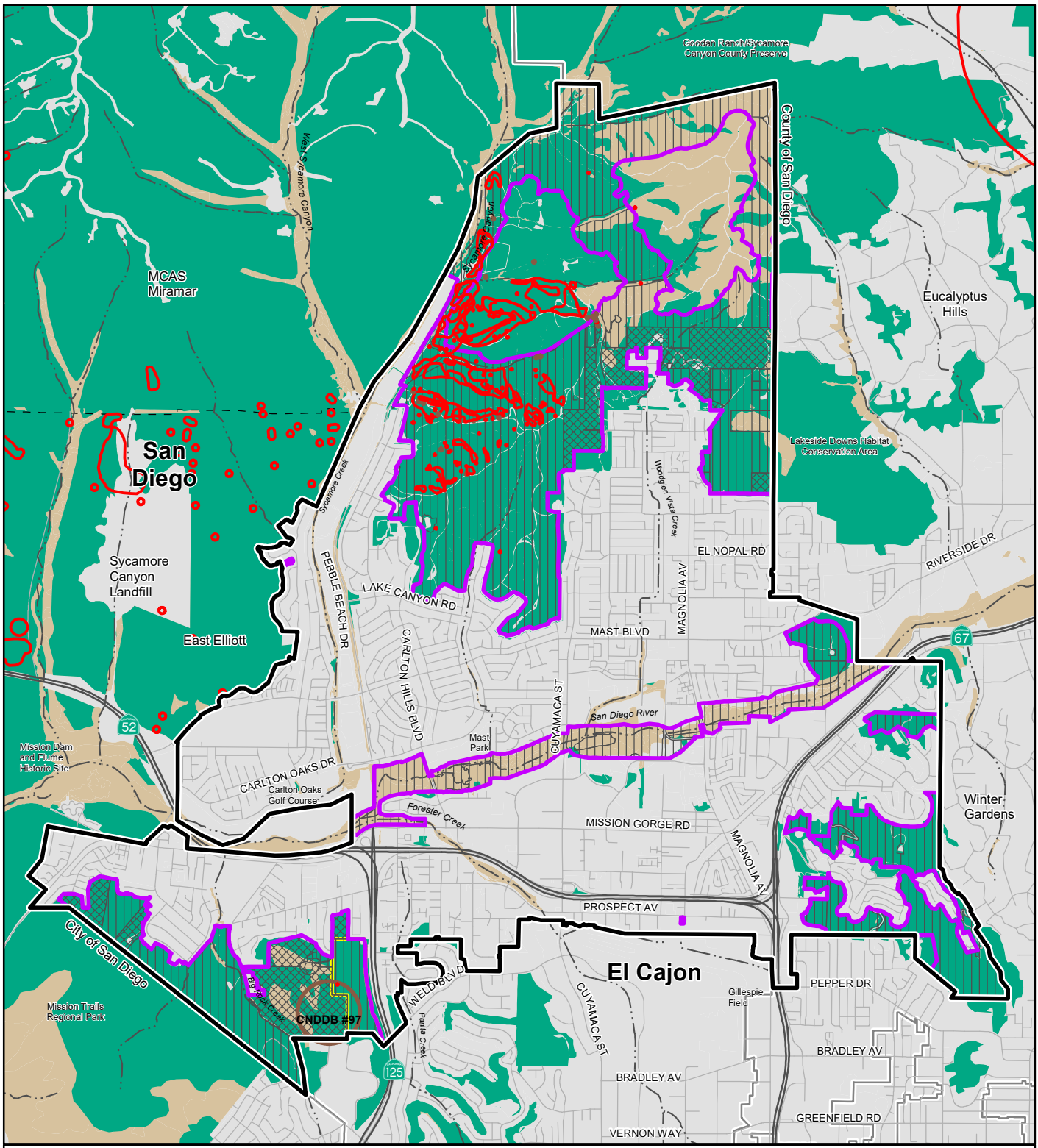
Species Background: San Diego goldenstar is a perennial monocot in the brodiaea family (Themidaceae). This species spends most of the year obscured as a corm, is only readily observable when in bloom and may exhibit few flowers in drought years. This species typically occurs in grasslands, sparse coastal sage scrub, and in peripheries of vernal pools or mima mound topography. It has also been observed in openings in southern mixed chaparral. Clay soils with good shrink/swell potential are preferred by this species and it has been found associated with gravelly clay loam and cobbly loams. A habitat suitability model was developed for this Subarea Plan based on factors of vegetative cover, soil texture, and elevation range limits. See section 3.4.4, *Plant Species Profile: San Diego Goldenstar*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 4 (S-4): Provide for the conservation of San Diego goldenstar within the Subarea Plan Area.

6.4.4.1 Conservation of Suitable and Occupied Habitat

Species Objective 4.1 (S-4.1): Protect and maintain 2,327 acres of suitable habitat for San Diego goldenstar within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,254.7 acres of suitable habitat for San Diego goldenstar (see Figure 6-6). This is 69.8% of the suitable habitat within the Subarea Plan Area and exceeds the amount of San Diego goldenstar habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. A substantial number of San Diego goldenstar observations have been recorded within the Subarea Plan Area. Approximately 18,314 San Diego goldenstar plants were observed during field surveys on the Fanita Ranch property, primarily in the central portion of the Fanita Ranch property within Diegan coastal sage scrub, grassland, southern mixed chaparral, and disturbed habitats (Dudek 2018). Within the CNLM East Mesa (Hagenmaier and Gross parcels) HCA, “many thousands” of San Diego goldenstar have been observed within the preserve (CNLM 2017). Table 6-9 summarizes the total amount of suitable habitat and known occurrences of San Diego goldenstar within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-6 San Diego Goldenstar-Unique.mxd Date: 12/19/2018 34153

Figure 6-6
San Diego Goldenstar - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-9. Conservation Analysis Summary: San Diego Goldenstar

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	3,333.1	53	19,314
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	571.9	1	1,000
Currently Protected Open Space, Not Fully Managed	238.3	-	-
Hardline Preserves (100%)	1,274.1	29	10,364
Softline Areas (75%)	288.4	-	-
Total Conserved	2,372.7	30	11,364
Percent Conserved	71.2%	56.6%	58.8%
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	1,486.1	25	9,831
Percent Conserved	44.6%	47.2%	50.9%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+886.6	+5	+1,533
Percent Conserved	+26.6%	+9.4%	+7.9%
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	566.4	23	7,950
Covered Street Projects	-	-	-
Covered Drainage Projects	2.1	-	-
New Trail Segments	0.4	-	-
Future Development Activities	187.8	-	-
Total Impacted	756.7	23	7,950
Percent Impacted	22.7%	43.4%	41.2%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.4.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.4.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.4.3 Impact Analysis

There is a total of 756.7 (22.7%) acres of potentially suitable habitat for San Diego goldenstar estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each Covered Activity project.

Project specific impacts will be addressed through the avoidance, minimization, and mitigation measures of the Subarea Plan (see Chapter 5.5, *Conservation Measure 3 - Avoidance, Minimization, and Mitigation*). The Fanita Ranch biological resources technical report identifies impacts totaling 7,950 individuals of San Diego goldenstar. A Rare Plant Mitigation Plan will be implemented similar to the following:

- **Rare Plant Mitigation Plan**: Impacts to San Diego goldenstar from a development project will require translocation or planting of impacted populations in order to adequately mitigate project impacts. Translocation requires evaluation of the donor site for suitability of translocation method and of the receptor site for suitability of sustaining San Diego goldenstar. The translocation program will be detailed in the Rare Plant Mitigation Plan and integrated with the overall uplands and wetlands restoration of the project area. The Rare Plant Mitigation Plan will discuss appropriate methods for plant salvage and/or growing and planting; in general, the impacted population of the sensitive plant will be targeted for salvage and translocation in order to meet the 80% minimum translocation survival rate. Where this is not feasible, germination and growing of appropriate genetic stock will occur and be planted on site in suitable receptor sites. Any development on the Fanita Ranch property will establish success criteria with the translocation of individual plants.

6.4.4.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego goldenstar and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego goldenstar.

6.4.5 San Diego Mesa Mint

Federal: Endangered—1978.

State: Endangered—1979.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: No critical habitat rules have been published.

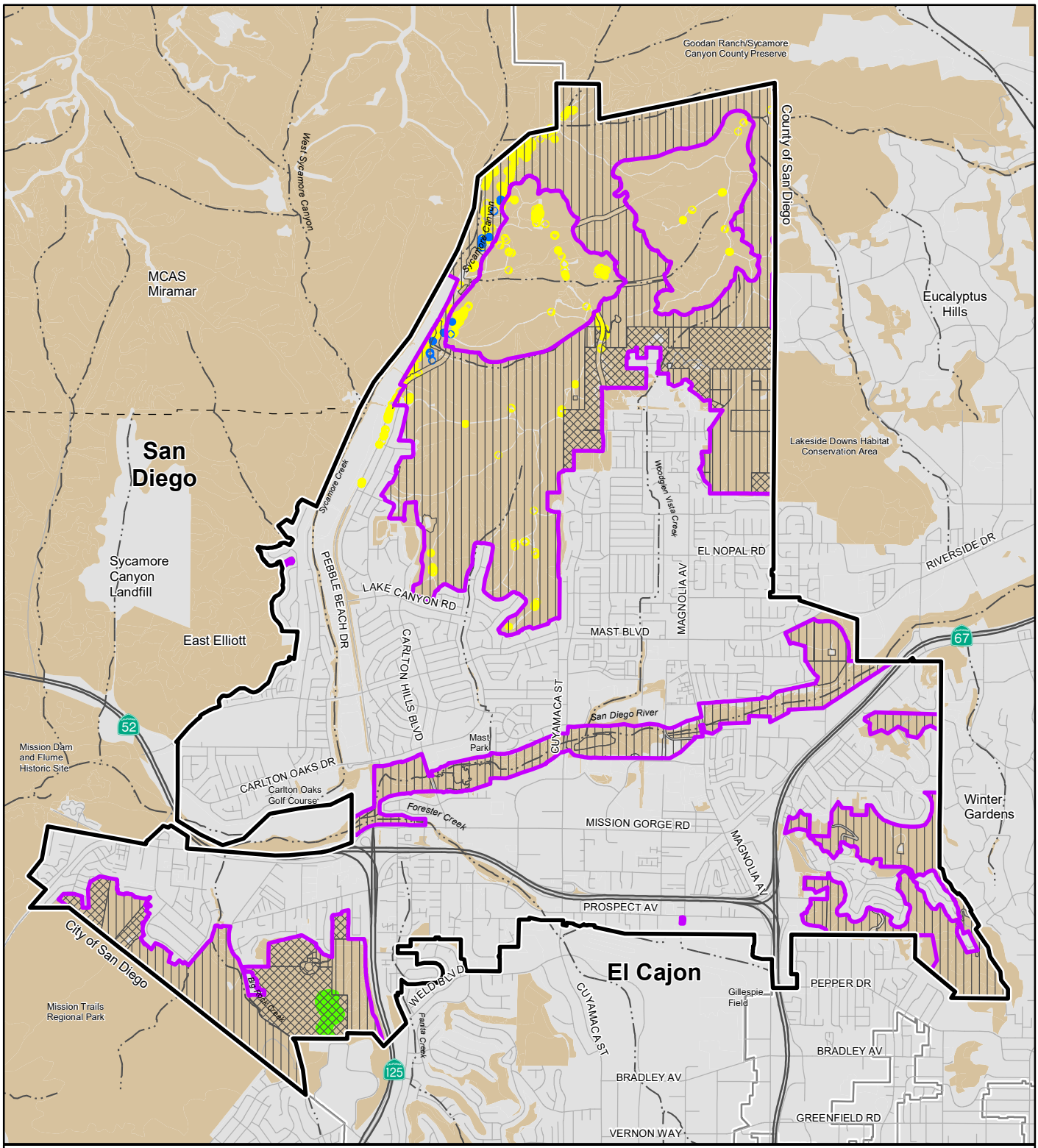
Species Background: San Diego mesa mint is an annual herb in the mint family (*Lamiaceae*). It has highly aromatic, opposite leaves on spreading to erect square stems that are up to 20 centimeters tall. The purple flower corolla is 10–12 millimeters and bell shaped, with a distinctly hairy stigma (Silveira 2012). This species occurs exclusively in vernal pool wetlands; it was listed by the USACE as an indicator of vernal pools (USACE 1997) and is considered a vernal pool obligate (USFWS 2010c). Vernal pools supporting San Diego mesa mint typically occur in mima-mound complexes on soils with a restrictive subsoil layer of either clay or a cemented hardpan. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-3. See section 3.4.5, *Plant Species Profile: San Diego Mesa Mint*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 5 (S-5): Provide for the conservation of San Diego mesa mint within the Subarea Plan Area.

6.4.5.1 Conservation of Suitable and Occupied Habitat

Species Objective 5.1 (S-5.1): Protect and maintain 21.4 acres of suitable habitat for San Diego mesa mint within Subarea Plan Preserve System that has the potential to support San Diego mesa mint.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of suitable vernal pool/seasonal basin habitat that has the potential to support San Diego mesa mint (see Figure 6-7). This will include a total of 19.6 acres of known vernal pool complexes near the Weston project and Grossmont College areas, and 1.6 acres of potential vernal pool/seasonal basin features within the Fanita Ranch property (0.8 acre determined to meet vernal pool criteria). The conservation of vernal pool habitat exceeds the amount that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are no currently no known occurrences of San Diego mesa mint within the Subarea Plan Area but there is the potential for this species to occur in the future within the protected vernal pool habitats. Table 6-10 summarizes the total amount of suitable habitat and known occurrences of San Diego mesa mint within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

None within Plan Area

Pool Type

- Natural Pool
- Road Rut
- Vernal Pool Complex

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-7 San Diego Mesa Mint.mxd Date: 12/19/2018 34153

Figure 6-7
San Diego Mesa Mint - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-10. Conservation Analysis Summary: San Diego Mesa Mint

	Complexes (Weston and Grossmont College)		Fanita Ranch Vernal Pools and Seasonal Basin Features			
			Potential Features		Occupied Features	
	Number	Acres	Pools	Acres	Pools	Acres
Total in Subarea Plan Area	2	19.6	229	1.6	0	0.0
Conservation						
Conserved through Subarea Plan Preserve System						
Existing Preserves	1	1.9	-	-	-	-
Currently Protected			-	-	-	-
Hardline Preserves (100%)			127	0.8	-	-
Softline Areas (75%)	1	17.7	-	-	-	-
Total Conserved	2	19.6	127	0.8	-	-
Percent Conserved	100%	100%	55.5%	50.0%	-	-
Anticipated Conservation Based on MSCP MHPA						
Total Conserved	0	0	105	0.6	-	-
Percent Conserved	0.0%	0.0%	45.8%	37.5%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA						
Total Conserved	2	19.6	+22	+0.2	-	-
Percent Conserved	100%	100%	+9.7%	+12.5%	-	-
Impacts [a]						
Estimated Impacts from Covered Activities						
Covered Development Projects	-	-	102	0.8	-	-
Covered Street Projects	-	-	-	-	-	-
Covered Drainage Projects	-	-	-	-	-	-
New Trail Segments	-	-	-	-	-	-
Future Development Activities	avoidance		-	-	-	-
Total Impacted	-	-	102	0.8	-	-
Percent Impacted	-	-	44.5%	50%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.5.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.5.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [X] Vernal Pool Conservation Standards
- [ ] Species-Specific Conservation Standards

6.4.5.3 Impact Analysis

Covered Activities may result in direct and unavoidable impacts to vernal pool/seasonal basin habitat that will be addressed based on the avoidance, minimization, and mitigation measures including the Vernal Pool Conservation Standards. See description in Section 6.3.2, *Riparian, Wetland and Vernal Pool Habitats*, that outlines the mitigation approach and actions.

6.4.5.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego mesa mint and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego mesa mint.

6.4.6 San Diego Thornmint

Federal: Threatened—1998.

State: Endangered—1982.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: Final critical habitat was designated in August 2008 (USFWS 2008).

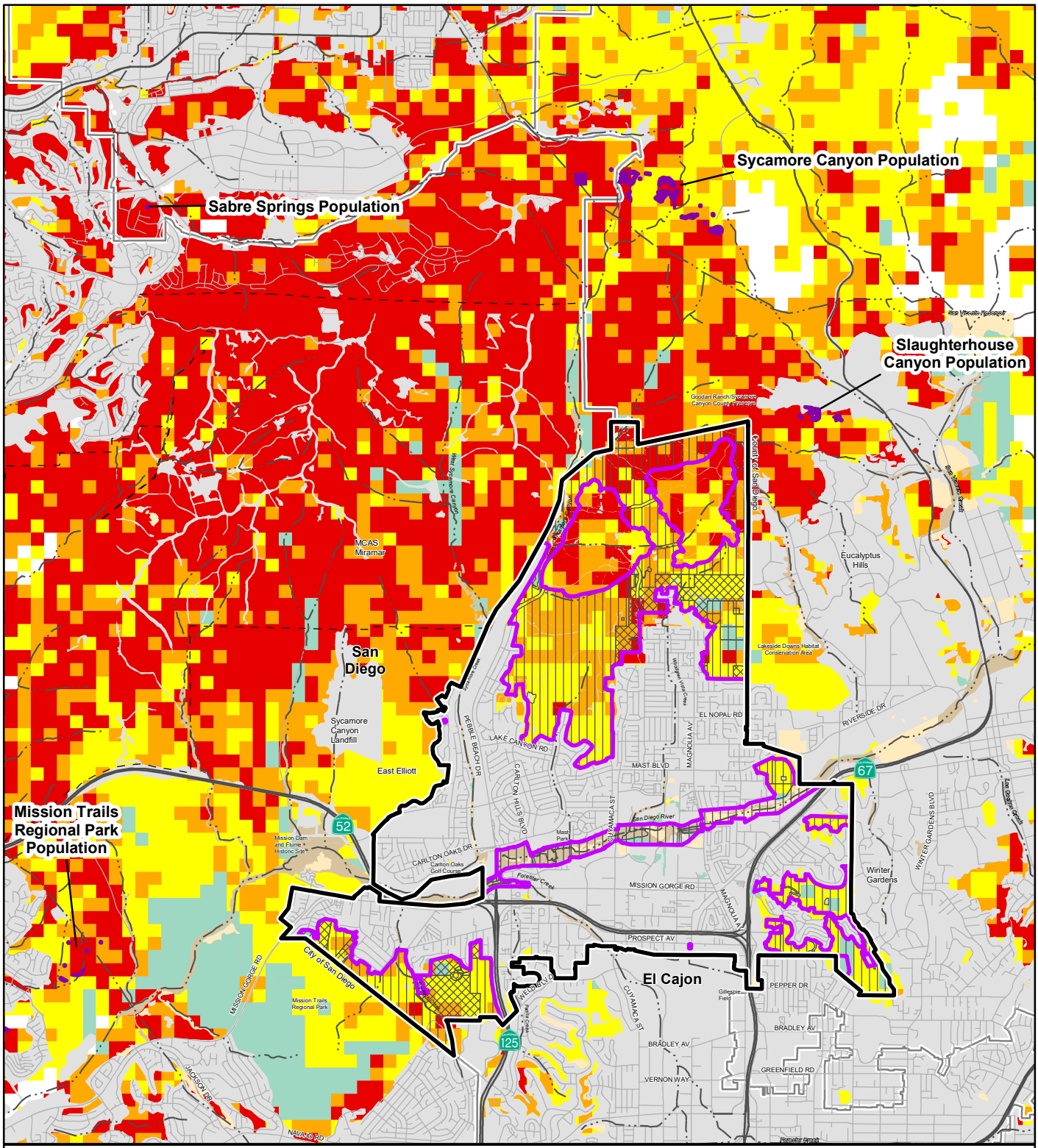
Species Background: San Diego thornmint is a small, annual herb in the mint family (Lamiaceae). This species primarily occurs in grassy openings in chaparral or sage scrub with friable or broken clay soils. These clay lenses are open distinctive microhabitat because of the general lack of many widespread annuals and weeds (Reiser 2001). The San Diego Management and Monitoring Program (SDMMP) developed a statistically based habitat suitability model that ranked habitat value for San Diego thornmint based on environmental factors of elevation, topographic ruggedness, slope, aspect, precipitation, temperature, soil type, soil water capacity, and rock depth (CBI 2014). See section 3.4.6, *Plant Species Profile: San Diego Thornmint*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 6 (S-6): Provide for the conservation of San Diego thornmint within the Subarea Plan Area.

6.4.6.1 Conservation of Suitable and Occupied Habitat

Species Objective 6.1 (S-6.1): Protect and maintain 2,693 acres of suitable habitat for San Diego thornmint within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,693 acres of suitable habitat for San Diego thornmint (see Figure 6-8). This is 67.8% of the suitable habitat within the Subarea Plan Area and exceeds the amount of San Diego thornmint habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are no known occurrences of San Diego thornmint within the Subarea Plan Area. Table 6-11 summarizes the total amount of suitable habitat and known occurrences of San Diego thornmint within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Sources: Habitat Suitability Model: CBI 2014; Species Occurrences: CNDDB 2017

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-8 San Diego Thornmint-USGS.mxd Date: 12/19/2018 34153

Figure 6-8
San Diego Thornmint - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-11. Conservation Analysis Summary: San Diego Thornmint

	Suitable Habitat (conserved acres)					Known Occurrences	
	Very High (0.75 – 1)	High (0.5 – 0.75)	Medium (0.25 – 0.5)	Low (0.01 – 0.25)	Total	Locations	Population
Total in Subarea Plan Area	706.8	1,192.3	1,948.4	126.8	3,974.3	0	0
Conservation							
Conserved through Subarea Plan Preserve System							
Existing Preserves	17.3	80.9	415.6	59.1	572.9	-	-
Currently Protected	15.3	40.7	164.2	19.6	239.8	-	-
Hardline Preserves (100%)	281.8	611.7	669.3	-	1,562.8	-	-
Softline Areas (75%)	27.5	85.0	194.4	11.3	318.2	-	-
Total Conserved	341.9	818.3	1,443.5	90.0	2,693.7	-	-
Percent Conserved	48.4%	68.6%	74.1%	71.0%	67.8%	-	-
Anticipated Conservation Based on MSCP MHPA							
Total Conserved	314.4	717.1	755.4	31.3	1,818.2	-	-
Percent Conserved	44.5%	60.1%	38.8%	24.7%	45.7%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA							
Total Conserved	27.5	101.2	688.1	58.7	875.5	-	-
Percent Conserved	3.9%	8.5%	35.3%	46.3%	22.0%	-	-
Impacts [a]							
Estimated Impacts from Covered Activities							
Covered Development Projects	322.1	291.2	255.9	-	869.2	-	-
Covered Street Projects	-	-	-	0.2	0.2	-	-
Covered Drainage Projects	-	-	-	2.1	2.1	-	-
New Trail Segments	-	0.1	0.3	0.1	0.5	-	-
Future Development Activities	16.8	50.2	122.0	15.1	204.1	-	-
Total Impacted	338.9	341.5	378.2	17.5	1,076.1	-	-
Percent Impacted	47.9%	28.6%	19.4%	13.8%	27.1%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.6.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.6.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [X] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.6.3 Impact Analysis

There is a total of 1,076.1 (27.1%) acres of potentially suitable habitat for San Diego thornmint estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. There are no known occurrences within the Subarea Plan Area and no impacts to occupied habitat are currently anticipated under the Subarea Plan.

6.4.6.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego thornmint and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego thornmint.

6.4.7 Variegated Dudleya

Federal: None.

State: None.

California Rare Plant Ranking (CRPR): 1B.2.

Critical Habitat: None. This species has not been listed by USFWS.

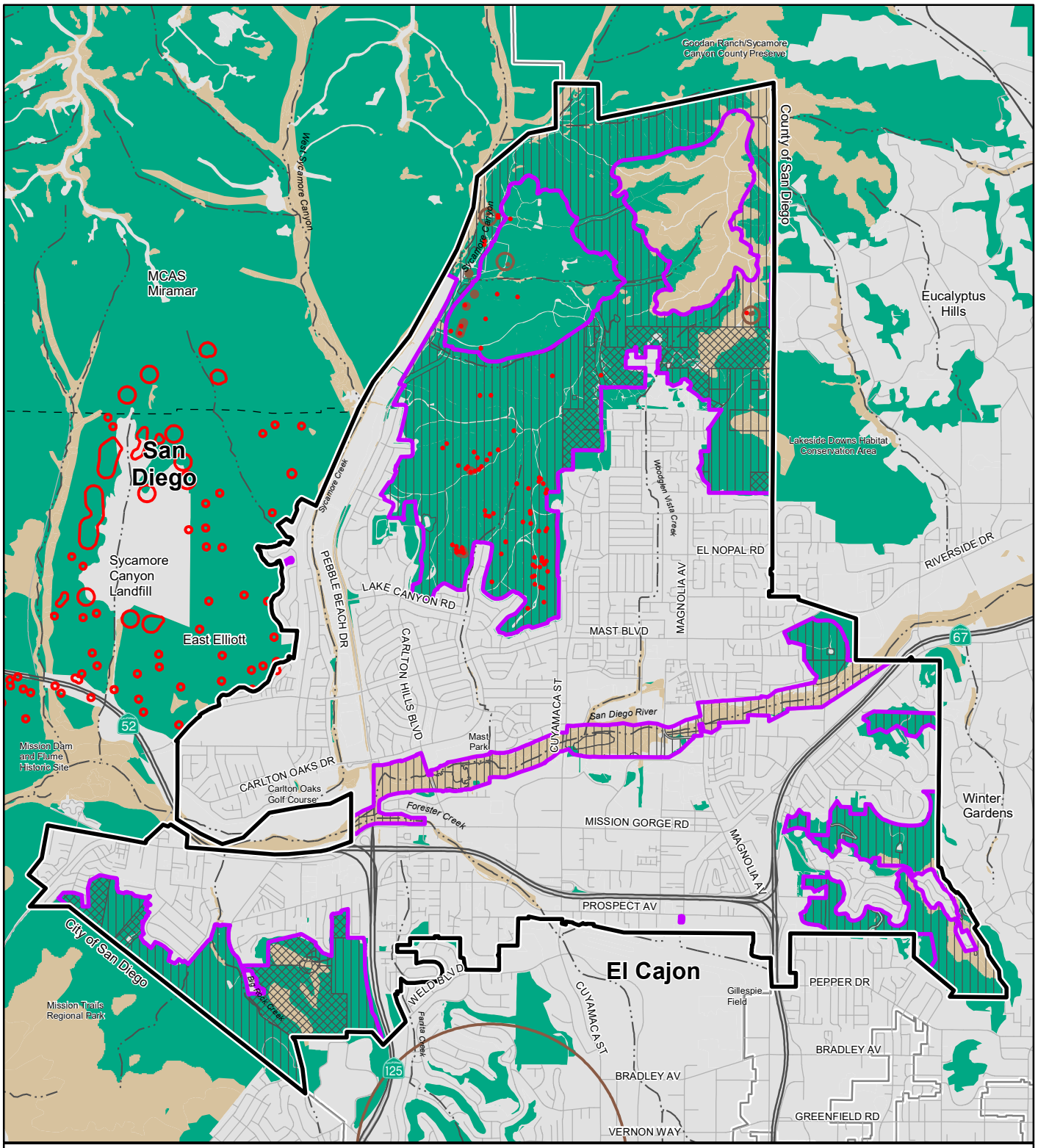
Species Background: Variegated dudleya is a small, corm-like sprouting perennial with succulent leaves (Resier 2001). It has thin, spoon-shaped leaves which drop in summer. The inflorescence grows on stalks up to 20 centimeters tall, and supports 3 to 11 flowers with spreading yellow petals (McCabe 2012). Variegated dudleya is found in clay and rocky openings in upland vegetation communities including coastal sage scrub, chaparral, grasslands, and vernal pool complexes (Reiser 2001; CNPS 2017). It usually grows in areas devoid of shrub cover. A habitat suitability model was developed for this Subarea Plan based on factors of vegetative cover, soil texture, and elevation range limits. See section 3.4.7, *Plant Species Profile: Variegated Dudleya*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 7 (S-7): Provide for the conservation of variegated dudleya within the Subarea Plan Area.

6.4.7.1 Conservation of Suitable and Occupied Habitat

Species Objective 7.1 (S-7.1): Protect and maintain 2,493 acres of suitable habitat for variegated dudleya within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,493.7 acres of suitable habitat for variegated dudleya (see Figure 6-9). This is 72.1% of the suitable habitat within the Subarea Plan Area and exceeds the amount of variegated dudleya habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. A substantial number of variegated dudleya observations have been recorded within the Subarea Plan Area. Approximately 8,942 individuals of variegated dudleya were observed during field surveys on the Fanita Ranch property, primarily throughout the central and southern portion of the site within coastal sage scrub, grassland, and disturbed habitat and within rights-of-way of the extensions of Magnolia Avenue and Cuyamaca Street. (Dudek 2018). No known occurrences of variegated dudleya have been recorded outside of the Fanita Ranch property within the Subarea Plan Area. Table 6-12 summarizes the total amount of suitable habitat and known occurrences of variegated dudleya within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-9 Variegated Dudleya-Unique.mxd Date: 12/19/2018 34153

Figure 6-9
Variegated Dudleya - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-12. Conservation Analysis Summary: Variegated Dudleya

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	3,456.8	82	8,942
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	523.4	-	-
Currently Protected Open Space, Not Fully Managed	236.6	-	-
Hardline Preserves (100%)	1,463.4	70	8,156
Softline Areas (75%)	270.3	-	-
Total Conserved	2,493.7	70	8,156
Percent Conserved	72.1%	85.4%	91.2%
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	1,629.6	52	7,181
Percent Conserved	47.1%	63.4%	80.3%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+864.1	+18	+826
Percent Conserved	+25.0%	+22.0%	+9.2%
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	579.1	12	786
Covered Street Projects	-	-	-
Covered Drainage Projects	2.1	-	-
New Trail Segments	0.4	-	-
Future Development Activities	181.3	-	-
Total Impacted	762.9	12	786
Percent Impacted	22.1%	14.6%	8.8%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.7.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.7.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [X] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.7.3 Impact Analysis

There is a total of 762.9 (22.1%) acres of potentially suitable habitat for variegated dudleya estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. Impacts to known occurrences (786 individuals) are anticipated from the Fanita Ranch development project. These impacts will be offset through conservation of 8,156 individuals (91.2%) within the onsite habitat preserve.

6.4.7.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of variegated dudleya and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for variegated dudleya.

6.4.8 Willowy Monardella

Federal: Endangered—1981.

State: Endangered—1979.

California Rare Plant Ranking (CRPR): 1B.1.

Critical Habitat: Final critical habitat was designated by USFWS in November 2006 and revised in March 2012 (USFWS 2012a).

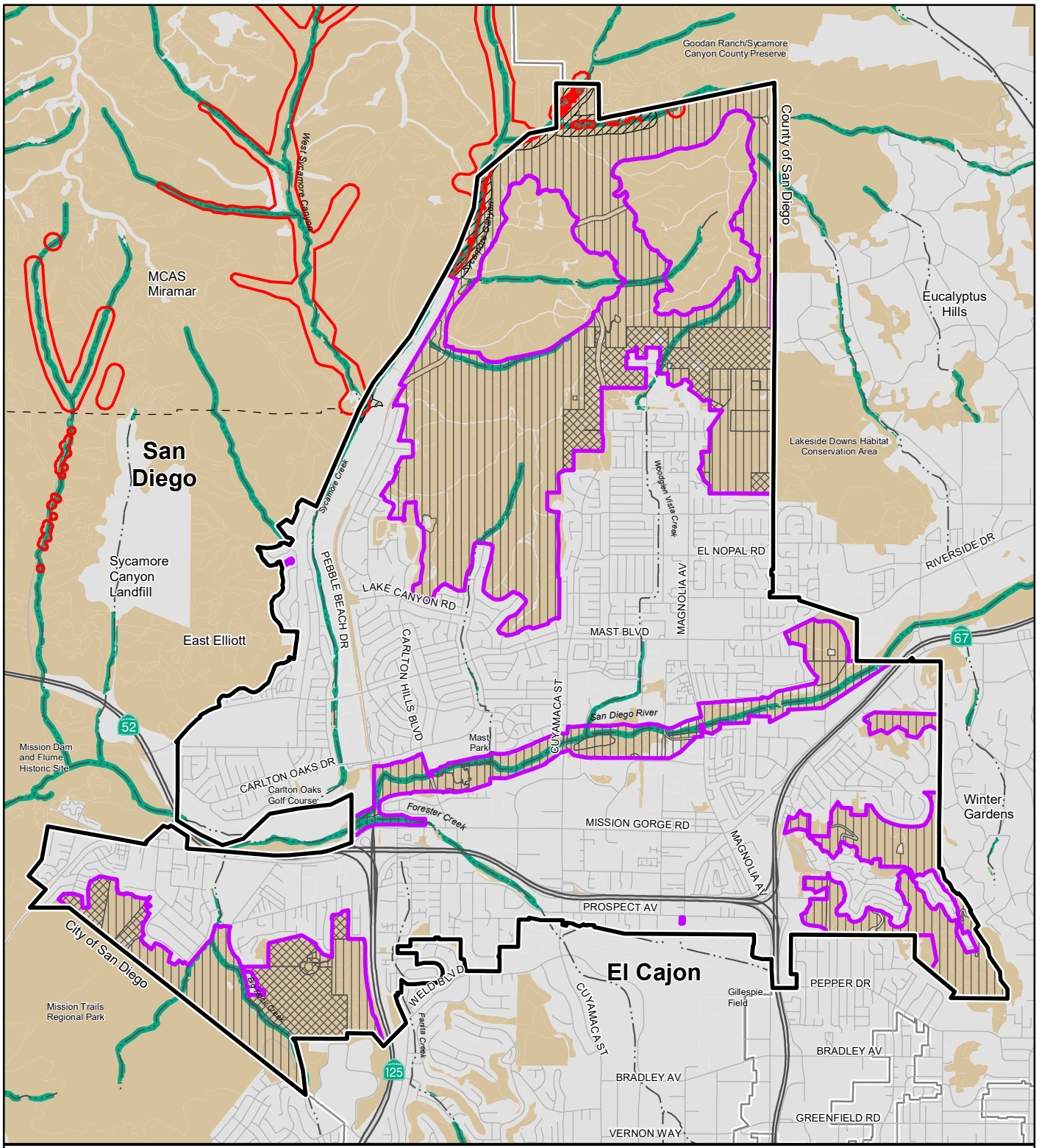
Species Background: Willowy monardella is a perennial herb or subshrub in the mint family (Lamiacea). It is has smooth, aromatic leaves with showy pink flowers in single clusters on stems of 25–50 centimeters (Sanders, et al. 2017). Willowy monardella occurs on rocky washes and floodplain terraces in lower-velocity stream systems. Soils are typically sandy alluvium with large cobbles. It occurs below 400 meters elevation and is endemic and restricted to central San Diego County. A habitat suitability model was developed for this Subarea Plan based on factors of vegetative cover, landscape position, proximity to streams, and elevation range limits. See section 3.4.8, *Plant Species Profile: Willowy Monardella*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 8 (S-8): Provide for the conservation of willowy monardella within the Subarea Plan Area.

6.4.8.1 Conservation of Suitable and Occupied Habitat

Species Objective 8.1 (S-8.1): Protect and maintain 215 acres of suitable habitat for willowy monardella within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 215.1 acres of suitable habitat for willowy monardella (see Figure 6-10). This is 62.2% of the suitable habitat within the Subarea Plan Area and exceeds the amount of willowy monardella habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. Willowy monardella is known from the Sycamore Canyon drainages along the northern boundary of the Subarea Plan Area. A total of 1,588 willowy monardella were mapped on Fanita Ranch property in the early 2000's, and an additional population of 34 willowy monardella were mapped during 2016/2017 surveys (Dudek 2018). No known occurrences of willowy monardella have been recorded outside of the Fanita Ranch property within the Subarea Plan Area. Table 6-13 summarizes the total amount of suitable habitat, critical habitat, and known occurrences of willowy monardella within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Suitable Habitat
- Final Critical Habitat (USFWS 2012)
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-10 Willowy Monardella-Unique.mxd Date: 12/19/2018 34153

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Figure 6-10
Willowy Monardella - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-13. Conservation Analysis Summary: Willowy Monardella

	Suitable Habitat (acres)	Critical Habitat (acres)	Current Known Occurrences: Locations	Current Known Occurrences: Population
Total in Subarea Plan Area	345.6	115.8		1,622
Conservation				
Conserved through Subarea Plan Preserve System				
Existing Preserves	34.0	-		-
Currently Protected Open Space, Not Fully Managed	85.5	-		-
Hardline Preserves (100%)	89.6	109.4		1,538
Softline Areas (75%)	6.0	-		-
Total Conserved	215.1	109.4		1,538
Percent Conserved	62.2%	94.5%		94.8%
Anticipated Conservation Based on MSCP MHPA				
Total Conserved	196.6			1,622
Percent Conserved	56.9%			100.0%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA				
Total Conserved	+18.5			-84
Percent Conserved	+5.3%			-5.2%
Impacts [a]				
Estimated Impacts from Covered Activities				
Covered Development Projects	28.5	2.9		84
Covered Street Projects	0.2	-		-
Covered Drainage Projects	7.7	-		-
New Trail Segments	0.5	-		-
Future Development Activities	40.4	-		-
Total Impacted	77.3	2.9		84
Percent Impacted	22.4%	2.5%		5.2%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.8.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.8.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.8.3 Impact Analysis

There is a total of 77.3 (22.4%) acres of potentially suitable habitat for willowy monardella estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. Impacts to known occurrences (84 individuals) are anticipated from the Fanita Ranch development project. These impacts will be offset through conservation of 1,538 individuals (94.8%) within the onsite habitat preserve.

6.4.8.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of willowy monardella and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for willowy monardella.

6.4.9 Hermes Copper Butterfly

Federal: Candidate.

State: None.

Critical Habitat: None. This species has not been listed by USFWS.

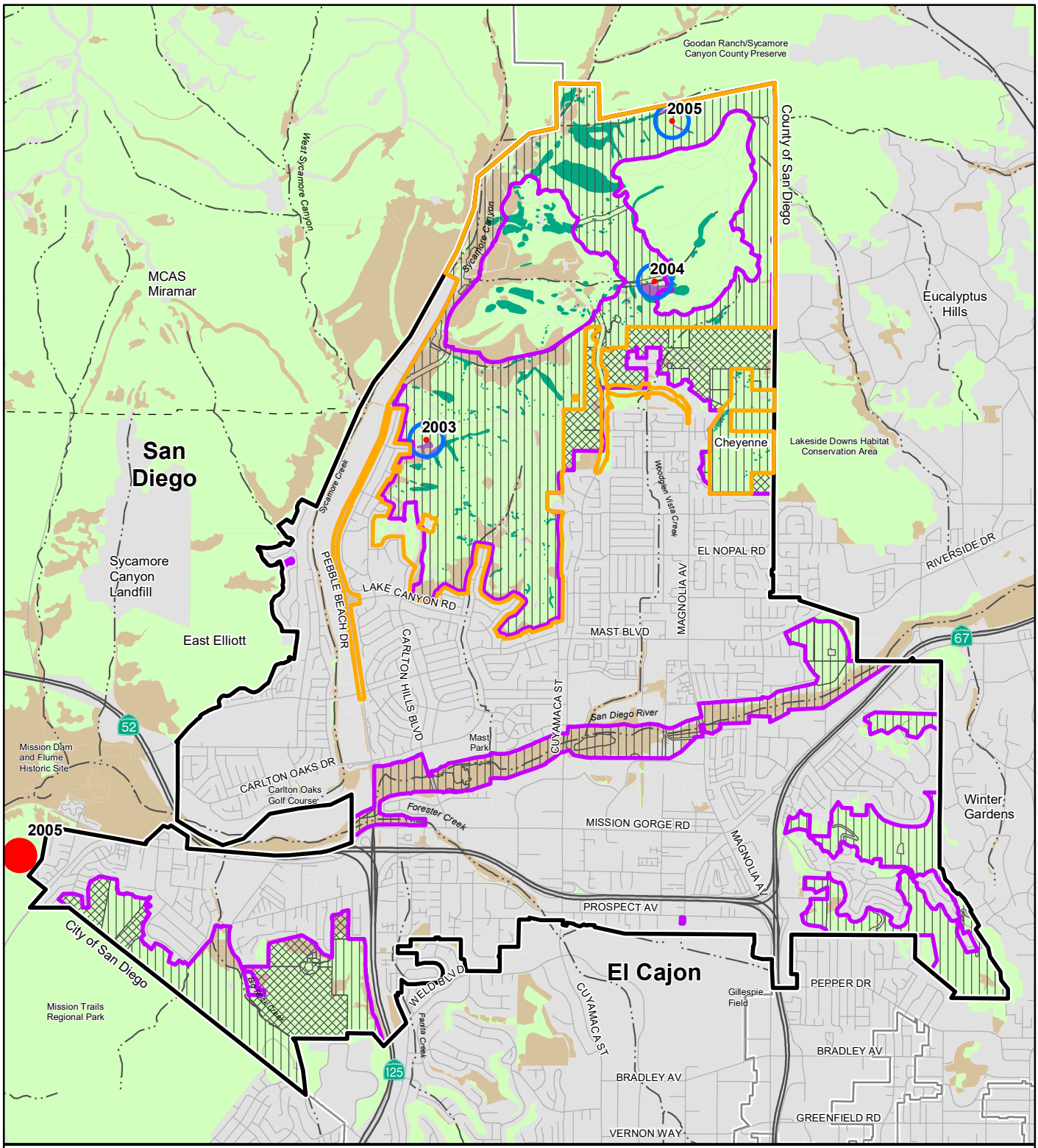
Species Background: Hermes copper butterfly is a small, brightly-colored butterfly in the Lycaenidae family. Hermes copper larvae only use spiny redberry (*Rhamnus crocea*) as a host plant. Females lay eggs singularly at the base of a leaf. Larvae emerge in late spring after overwintering as eggs. Larvae mature through five instars over approximately 14 days (County of San Diego 2010). Hermes copper is closely associated with its only host plant, spiny redberry (*Rhamnus crocea*), and preferred nectar source California buckwheat (*Eriogonum fasciculatum*). These plants are concentrated within the coastal sage scrub or mixed chaparral vegetation communities (EDAW AECOM 2009). A Subarea Plan Area-wide habitat suitability model was developed based on vegetative cover to highlight areas where potentially suitable host plants may occur and where more detailed field surveys are warranted. See section 3.4.3, *Invertebrate Species Profile: Hermes Copper Butterfly*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 9 (S-9): Provide for the conservation of Hermes copper butterfly within the Subarea Plan Area.

6.4.9.1 Conservation of Suitable and Occupied Habitat

Species Objective 9.1 (S-9.1): Protect and maintain 2,477 acres of suitable habitat for Hermes copper butterfly within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,477.1 acres of suitable habitat for Hermes copper butterfly (see Figure 6-11). This is 70.7% of the suitable habitat within the Subarea Plan Area and exceeds the amount of Hermes copper butterfly habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. Historical observations of Hermes copper butterfly were recorded on the Fanita Ranch property but more recent surveys of the property have been negative. Surveys conducted by Dudek in 2003, 2004, and 2005 identified three individuals within Fanita Ranch. Focused surveys conducted in 2014 and 2016 did not detect this species again (Dudek 2018). Within the 117-acre Cheyenne property, suitable habitat was mapped and surveys completed by Klein-Edwards Professional Services in 2010 (KEPS 2010). No observations of Hermes copper butterfly were noted on the Cheyenne property. Table 6-14 summarizes the total amount of suitable habitat and known occurrences of Hermes copper butterfly within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Potentially Suitable Vegetation Communities (coastal sage scrub and chaparral)
- Project Boundaries of Focused Surveys Completed for Hermes Copper Butterfly
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)
- Hermes Copper Butterfly Occurrences (with occurrence year)
- 500-Foot Buffer Around Occurrences
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

Mapping of Suitable Habitat Based on Field Surveys

- Potentially Suitable Habitat, Previously Occupied
- Potentially Suitable Habitat

Note: Focused surveys for hermes copper butterfly completed on the Fanita Ranch property in 2014 and 2016 and on the Cheyenne property in 2010 were negative.

N

0 4,450

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\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-11 Hermes Copper Butterfly-Unique.mxd Date: 12/19/2018 34153

Figure 6-11
Hermes Copper Butterfly: Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-14. Conservation Analysis Summary: Hermes Copper Butterfly

	Suitable Vegetation Communities (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	3,504.8	-	-
Conservation			
Conserved through Subarea Plan Preserve System		-	-
Existing Preserves	536.7	-	-
Currently Protected Open Space, Not Fully Managed	265.3	-	-
Hardline Preserves (100%)	1,370.3	-	-
Softline Areas (75%)	304.8	-	-
Total Conserved	2,477.1	-	-
Percent Conserved	70.7%	-	-
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	1,692.6	-	-
Percent Conserved	48.3%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+784.5	-	-
Percent Conserved	+22.4%	-	-
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	693.0	-	-
Covered Street Projects	-	-	-
Covered Drainage Projects	0.7	-	-
New Trail Segments	0.4	-	-
Future Development Activities	178.2	-	-
Total Impacted	872.3	-	-
Percent Impacted	24.9%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.9.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.9.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.9.3 Impact Analysis

There is a total of 872.3 (24.9%) acres of potentially suitable habitat for Hermes copper butterfly estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

[*Project specific analysis of impacts to Hermes copper butterfly to be developed in consultation with the Wildlife Agencies*]

6.4.9.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of Hermes copper butterfly and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for Hermes copper butterfly.

6.4.10 Quino Checkerspot Butterfly

Federal: Endangered—1997.

State: Not Listed.

Critical Habitat: Critical habitat was designated in April 2002 and revised critical habitat designated in June 2009 (USFWS 2009a). There are no areas of critical habitat for Quino checkerspot butterfly located within or in the vicinity of the Subarea Plan Area.

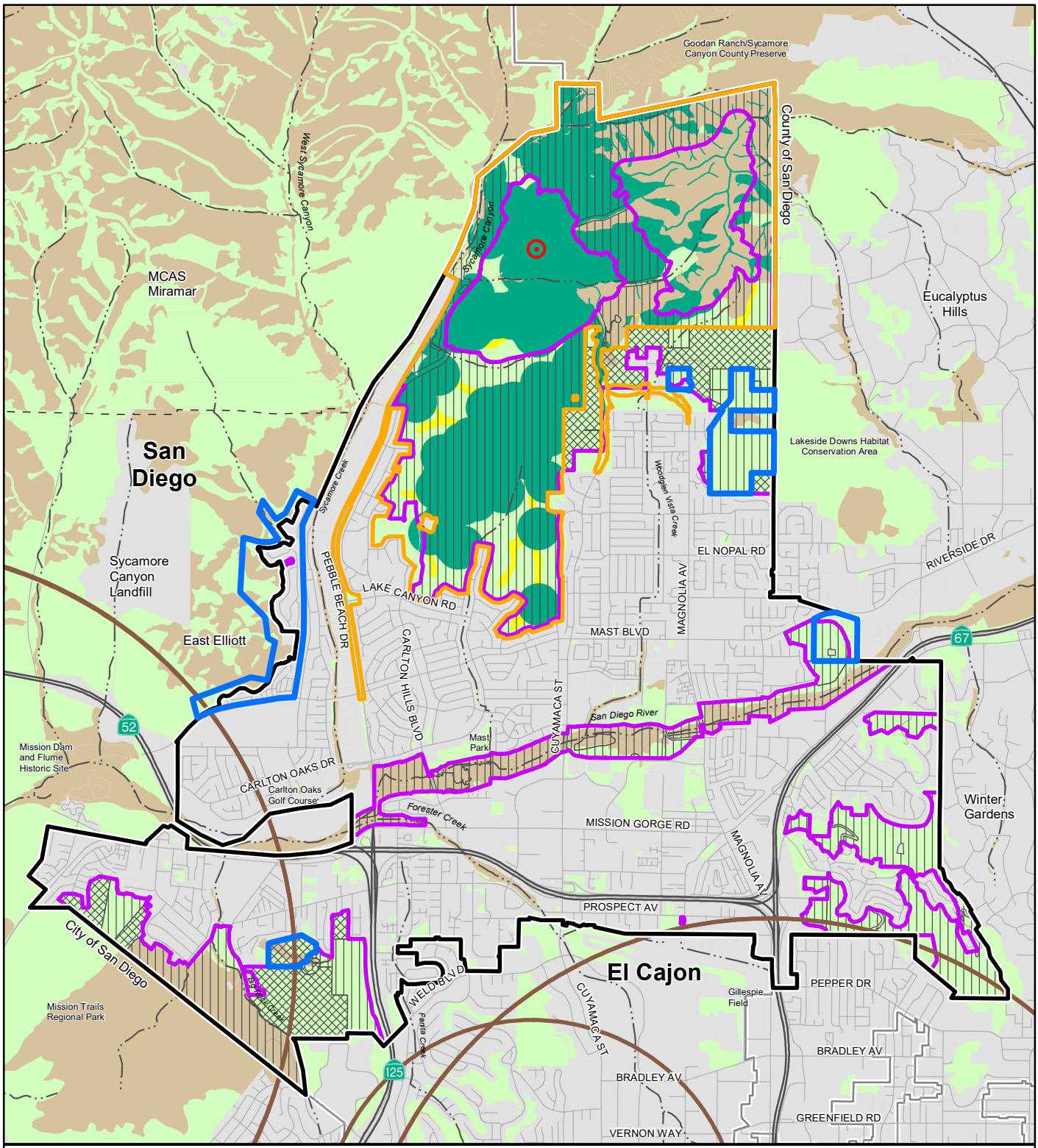
Species Background: Quino checkerspot butterfly is the most southwesterly distributed subspecies of *Euphydryas editha.* The appearance of Quino checkerspot butterfly is distinguishable from other subspecies by relative cover of red, orange, black, and white scaling (Mattoni et al. 1997). This species has one flight season which usually occurs from late February into April. Females lay egg masses on primary host plants, that include dot-seed plantain (*Plantago erecta*), desert plantain (*Plantago patagonica*), white snapdragon (*Anterrhinum coulterianum*), and Chinese houses (*Collinsia concolor*) (USFWS 2009b; Parmesan et al. 2014). A Subarea Plan Area-wide habitat suitability model was developed based on vegetative cover to highlight areas where potentially suitable host plants may occur and where more detailed field surveys are warranted. The host plants that support Quino checkerspot can occur in most vegetation communities but are most prevalent in areas of coastal sage scrub, grassland, and disturbed habitat. These vegetation communities have been highlighted in the Subarea Plan Area and will be the areas where Quino checkerspot butterfly surveys will likely be warranted. See section 3.4.4, *Invertebrate Species Profile: Quino Checkspot Butterfly*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 10 (S-10): Provide for the conservation of Quino checkerspot butterfly within the Subarea Plan Area.

6.4.10.1 Conservation of Suitable and Occupied Habitat

Species Objective 10.1 (S-10.1): Protect and maintain 2,368 acres of suitable habitat for Quino checkerspot butterfly within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,368.1 acres of suitable habitat for Quino checkerspot butterfly (see Figure 6-12). This is 63.8% of the suitable habitat within the Subarea Plan Area and exceeds the amount of Quino checkerspot butterfly habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. One historic observation of Quino checkerspot butterfly was recorded within the Subarea Plan Area during surveys of the Fanita Ranch property in 2005. Subsequent surveys of Fanita Ranch have been negative for Quino checkerspot butterfly and the property is considered unoccupied. Other recent protocol surveys for Quino checkerspot butterfly at the Cheyenne, Cutri, Parkview, Tyler Street, and Weston project areas within the Subarea Plan area have been negative. Table 6-14 summarizes the total amount of suitable habitat and current known occurrences of Quino checkerspot butterfly within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Subarea Plan Area
Fanita Ranch Project Area – Mapping of Suitable Habitat Based on Field Surveys
Preserve Boundary

Preserve Type
Currently Protected (Hardline Area)
Future Preserves 75% (Softline Area)

Species Occurrence Locations
Observed in 2005, Subsequent Negative Survey Results
Historic (pre-2000)

Habitat Suitability Model and Mapping
Potentially Suitable Vegetation Communities

Mapping of Suitable Habitat Based on Field Surveys
High
Low
Projects Surveyed for Quino with Negative Results
Natural Vegetation
Developed/Agriculture/Disturbed Habitat

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\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-12 Quino Checkerspot Butterfly-Dudek.mxd Date: 12/19/2018 34153

Figure 6-12
Quino Checkerspot Butterfly - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-15. Conservation Analysis Summary: Quino Checkerspot Butterfly

	Suitable Vegetation Communities (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	3,713.7	-	-
Conservation			
Conserved through Subarea Plan Preserve System		-	-
Existing Preserves	410.2	-	-
Currently Protected Open Space, Not Fully Managed	304.8	-	-
Hardline Preserves (100%)	1,332.3	-	-
Softline Areas (75%)	320.8	-	-
Total Conserved	2,368.1	-	-
Percent Conserved	63.8%	-	-
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	1,408.9	-	-
Percent Conserved	37.9%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+959.2	-	-
Percent Conserved	+25.9%	-	-
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	619.4	-	-
Covered Street Projects	2.1	-	-
Covered Drainage Projects	4.0	-	-
New Trail Segments	0.7	-	-
Future Development Activities	208.5	-	-
Total Impacted	834.7	-	-
Percent Impacted	22.5%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.10.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.10.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [X] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [ ] Species-Specific Conservation Standards

6.4.10.3 Impact Analysis

There is a total of 834.7 (22.5%) acres of potentially suitable habitat for Quino checkerspot butterfly estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

[*Project specific analysis of impacts to Quino checkerspot butterfly to be developed in consultation with the Wildlife Agencies*]

6.4.10.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of Quino checkerspot butterfly and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for Quino checkerspot butterfly.

6.4.11 Riverside Fairy Shrimp

Federal: Endangered—1993.

State: None.

Critical Habitat: Final critical habitat was designated in May 2001, and revised in April 2005 and December 2012 (USFWS 2012b). There are no areas of critical habitat for Riverside fairy shrimp located within or near the Subarea Plan Area.

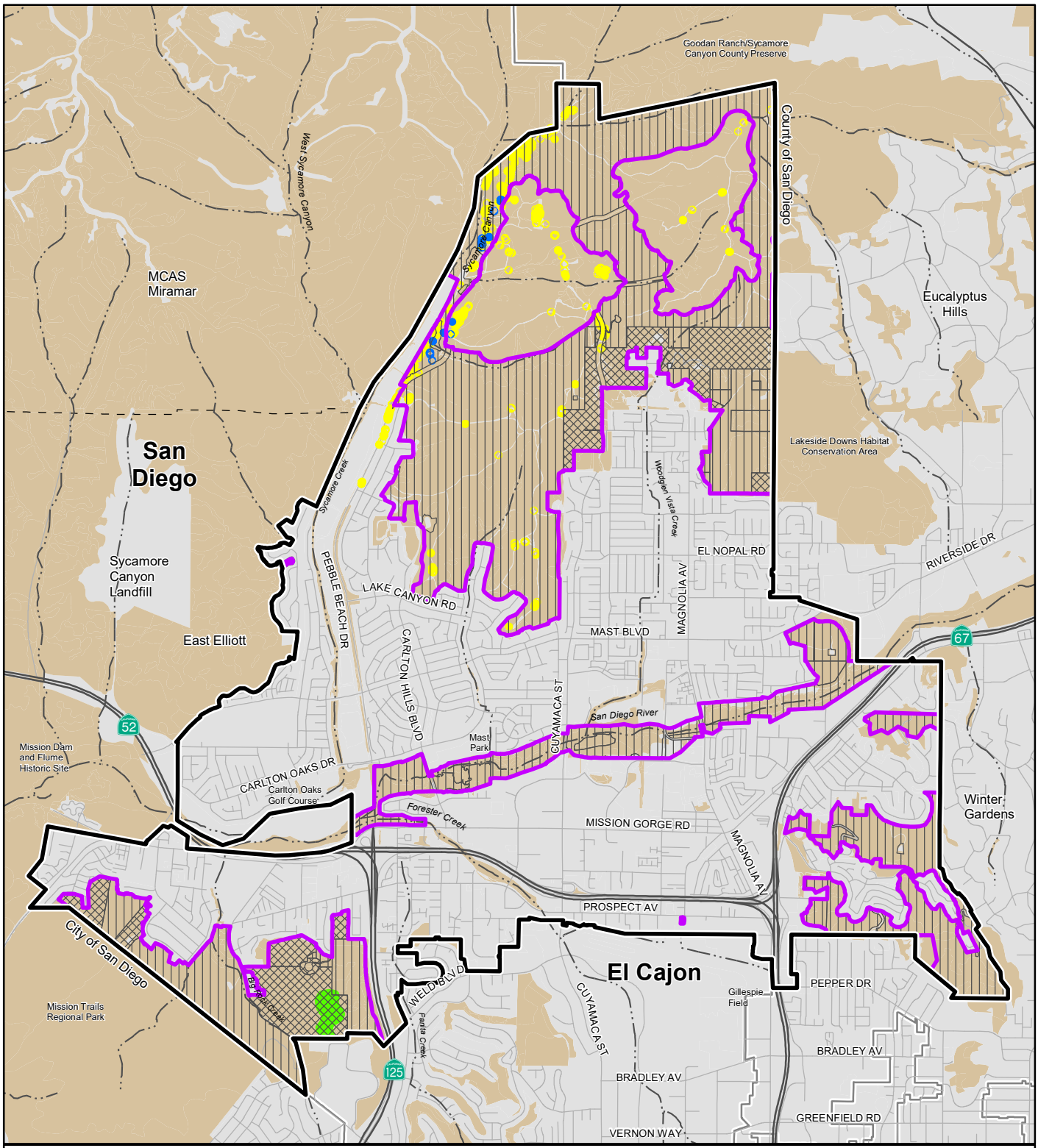
Species Background: Riverside fairy shrimp is a small aquatic crustacean in the order Anostraca. Riverside fairy shrimp feed on algae, bacteria, protozoa, rotifers, and detritus. It is approximately 2–3 centimeters long at maturity. Riverside fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral basins. These pools are generally greater than 12 inches in average ponding depth, as the pools need to be large enough to have a continuous inundation period long enough to accommodate the development period of Riverside fairy shrimp. Riverside fairy shrimp cannot persist in a perennial water system because the re-wetting of cysts is necessary and ephemeral systems lack aquatic predators (USFWS 2008b). Riverside fairy shrimp is not currently known to occur in the Subarea Plan Area. The nearest known occurrences of Riverside fairy shrimp are in west Miramar (CNDDB EO#1) and Ramona (CNDDB EO#44). While the Subarea Plan Area is not part of primary distribution for this species, there is the potential for this species to be found with the Subarea Plan Area based on other occurrences within central San Diego County. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-3. See section 3.4.3, *Invertebrate Species Profile: Riverside Fairy Shrimp*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 11 (S-11): Provide for the conservation of Riverside fairy shrimp within the Subarea Plan Area.

6.4.11.1 Conservation of Suitable and Occupied Habitat

Species Objective 11.1 (S-11.1): Protect and maintain 21.4 acres of suitable vernal pool/seasonal basin habitat within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of suitable vernal pool/seasonal basin habitat that has the potential to support Riverside fairy shrimp (see Figure 6-13). This will include a total of 19.6 acres of known vernal pool complexes near the Weston project and Grossmont College areas, and 1.6 acres of potential vernal pool/seasonal basin features within the Fanita Ranch property (0.8 acre determined to meet vernal pool criteria). The conservation of vernal pool habitat exceeds the amount that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are no currently no known occurrences of Riverside fairy shrimp within the Subarea Plan Area but there is the potential for this species to occur in the future within the protected vernal pool habitats. Table 6-16 summarizes the total amount of suitable habitat and known occurrences of Riverside fairy shrimp within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

None within Plan Area

Pool Type

- Natural Pool
- Road Rut
- Vernal Pool Complex

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-13 Riverside Fairy Shrimp.mxd Date: 12/19/2018 34153

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Figure 6-13
Riverside Fairy Shrimp - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-16. Conservation Analysis Summary: Riverside Fairy Shrimp

	Complexes (Weston and Grossmont College)		Fanita Ranch Vernal Pools and Seasonal Basin Features			
			Potential Features		Occupied Features	
	Number	Acres	Pools	Acres	Pools	Acres
Total in Subarea Plan Area	2	19.6	229	1.6	0	0.0
Conservation						
Conserved through Subarea Plan Preserve System						
Existing Preserves	1	1.9	-	-	-	-
Currently Protected			-	-	-	-
Hardline Preserves (100%)			127	0.8	-	-
Softline Areas (75%)	1	17.7	-	-	-	-
Total Conserved	2	19.6	127	0.8	-	-
Percent Conserved	100%	100%	55.5%	50.0%	-	-
Anticipated Conservation Based on MSCP MHPA						
Total Conserved	0	0	105	0.6	-	-
Percent Conserved	0.0%	0.0%	45.8%	37.5%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA						
Total Conserved	2	19.6	+22	+0.2	-	-
Percent Conserved	100%	100%	+9.7%	+12.5%	-	-
Impacts [a]						
Estimated Impacts from Covered Activities						
Covered Development Projects	-	-	102	0.8	-	-
Covered Street Projects	-	-	-	-	-	-
Covered Drainage Projects	-	-	-	-	-	-
New Trail Segments	-	-	-	-	-	-
Future Development Activities	avoidance		-	-	-	-
Total Impacted	-	-	102	0.8	-	-
Percent Impacted	-	-	44.5%	50%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.11.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.11.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [X] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.11.3 Impact Analysis

Covered Activities may result in direct and unavoidable impacts to vernal pool/seasonal basin habitat that will be addressed based on the avoidance, minimization, and mitigation measures including the Vernal Pool Conservation Standards. See description in Section 6.3.2, *Riparian, Wetland and Vernal Pool Habitats*, that outlines the mitigation approach and actions.

6.4.11.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of Riverside fairy shrimp and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for Riverside fairy shrimp.

6.4.12 San Diego Fairy Shrimp

Federal: Endangered—1997.

State: None.

Critical Habitat: Final critical habitat was designated by USFWS in December 2007 (USFWS 2007a). There are no areas of critical habitat for San Diego fairy shrimp located within or near the Subarea Plan Area.

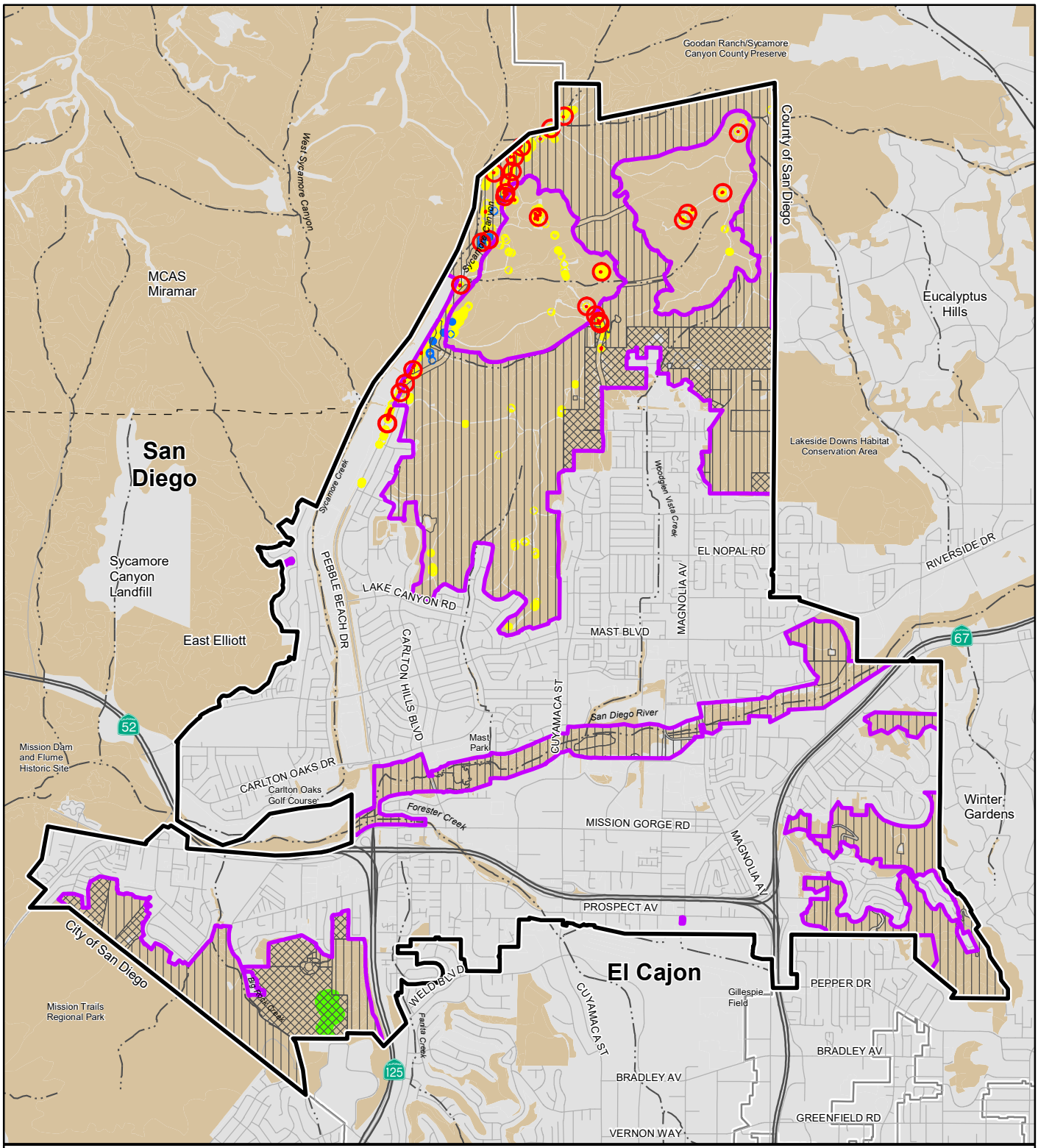
Species Background: San Diego fairy shrimp is a small aquatic crustacean in the order Anostraca. Male San Diego fairy shrimp are distinguished from other *Branchinecta* species by differences in the distal tips of the second antenna. San Diego fairy shrimp are generally restricted to vernal pools and other non-vegetated ephemeral basins. They typically occur in basins that have between 2 to 12 inches of maximum ponding depth. Known vernal pool complexes, vernal pools, and seasonal basins within the Subarea Plan Area are shown in Figure 3-3. See section 3.4.3, *Invertebrate Species Profile: San Diego Fairy Shrimp*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 12 (S-12): Provide for the conservation of San Diego fairy shrimp within the Subarea Plan Area.

6.4.12.1 Conservation of Suitable and Occupied Habitat

Species Objective 12.1 (S-12.1): Protect and maintain 21.4 acres of suitable vernal pool/seasonal basin habitat within Subarea Plan Preserve System that has the potential to support San Diego fairy shrimp.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of suitable vernal pool/seasonal basin habitat that has the potential to support San Diego fairy shrimp (see Figure 6-14). This will include a total of 19.6 acres of known vernal pool complexes near the Weston project and Grossmont College areas, and 1.6 acres of potential vernal pool/seasonal basin features within the Fanita Ranch property (0.8 acre determined to meet vernal pool criteria). San Diego fairy shrimp is known within the Subarea Plan Area. The conservation of vernal pool habitat exceeds the amount that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. On the Fanita Ranch property, San Diego fairy shrimp occupy a total of 72 out of 229 features. It is the only identified branchiopod within Fanita Ranch except for unidentifiable brachiopods found in two features during the 2015/2016 surveys. Table 6-17 summarizes the total amount of suitable habitat and known occurrences of San Diego fairy shrimp within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Pool Type

- Natural Pool
- Road Rut
- Vernal Pool Complex

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-14 San Diego Fairy Shrimp.mxd Date: 12/19/2018 34153

Figure 6-14
San Diego Fairy Shrimp - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-17. Conservation Analysis Summary: San Diego Fairy Shrimp

	Complexes with Potential Habitat (Weston and Grossmont College)		Fanita Ranch Vernal Pools and Seasonal Basin Features			
			Potential Features		Occupied Features	
	Number	Acres	Pools	Acres	Pools	Acres
Total in Subarea Plan Area	2	19.6	229	1.6	72	0.8
Conservation						
Conserved through Subarea Plan Preserve System						
Existing Preserves	1	1.9	-	-	-	-
Currently Protected			-	-	-	-
Hardline Preserves (100%)			127	0.8	38	0.4
Softline Areas (75%)	1	17.7	-	-	-	-
Total Conserved	2	19.6	127	0.8	38	0.4
Percent Conserved	100%	100%	55.5%	50.0%	52.8%	50.0%
Anticipated Conservation Based on MSCP MHPA						
Total Conserved	0	0	105	0.6	38	0.4
Percent Conserved	0.0%	0.0%	45.8%	37.5%	52.8%	50.0%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA						
Total Conserved	2	19.6	+22	+0.2	0.0	0.0
Percent Conserved	100%	100%	+9.7%	+12.5%	0.0%	0.0%
Impacts [a]						
Estimated Impacts from Covered Activities						
Covered Development Projects	-	-	102	0.8	34	0.4
Covered Street Projects	-	-	-	-	-	-
Covered Drainage Projects	-	-	-	-	-	-
New Trail Segments	-	-	-	-	-	-
Future Development Activities		avoidance	-	-	-	-
Total Impacted	-	-	101	0.8	34	0.4
Percent Impacted	-	-	44.5%	50%	47.2%	50.0%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.12.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.12.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [X] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.12.3 Impact Analysis

Covered Activities may result in direct and unavoidable impacts to vernal pool/seasonal basin habitat that will be addressed based on the avoidance, minimization, and mitigation measures including the Vernal Pool Conservation Standards. See description in Section 6.3.2, *Riparian, Wetland and Vernal Pool Habitats*, that outlines the mitigation approach and actions.

6.4.12.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of San Diego fairy shrimp and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for San Diego fairy shrimp.

6.4.13 Belding's Orange-throated Whiptail

Federal: None.

State: CDFW Watch List.

Critical Habitat: None. This species has not been listed by USFWS.

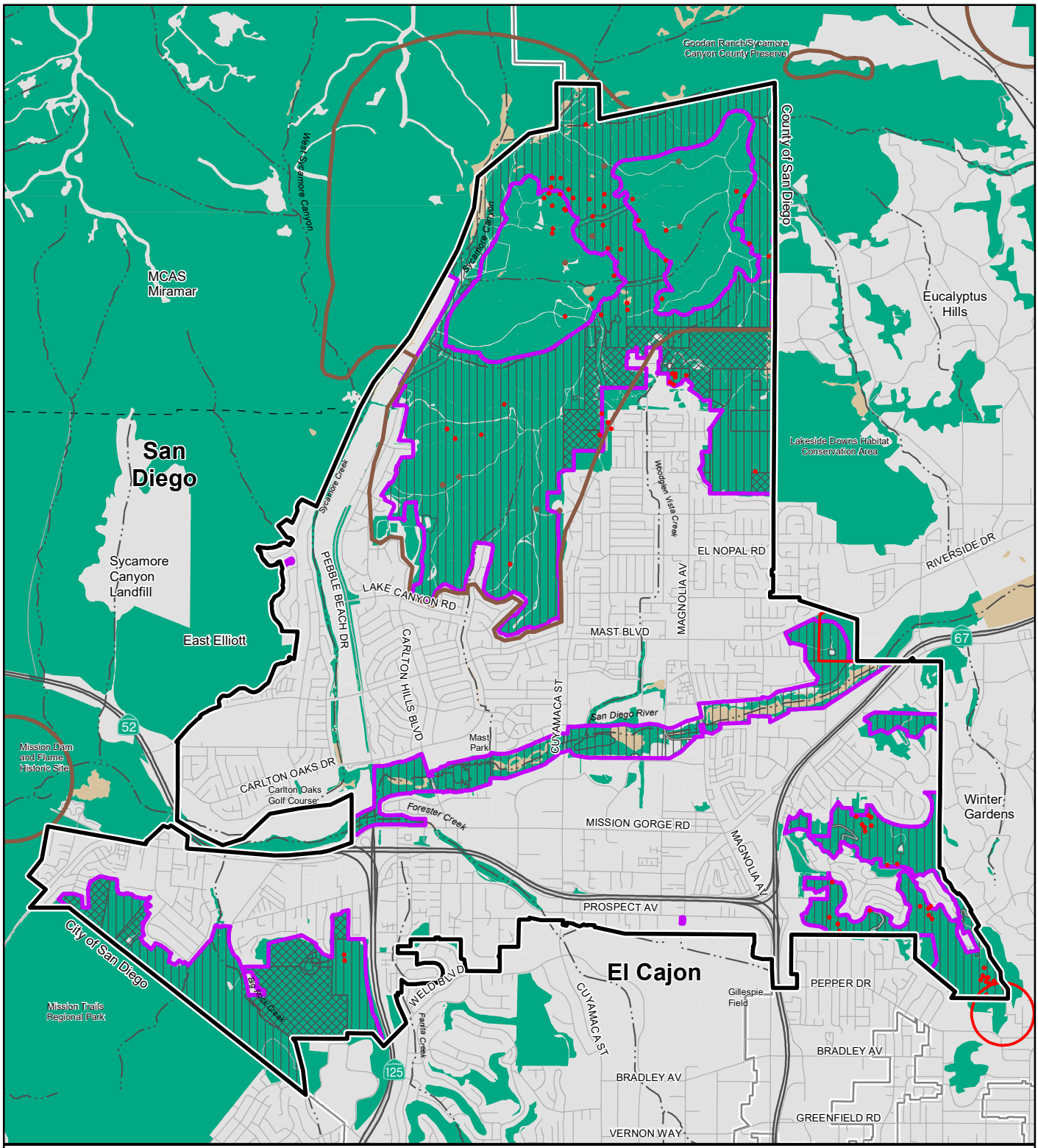
Species Background: Belding's orange-throated whiptail is a slender, alert and active lizard in the Whiptail family (Teiidae). Coloration ranges include gray, reddish brown, dark brown and black, with five to seven pale yellow to tan stripes (Jennings and Hayes 1994). Belding's orange-throated whiptail are currently found in semi-arid brushy areas with loose soil including washes, streamsides, rocky hillsides, and coastal chaparral (CaliforniaHerps 2017). They are frequently associated with chaparral and sage scrub shrubs. Sage scrub and chaparral have been largely displaced within the preferred floodplain habitat, by development or altered hydrology. A habitat suitability model was developed for this Subarea Plan based on vegetative cover. See section 3.6.1, *Reptile and Amphibian Species Profile: Belding's Orange-throated Whiptail*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 13 (S-13): Provide for the conservation of Belding's orange-throated whiptail within the Subarea Plan Area.

6.4.13.1 Conservation of Suitable and Occupied Habitat

Species Objective 13.1 (S-13.1): Protect and maintain 2,957 acres of suitable habitat for Belding's orange-throated whiptail within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,957.0 acres of suitable habitat for Belding's orange-throated whiptail (see Figure 6-15). This is 67.6% of the suitable habitat within the Subarea Plan Area and exceeds the amount of Belding's orange-throated whiptail habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. Belding's orange-throated whiptail has been observed within natural habitats throughout the Subarea Plan Area. Within the Fanita Ranch property, Belding's orange-throated whiptail was observed within the northern and southern portions of Fanita Ranch within Diegan coastal sage scrub, granitic southern mixed chaparral, and coast live oak woodland (Dudek 2018). Additional known occurrences have been recorded in the Rattlesnake Mountain subunit (CNLM Rattlesnake Mountain HCA, Lantern Crest open space, Parkview project), Mission Trails Subunit (CNLM East Mesa HCA), and North Magnolia Subunit (Cheyenne property and Cutri project area). Table 6-18 summarizes the total amount of suitable habitat and known occurrences of Belding's orange-throated whiptail within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Suitable Habitat
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-15 Beldings Orange-throated Whiptail-Unique.mxd Date: 12/19/2018 34153

Figure 6-15
Belding's Orange-throated Whiptail - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-18. Conservation Analysis Summary: Belding's Orange-Throated Whiptail

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	4,375.8	101	103
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	612.9	39	41
Currently Protected Open Space, Not Fully Managed	434.2	1	1
Hardline Preserves (100%)	1,583.4	33	33
Softline Areas (75%)	326.5	1	1
Total Conserved	2,957.0	74	76
Percent Conserved	67.6%	73.3%	73.8%
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	2003.7	29	29
Percent Conserved	45.8%	28.7%	28.2%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+953.3	+45	+45
Percent Conserved	+21.8%	+44.6%	+45.6%
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	885.6	23	23
Covered Street Projects	1.2	-	-
Covered Drainage Projects	8.8	-	-
New Trail Segments	2.2	-	-
Future Development Activities	252.3	4	4
Total Impacted	1,150.1	27	27
Percent Impacted	26.3%	26.7%	26.2%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.13.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.13.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.13.3 Impact Analysis

There is a total of 1,150.1 (26.3%) acres of potentially suitable habitat for Belding's orange-throated whiptail estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. Impacts to known occurrences (23 individuals) are anticipated from the Fanita Ranch development project. These impacts will be offset through conservation of 32 individuals and suitable habitat within the onsite habitat preserve.

6.4.13.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of Belding's orange-throated whiptail and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for orange-throated whiptail.

6.4.14 Blainville's Horned Lizard

Federal: None.

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

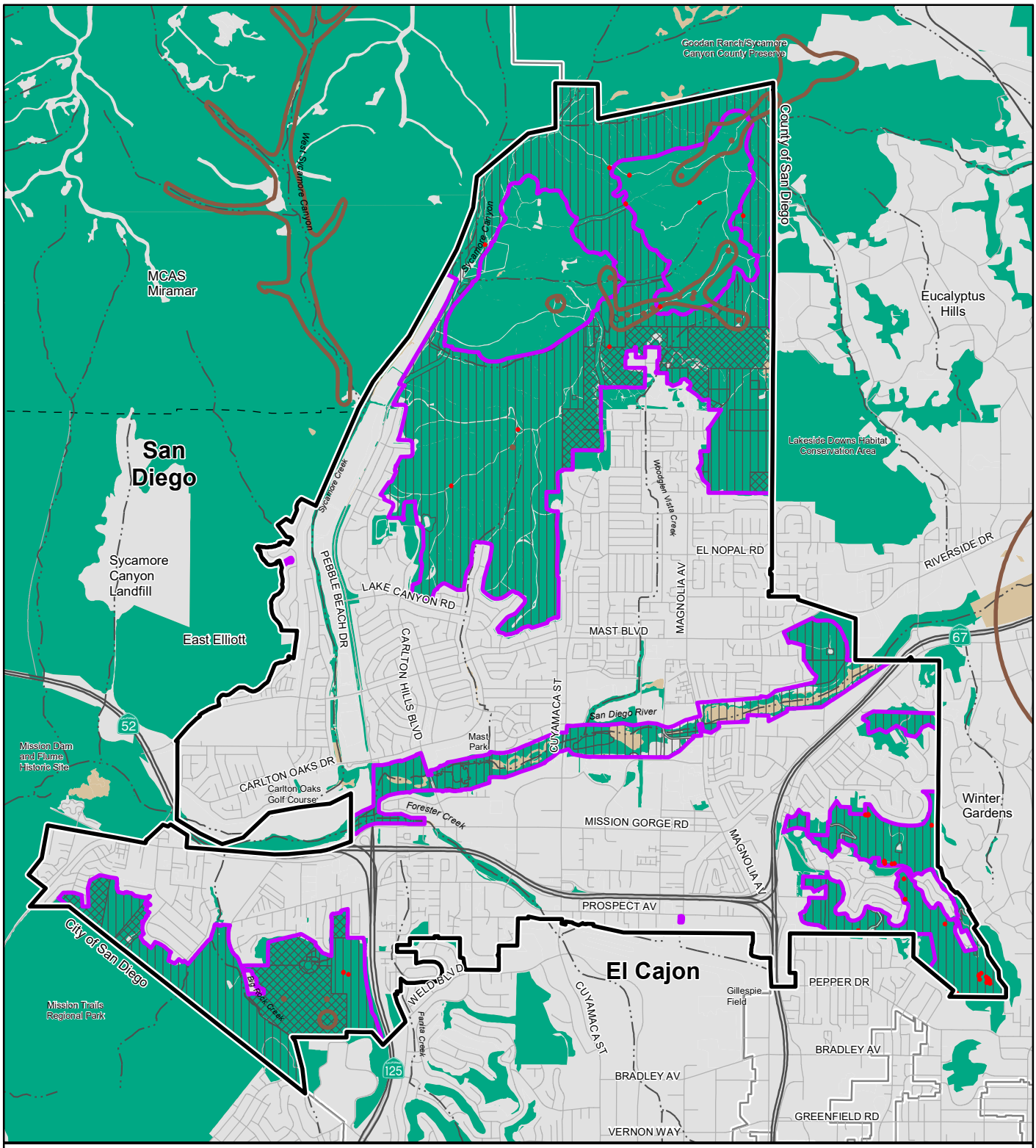
Species Background: Blainville's horned lizard is a large horned lizard with adult body lengths of 2.8 to 4 inches, and a strong pair of horns at the back of the skull, and double rows of fringe scales on the sides (Sherbrooke 2003). They have very cryptic coloration with a body of various earth tones from tan, reddish, brown, yellow or gray, with dark color bands crossing the back (CaliforniaHerps 2017; Sherbrooke 2003). This species is strongly associated with areas of native ant populations. Native ants form the majority of the diet of all horned lizards and horned lizards will not eat invasive nonnative ant species, including Argentine ant (*Linepithema humile*). This species is found in a variety of vegetation communities including coastal sage scrub, grasslands chaparral, oak woodlands and coniferous forests (Sherbrooke 2003), but usually avoids dense vegetation, preferring 20 to 40 percent bare ground in its habitat. A habitat suitability model was developed for this Subarea Plan based on vegetative cover. See section 3.6.2, *Reptile and Amphibian Species Profile: Blainville's Horned Lizard*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 14 (S-14): Provide for the conservation of Blainville's horned lizard within the Subarea Plan Area.

6.4.14.1 Conservation of Suitable and Occupied Habitat

Species Objective 14.1 (S-14.1): Protect and maintain 2,983 acres of suitable habitat for Blainville's horned lizard within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,983.7 acres of suitable habitat for Blainville's horned lizard (see Figure 6-16). This is 67.6% of the suitable habitat within the Subarea Plan Area and exceeds the amount of Blainville's horned lizard habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. Blainville's horned lizard has been observed in the northern and central portions of the Fanita Ranch property (Dudek 2018), as well as within the CNLM Rattlesnake Mountain HCA and CNLM East Mesa HCA. Table 6-19 summarizes the total amount of suitable habitat and known occurrences of Blainville's horned lizard within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Suitable Habitat
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-16 Blainvilles Horned Lizard-Unique.mxd Date: 12/19/2018 34153

Figure 6-16
Blainville's Horned Lizard - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-19. Conservation Analysis Summary: Blainville's Horned Lizard

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	4,412.7	61	61
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	612.9	34	34
Currently Protected Open Space, Not Fully Managed	434.6	-	-
Hardline Preserves (100%)	1,609.7	10	10
Softline Areas (75%)	326.5	-	-
Total Conserved	2,983.7	44	44
Percent Conserved	67.6%	72.1%	72.1%
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	2,030.6	8	8
Percent Conserved	46.0%	13.1%	13.1%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+953.1	+22	+22
Percent Conserved	+21.6%	+59.0%	+59.0%
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	887.9	17	17
Covered Street Projects	1.2	-	-
Covered Drainage Projects	8.8	-	-
New Trail Segments	2.2	-	-
Future Development Activities	259.1	-	-
Total Impacted	1,159.2	17	17
Percent Impacted	26.3%	27.9%	27.9%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.14.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.14.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.14.3 Impact Analysis

There is a total of 1,159.2 (26.3%) acres of potentially suitable habitat for Blainville's horned lizard estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project. Impacts to known occurrences (17 individuals) are anticipated from the Fanita Ranch development project. These impacts will be offset through conservation of 10 individuals and suitable habitat within the onsite habitat preserve.

6.4.14.4 Rationale for Coverage

The conservation actions under the Subarea Plan will provide for the conservation and management of Blainville's horned lizard and will ensure that the impacts from Covered Activities are minimized and mitigated to the maximum extent practicable. No additional conditions for coverage are identified for Blainville's horned lizard.

6.4.15 Southwestern Pond Turtle

Federal: None.

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

Species Background: Southwestern pond turtle is a small to medium size turtle. Coloration ranges from olive brown to dark brown to black. Southwestern pond turtle is an aquatic turtle that may utilize uplands to reproduce, to aestivate, and to hibernate (Jennings and Hayes 1994). They require slack or slow-water aquatic habitat with abundant vegetation and are found in ponds, lakes, rivers, streams, creeks, marshes and irrigation ditches (CaliforniaHerps 2017). Logs, rocks, or exposed banks are required for basking. Although relatively little research about nesting behavior has been conducted, most evidence suggests nesting occurs in upland habitats adjacent to ponds and streams, generally where there is at least four inches of soil in which eggs may be laid (Zeiner et al. 1988). A habitat suitability model was developed for this Subarea Plan based on vegetative cover to define suitable breeding habitat and an upland habitat buffer of 1,500 feet around breeding habitat areas. See section 3.6.3, *Reptile and Amphibian Species Profile: Southwestern Pond Turtle*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

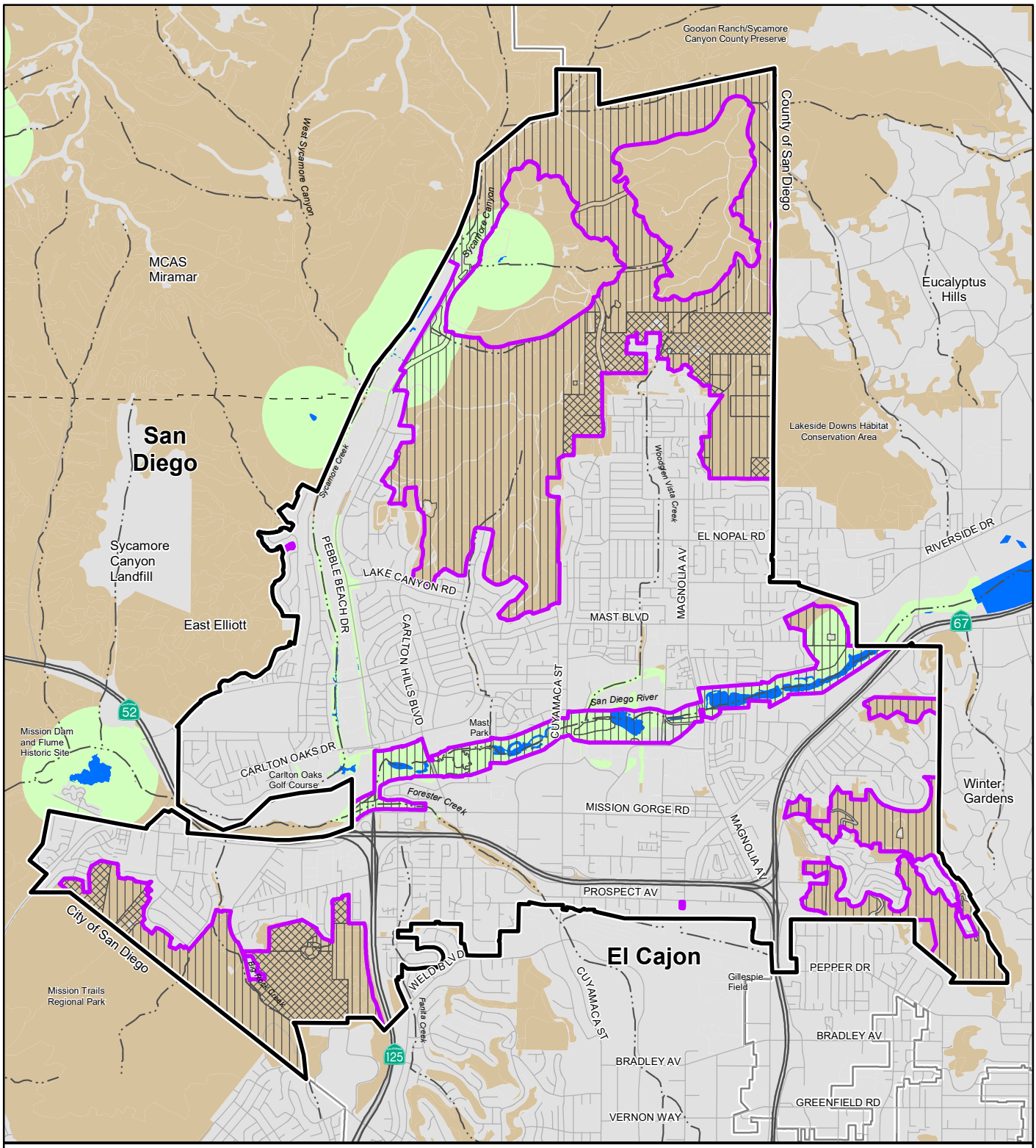
Species Goal 15 (S-15): Provide for the conservation of southwestern pond turtle within the Subarea Plan Area.

6.4.15.1 Conservation of Suitable and Occupied Habitat

Species Objective 15.1 (S-15.1): Protect and maintain 416 acres of a combination suitable breeding and upland habitat for southwestern pond turtle within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 416.6 acres of a combination of suitable breeding and upland habitat buffer for southwestern pond turtle (see Figure 6-17). This is 55.5% of the suitable habitat within the Subarea Plan Area and exceeds the amount of southwestern pond turtle habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are no known occurrences of southwestern pond turtle within the Subarea Plan Area, although there is occupied habitat within the San Diego River watershed and the lower reaches of the San Diego River are considered opportunity areas for reintroduction (SDMMP 2017). The nearest known extant populations are in the upper San Diego River valley near Julian, and in the Sweetwater River valley near Loveland Reservoir. Table 6-20 summarizes the total amount of suitable habitat

and known occurrences of southwestern within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Habitat Model

- Suitable Habitat
- Upland Habitat Buffer

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

Species Occurrence Locations
None within Plan Area

N

0 4,450
Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-17 Southwestern Pond Turtle-Unique.mxd Date: 12/19/2018 34153

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Figure 6-17
Southwestern Pond Turtle - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-20. Conservation Analysis Summary: Southwestern Pond Turtle

	Suitable Breeding Habitat (acres)	Upland Habitat Buffer (acres)	Total suitable Habitat (acres)	Current Known Occurrences	
				Locations	Population
Total in Subarea Plan Area	68.7	681.8	750.5	0	0
Conservation					
Conserved through Subarea Plan Preserve System					
Existing Preserves	-	36.9	36.9	-	-
Currently Protected Open Space, Not Fully Managed	64.1	196.0	260.1	-	-
Hardline Preserves (100%)	-	119.6	119.6	-	-
Softline Areas (75%)	-	-	-	-	-
Total Conserved	64.1	352.5	416.6	-	-
Percent Conserved	93.3%	51.7%	55.5%	-	-
Anticipated Conservation Based on MSCP MHPA					
Total Conserved	57.4	226.6	284.0	-	-
Percent Conserved	83.6%	33.2%	37.8%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA					
Total Conserved	+6.7	+125.9	132.6	-	-
Percent Conserved	+9.7%	+18.5%	17.7%	-	-
Impacts [a]					
Estimated Impacts from Covered Activities					
Covered Development Projects	0.1	195.2	195.3	-	-
Covered Street Projects		1.2	1.2	-	-
Covered Drainage Projects		7.4	7.4	-	-
New Trail Segments	0.2	1.8	2.0	-	-
Future Development Activities	0.9	59.6	60.5	-	-
Total Impacted	1.2	265.2	266.4	-	-
Percent Impacted	1.7%	38.9%	35.5%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.15.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.15.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.15.3 Impact Analysis

There is a total of 266.4 (35.5%) acres of potentially suitable habitat for southwestern pond turtle estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

6.4.15.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of southwestern pond turtle and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for southwestern pond turtle.

6.4.16 Western Spadefoot Toad

Federal: None (under review).

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

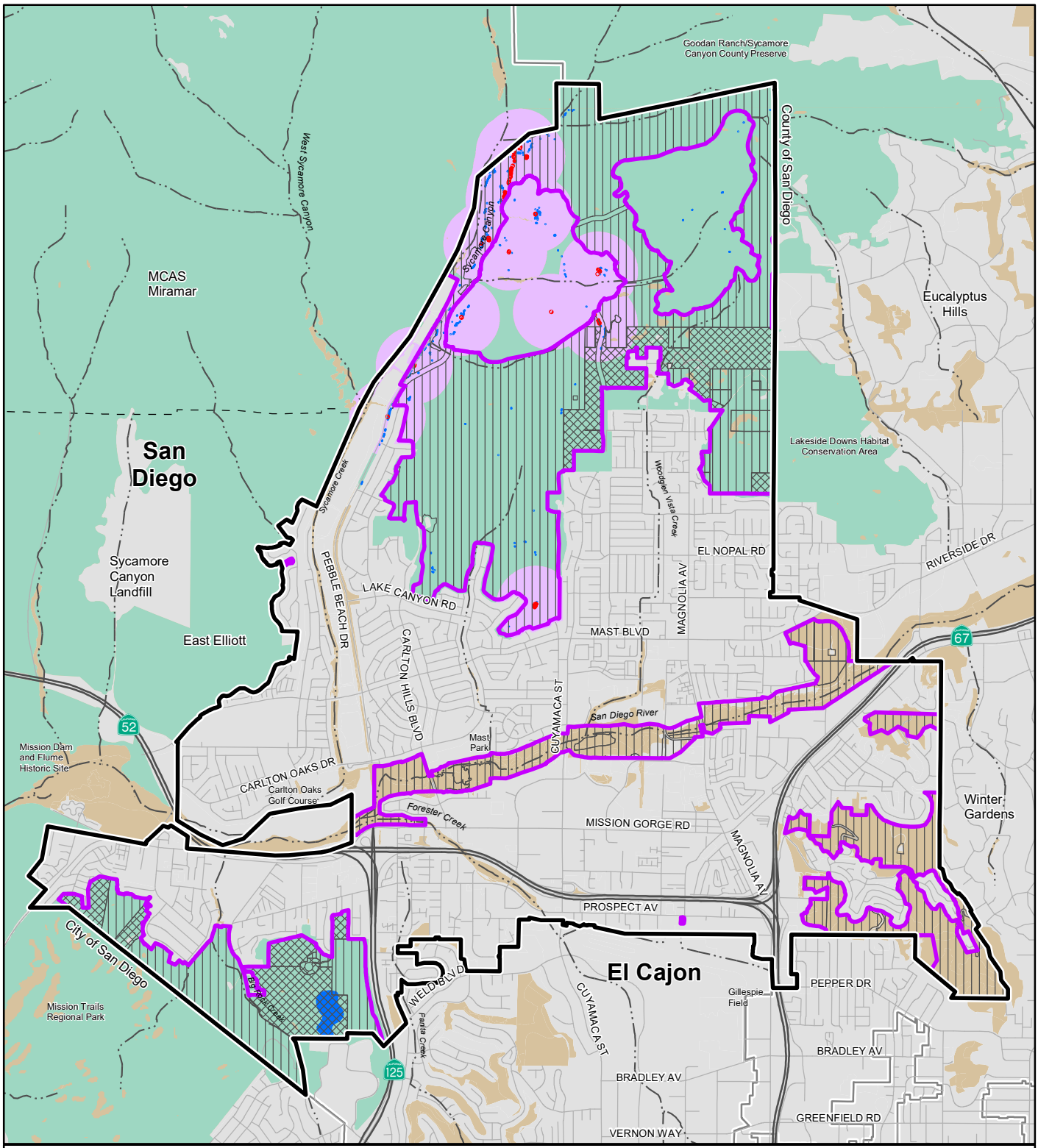
Species Background: The western spadefoot toad is a small, semi-fossorial amphibian species native to California and northern Baja California. During the long, dry months of summer and fall, the adults seek shelter underground. Early in the rainy season, they emerge to forage and reproduce, making use of temporary pools to lay their eggs. Western spadefoot toad typically breed in standing water that collects in shallow depressions within the upland habitat rather than in flowing streams or creeks. In addition to using naturally forming pools within the landscape, western spadefoot will breed in the pools forming along dirt roads within their habitat. A habitat suitability model was developed for this Subarea Plan based on known breeding pools and vernal pool complexes to define suitable breeding habitat and an upland habitat buffer based on factors of vegetative cover, slope, patch size, and distance (1,000 feet) around breeding habitat areas. See section 3.6.4, *Reptile and Amphibian Species Profile: Western Spadefoot Toad,* for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 16 (S-16): Provide for the conservation of western spadefoot toad within the Subarea Plan Area.

6.4.16.1 Conservation of Suitable and Occupied Habitat

Species Objective 16.1 (S-16.1): Protect and maintain 2,424 acres of a combination of suitable breeding and upland habitat for western spadefoot toad within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 2,424.3 acres of a combination of suitable breeding and upland habitat buffer for western spadefoot toad (see Figure 6-18). This is 66.0% of the suitable habitat within the Subarea Plan Area and exceeds the amount of western spadefoot toad habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. Western spadefoot toad are known to live and breed at multiple sites (38 occupied features out of a potential of 229) in the Fanita Ranch property. Based on observations in multiple years by Dudek (2018) and confirmed with surveys by USGS in 2017 (Rochester et al. 2017), the Fanita Ranch property has a self-sustaining population with 100's of metamorphic western spadefoot making it out of the breeding pools in 2017. No other known occurrences have been recorded in the Subarea Plan Area outside of the Fanita Ranch property. Table 6-21 summarizes the total amount of suitable habitat and known occurrences of southwestern within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

Habitat Model

- Known Breeding Habitat
- Potentially Suitable Breeding Habitat
- Suitable Upland Habitat Adjacent to Areas of Known Breeding Habitat
- Other Suitable Upland Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-18 Western Spadefoot Toad-Unique.mxd Date: 12/19/2018 34153

Figure 6-18
Western Spadefoot Toad - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-21. Conservation Analysis Summary: Western Spadefoot Toad

	Suitable Habitat (conserved acres)					Known Occurrences
	Known Breeding Habitat	Potentially Suitable Breeding Habitat	Suitable Habitat Adjacent to Breeding Habitat	Other Suitable Upland Habitat	Total	Locations (Features Occupied)
Total in Subarea Plan Area	0.294	19.9	813.8	2,837.0	3,617.0	38
Conservation						
Conserved through Subarea Plan Preserve System						
Existing Preserves	-	1.2	-	267.0	268.2	-
Currently Protected	-	-	4.9	190.2	195.1	24
Hardline Preserves (100%)	0.256	0.6	356.6	1,270.7	1,628.2	-
Softline Areas (75%)	-	13.0	11.7	308.1	332.8	-
Total Conserved	0.256	14.8	373.2	2,036.0	2,424.3	24
Percent Conserved	87.1%	74.4%	45.9%	71.8%	66.0%	63.2%
Anticipated Conservation Based on MSCP MHPA						
Total Conserved	314.4	717.1	755.4	31.3	1,818.2	17
Percent Conserved	44.5%	60.1%	38.8%	24.7%	45.7%	44.7%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA						
Total Conserved	+27.5	+101.2	+688.1	+58.7	+875.5	+7
Percent Conserved	+3.9%	+8.5%	+35.3%	+46.3%	+22.0%	+18.5%
Impacts [a]						
Estimated Impacts from Covered Activities						
Covered Development Projects	0.038	0.719	378.0	517.1	895.9	14
Covered Street Projects	-	-	-	-	-	-
Covered Drainage Projects	-	-	-	-	-	-
New Trail Segments	-	-	-	0.3	0.3	-
Future Development Activities	-	4.3	-	149.8	154.1	-
Total Impacted	0.038	5.0	378.0	667.2	1,050.3	14
Percent Impacted	12.9%	25.2%	46.4%	23.5%	29.0%	36.8%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.16.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.16.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [X] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.16.3 Impact Analysis

There is a total of 1,050.3 (29.0%) acres of a combination of suitable breeding and upland habitat buffer for western spadefoot toad estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

Project specific impacts will be addressed through the avoidance, minimization, and mitigation measures of the Subarea Plan (see Chapter 5.5, *Conservation Measure 3 - Avoidance, Minimization, and Mitigation*), including the species-specific conservation standards for western spadefoot toad included in Section 5.5.8.2, *Western Spadefoot Toad Conservation Standards*. The proposed Fanita Ranch development project is anticipated to impact known breeding habitat (14 features) and suitable upland habitat. All of the known seasonal basin features occupied by western spadefoot toad are located on Fanita Ranch and many are located along Sycamore Creek. While upland habitat within a 1,000 foot buffer surrounding these Sycamore Creeks pools will be impacted to varying degrees through development of the Fanita Ranch project, the connectivity between the breeding pools along Sycamore Creek and suitable upland habitat will be maintained in surrounding currently protected open space on MCAS Miramar and County preserves outside of the Subarea Plan Area. In addition, culverts beneath the Fanita Ranch Parkway extension will be designed to allow for movement of western spadefoot toad under the road. The Vernal Pool Mitigation Plan (VPMP) for Fanita Ranch will include mitigation for occupied western spadefoot toad as required by the Subarea Plan. See description in Section 6.3.2, *Riparian, Wetland and Vernal Pool Habitats*, that outlines the mitigation approach and actions.

In addition to habitat mitigation measures, a western spadefoot toad relocation program will be implemented for the Fanita Ranch project to minimize the direct impacts of pools that are known to be occupied by western spadefoot toad:

Western Spadefoot Toad Relocation. During the wet season prior to clearing or grading operations, biologists will collect western spadefoot toad adults from areas within 1,000 feet of known occupied pools. Adults will either be cared for by a Wildlife Agency-approved biologist employing methods negotiated between the project applicant and the Wildlife Agencies, or they will be relocated to another area on the Fanita property that has suitable breeding habitat and few or no western spadefoot toads.

A Western Spadefoot Toad Relocation Plan will be proposed and subject to approval by the City and Wildlife Agencies prior to implementation and issuance of any Grading Permit. It will include at minimum the following elements:

a. The timing and methods for surveying, capturing and releasing adults. Long-term care methods should also be discussed if this option is used.

b. Collection should occur during the first three or four large rain events of the season. Ideally, these rain events will produce a minimum of 0.20 inch during a 24-hour period.

c. If adults are relocated within 1,000 feet of construction activities, then the area should be fenced with keyed-in silt fencing to ensure that they do not aestivate in the construction zone.

If a biological study for a proposed project identifies invasive African clawed frogs as a threat to occupied western spadefoot toad habitat, an African clawed frog trapping program would be implemented similar to the following:

African Clawed Frog Trapping. A monitoring program will be designed to determine the presence of African clawed frogs within occupied western spadefoot toad (and San Diego fairy shrimp) features. If it is found that they occur in or have potential to invade features occupied by western spadefoot toad, an African Clawed Frog Management Plan will be written and submitted to the City and Wildlife Agencies for approval. Monitoring will consist of surveying flowing and pooled portions of Sycamore Creek and restored and natural features within the project area once per month from January through April while the project is in construction. After construction is complete, these areas will be surveyed for African clawed frogs once per year in March. If African clawed frogs are observed during the construction or post-construction monitoring, then a management plan will be written within 2 weeks. At a minimum, the Management Plan will indicate the locations to be controlled, frequency of control, and methods for control. Since different areas may require control each year, yearly updates may be necessary.

6.4.16.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of western spadefoot toad and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for western spadefoot toad.

6.4.17 Coastal California Gnatcatcher

Federal: Threatened—1993.

State: Species of Special Concern.

Critical Habitat: Final critical habitat was designated in October 2000 and revised December 2007 (USFWS 2007b).

Species Background: Coastal California gnatcatcher is small non-migratory songbird in the gnatcatcher family (Polioptilidae). Coastal California gnatcatcher breeding habitat is strongly associated with sage scrub communities, with California sagebrush being a dominant nesting plant. A habitat suitability model was prepared for the MSCP Subregional Plan and this model has been updated with current vegetative cover information for the Subarea Plan Area. The model ranks habitat value using parameters of vegetation cover, climate, patch area, and slope. See section 3.7.1, *Bird Species Profile: Coastal California Gnatcatcher*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

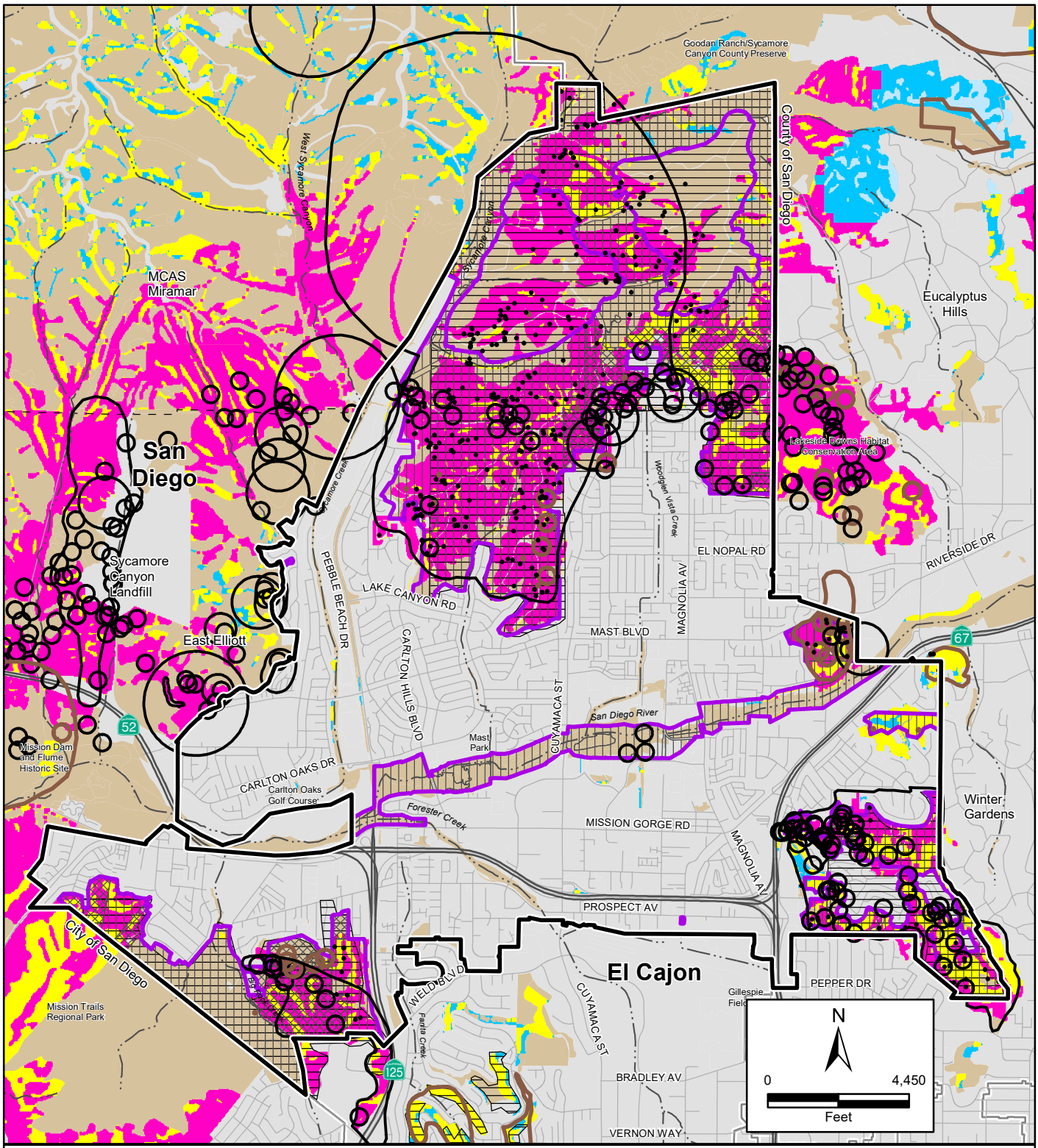
Species Goal 17 (S-17): Provide for the conservation of coastal California gnatcatcher within the Subarea Plan Area.

6.4.17.1 Conservation of Suitable and Occupied Habitat

Species Objective 17.1 (S-17.1): Protect and maintain 1,992 acres of suitable habitat for coastal California gnatcatcher within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 1,992.3 acres of suitable habitat for coastal California gnatcatcher (see Figure 6-19). This is 74.0% of the suitable habitat within the Subarea Plan Area and exceeds the amount of coastal California gnatcatcher habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There current known occurrences of coastal California gnatcatcher recorded throughout the Subarea Plan Area. Critical habitat has been designed across a majority of the upland habitat areas with the Subarea Plan Area and 70% of the natural habitat within critical habitat will be conserved. Table 6-22 summarizes the total amount of suitable habitat, critical habitat, and known occurrences of coastal California gnatcatchers within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.

As described in Section 6.2.3, *Sustain Wildlife Movement and Connectivity*, the configuration of the Subarea Plan Preserve System protects and maintains blocks of coastal sage scrub on the eastern side of the Subarea Plan Area that function as a stepping stone linkage for coastal California gnatcatchers within the Subarea Plan Area from Rattlesnake Mountain to the EHC Cheyenne open space property. In addition, maintaining the blocks of coastal sage scrub on the eastern side of the Subarea Plan Area also function as a stepping stone linkage for coastal California gnatcatchers to nearby blocks of coastal sage scrub (e.g. Lakeside Linkages County Preserve) within a few miles east of the Subarea Plan Area.



Legend

- Subarea Plan Area
- Final Critical Habitat (USFWS 2007)
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Habitat Model

- Very High Habitat Value
- High Habitat Value
- Moderate Habitat Value
- Low Habitat Value

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-19 Coastal California Gnatcatcher-CHSR.mxd Date: 12/19/2018 34153

Figure 6-19
Coastal California Gnatcatcher - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-22. Conservation Analysis Summary: Coastal California Gnatcatcher

	Suitable Habitat (conserved acres)						Known Occurrences	
	Very High	High	Moderate	Low	Total	Critical Habitat	Locations	Population
Total in Subarea Plan Area	2,039.6	616.4	35.3	0.0	2,691.3	3,542.2	139	225
Conservation								
Conserved through Subarea Plan Preserve System								
Existing Preserves	197.0	168.2	2.4	-	367.6	525.7	31	55
Currently Protected	169.4	80.7	7.4	-	257.5	195.8	21	29
Hardline Preserves (100%)	910.7	159.9	7.1	-	1,077.7	1,452.1	34	61
Softline Areas (75%)	214.1	75.5	-	-	289.5	307.1	26	35
Total Conserved	1,491.2	484.3	16.9	-	1,992.3	2,480.7	112	180
Percent Conserved	73.1%	78.6%	47.9%	-	74.0%	70.0%	80.6%	80.0%
Anticipated Conservation Based on MSCP MHPA								
Total Conserved	895.1	274.3	5.2	-	1,174.6	1,912.9	64	95
Percent Conserved	43.9%	44.5%	14.7%	-	43.6%	54.0%	46.0%	42.2%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA								
Total Conserved	+596.1	+210.0	+11.7	-	+817.7	+567.8	+57	+96
Percent Conserved	+29.2%	+34.1%	+33.2%	-	+30.4%	+16.0%	+41.1%	+42.7%
Impacts [a]								
Estimated Impacts from Covered Activities								
Covered Development Projects	349.3	35.5	2.4	-	387.2	850.6	14	28
Covered Street Projects	-	-	-	-	-	0.5	-	-
Covered Drainage Projects	-	0.2	0.5	-	0.7	-	-	-
New Trail Segments	0.1	0.1	-	-	0.2	0.4	-	-
Future Development Activities	105.3	50.3	4.8	-	160.4	133.8	13	17
Total Impacted	454.7	86.1	7.7	-	548.5	985.3	27	45
Percent Impacted	22.3%	14.0%	21.8%	-	20.4%	27.8%	19.4%	20.0%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.17.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.17.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [X] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.17.3 Impact Analysis

There is a total of 548.5 (20.4%) acres of potentially suitable habitat for coastal California gnatcatcher estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

6.4.17.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of coastal California gnatcatcher and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for coastal California gnatcatcher.

6.4.18 Least Bell's Vireo

Federal: Endangered—1986.

State: Endangered—1980.

Critical Habitat: Final critical habitat was designated in February 1994 (USFWS 1994).

Species Background: Least Bell's vireo is a small, insect-eating, migratory songbird in the vireo family (Vireonidae). This species typically appears in southern California in March and April. Nesting season generally lasts from April to late June, rarely mid-July, with fledging occurring in late April through August (Unitt 2004). This species typically occurs in riparian woodland or riparian scrub. Nesting occurs in the dense understory and foraging occurs within riparian canopy (Unitt 2004). Threats to least Bell's vireo include habitat loss to urban and agricultural development, habitat degradation by invasive plant species, and nest parasitism by brown-headed cowbirds. A habitat suitability model was developed for this Subarea Plan based on vegetative cover. See section 3.7.2, *Bird Species Profile: Least Bell's Vireo*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

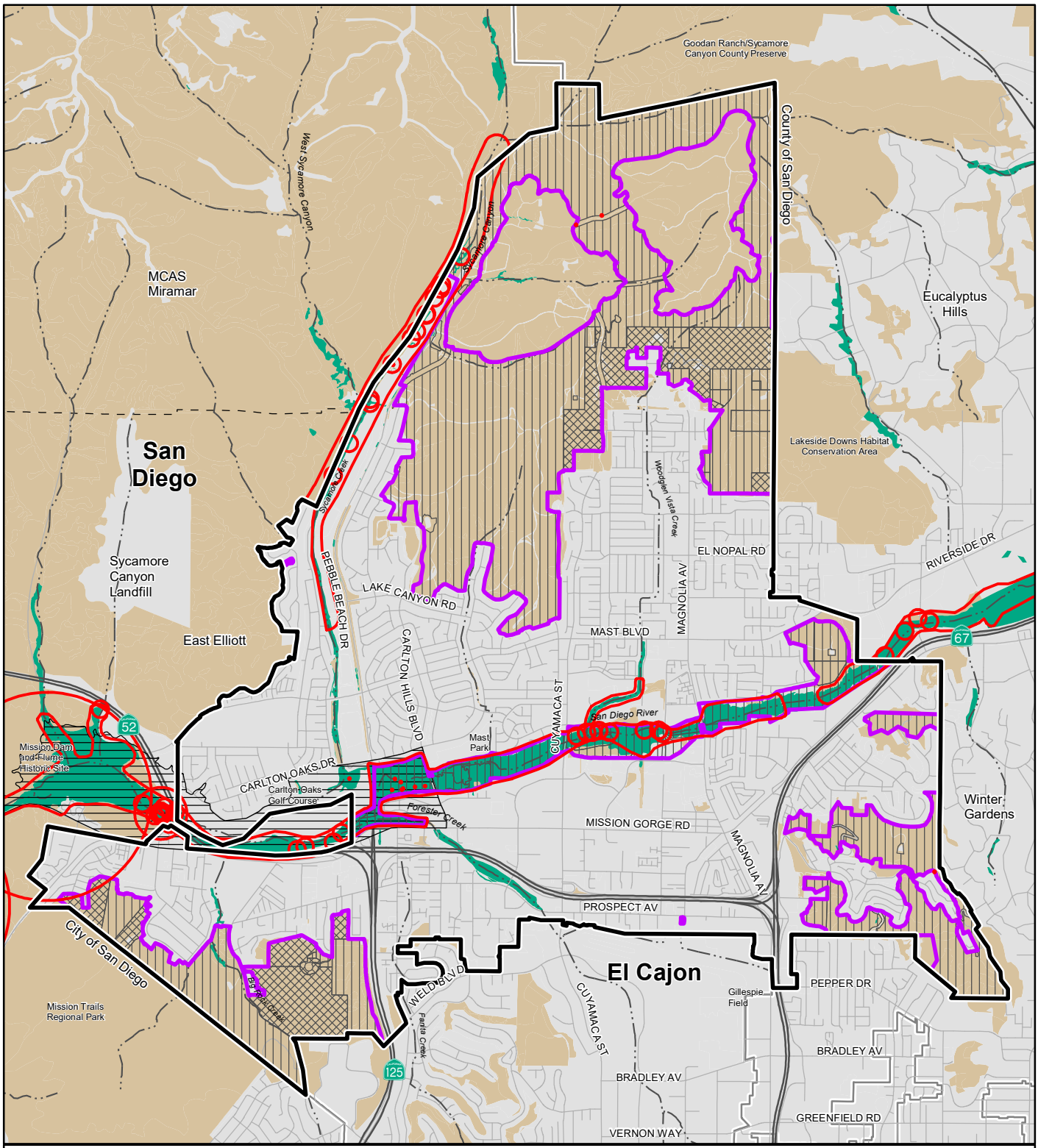
Species Goal 18 (S-18): Provide for the conservation of least Bell's vireo within the Subarea Plan Area.

6.4.18.1 Conservation of Suitable and Occupied Habitat

Species Objective 18.1 (S-18.1): Protect and maintain 259 acres of suitable habitat for least Bell's vireo within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 259.0 acres of suitable habitat for least Bell's vireo (see Figure 6-20). This is 71.4% of the suitable habitat within the Subarea Plan Area and exceeds the amount of least Bell's vireo habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There are current known occurrences of least Bell's vireo recorded in suitable habitat along the San Diego River and within Sycamore Canyon within the Subarea Plan Area. Critical habitat has been designated along the San Diego River in the western portion of the Subarea Area Plan up to the Carlton Hills Blvd bridge crossing. Table 6-23 summarizes the total amount of suitable habitat, critical habitat, and known occurrences of least Bell's vireo within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.

As described in Section 6.2.3, *Sustain Wildlife Movement and Connectivity*, the configuration of the Subarea Plan Preserve System protects and maintains linkage along the San Diego River. The biological goals for the San Diego River subunit includes maintaining a functional east–west habitat linkage through the Subarea Plan Area by maintaining the floodway width of the main channel of the San Diego river.



Legend

- Subarea Plan Area
- Suitable Habitat
- Final Critical Habitat (USFWS 1994)
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-20 Least Bells Vireo-Unique.mxd Date: 12/19/2018 34153

Figure 6-20
Least Bell's Vireo - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-23. Conservation Analysis Summary: Least Bell's Vireo

	Suitable Habitat (acres)	Critical Habitat (natural habitat acres)	Current Known Occurrences	
			Locations	Population
Total in Subarea Plan Area	362.5	82.9	46	82
Conservation				
Conserved through Subarea Plan Preserve System				
Existing Preserves	39.0	14.9	1	1
Currently Protected Open Space, Not Fully Managed	215.6	46.0	19	49
Hardline Preserves (100%)	4.2	-	2	2
Softline Areas (75%)	0.2	-		
Total Conserved	259.0	60.9	22	52
Percent Conserved	71.4%	73.5%	47.8%	63.4%
Anticipated Conservation Based on MSCP MHPA				
Total Conserved	195.9	46.4	21	51
Percent Conserved	54.0%	56.0%	45.6%	62.2%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA				
Total Conserved	+63.1	+14.5	+1	+1
Percent Conserved	+17.4%	+17.5%	+2.2%	1.2%
Impacts [a]				
Estimated Impacts from Covered Activities				
Covered Development Projects	1.6	-	1	1
Covered Street Projects	0.9	-		
Covered Drainage Projects	7.6	0.9		
New Trail Segments	1.5	2.9		
Future Development Activities	32.5	-	11	14
Total Impacted	44.1	3.8	12	15
Percent Impacted	12.2%	4.6%	26%	18.3%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.18.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.18.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [X] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.18.3 Impact Analysis

There is a total of 44.1 (12.2%) acres of potentially suitable habitat for least Bell's vireo estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

In addition to protecting suitable habitat, the Subarea Plan addresses the threat to least Bell's vireo nest parasitism poised by brown-headed cowbirds through implementation of appropriate trapping programs. As described in Section 5.4.2, "City Role for Overview and Coordination of Preserve System", the Subarea Plan Administrator and Preserve Steward will pursue grant funding opportunities to implement actions to improve and enhance management of the Subarea Plan Preserve System from a city-wide perspective. This may include activities such as control brown-headed cowbirds. Regional surveys for least Bell's vireos have been conducted along the San Diego River periodically since the mid-1970s. Vireos have been documented within the same general area (Mission Dam to Santee) over a number of years and increased from territories between 1978 to 1994 (Lynn et al. 2009). Further research is warranted to identify areas that cowbird control is needed and determine the number, location, and period of operation of cowbird traps to achieve objectives of cowbird control relative to management goals of protecting and enhancing the San Diego River vireo population (Lynn et al. 2009). The City will continue collaborate with entities conducting regional monitoring of least Bell's vireo (e.g. USGS and SDMMP), allow and facilitate access to properties within the Subarea Plan Preserve System with suitable least Bell's vireo habitat for monitoring purposes, and participate in cowbird control effort as funding allows in the San Diego River area.

The Fanita Ranch biological resources technical report identifies the potential to have direct and indirect impacts on least Bell's vireo habitat. A cowbird monitoring and trapping effort is to be implemented similar to the following:

> **Brown-headed Cowbird Trapping.** A Brown-Headed Cowbird Management Plan will be written and submitted to the City and Wildlife Agencies for approval. Trapping will begin during the first phase of grading and continue for a period of 15 years or until such time as an alternative control method is developed, which would then replace the trapping program through the 15-year period. The trapping program will be based on trapping protocols typically used by regional entities (e.g. USGS, SDMMP) implementing cowbird trapping programs.
>
> In order to establish whether a cowbird trapping program is necessary, focused surveys will be conducted in and around conserved open space. A qualified biologist will survey the Preserve during February, April, and May of each year during the construction phase, through final buildout. If final buildout occurs before 10 years, then at least 10 years of surveys will be required. During the survey, no single biologist may cover more than 300 acres of conserved open space. If 10 or more males or 5 or more females or juveniles are observed on any single occasion, then a brown-headed cowbird management plan, outlining the trapping program criteria, will be written and submitted for approval. If, after 10 years, the brown-headed cowbird occurrence thresholds have not been met, then no additional monitoring or trapping will be required. If there are trails, or segments of trails, that are designated for equestrian use, then monitoring for brown-headed cowbirds shall be addressed within the Preserve Management Plan (PMP) and monitored and managed in accordance with that plan – even if the 10-year threshold has been met for the remainder of the conserved open space.

6.4.18.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of least Bell's vireo and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for least Bell's vireo.

6.4.19 San Diego cactus wren

Federal: None (USFWS Bird of Conservation Concern).

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

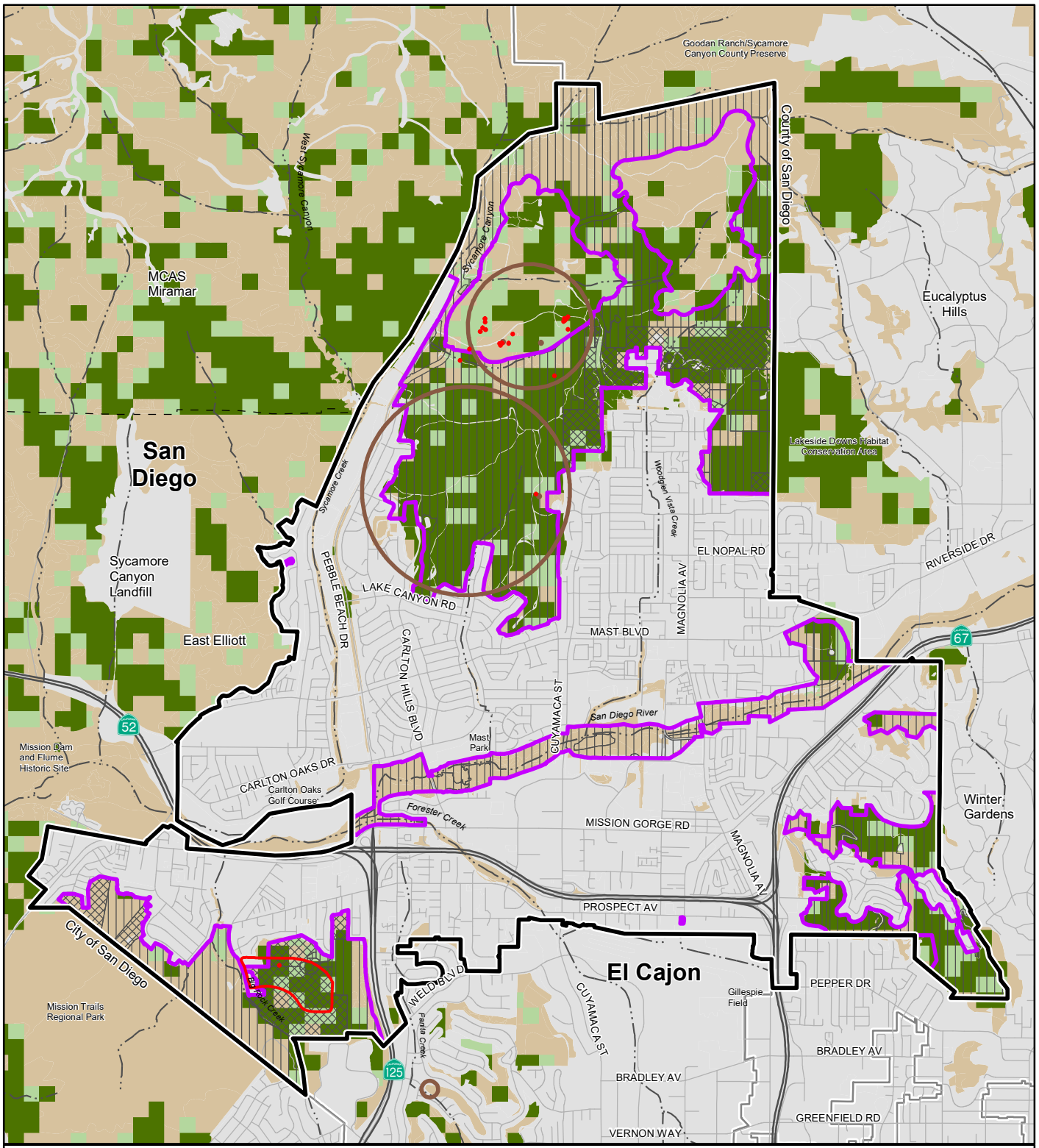
Species Background: San Diego cactus wren are a year-round resident songbird in the wren family (Troglodytidae). Nesting typically occurs in mid-march to early June in San Diego County (Unitt 2004). San Diego cactus wren is highly restricted to large or dense stands of cholla or prickly pear cactus. The SDMMP developed a statistically based habitat suitability model for cactus wren in southern California that evaluated environmental factors of elevation, topographic heterogeneity, slope, aspect, precipitation, temperature, vegetation, normalized difference vegetation index (NDVI), and habitat suitability of cactus scrub (TNC 2015). See section 3.7.3, *Bird Species Profile: San Diego Cactus Wren*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 19 (S-19): Provide for the conservation of San Diego cactus wren within the Subarea Plan Area.

6.4.19.1 Conservation of Suitable and Occupied Habitat

Species Objective 19.1 (S-19.1): Protect and maintain 1,865 acres of suitable habitat for San Diego cactus wren within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 1,865.8 acres of areas where suitable habitat (patches of cactus scrub) for San Diego cactus wren is more likely to occur (see Figure 6-21). This is 73.8% of the suitable habitat within the Subarea Plan Area and exceeds the amount of San Diego cactus wren habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There current known occurrences of San Diego cactus wren recorded in the Mission Trails Subunit (Tyler Street area) and Fanita Ranch subunit. The San Diego cactus wren was observed on the Fanita Ranch property in during 2017 focused surveys and incidental observations occurred during previous surveys conducted in 1997, 2004, and 2016. However, habitat supporting the historical cactus wren observations (i.e., cactus scrub) has since burned. During the 2017 focused surveys, eight individuals were acoustically and visually detected and two active nests were observed at three locations in the Fanita Ranch project area. Coastal cactus wrens were acoustically detected at three additional cactus patches. Overall, there are five clusters of cactus wren observations in the Fanita Ranch project area based on the recent 2016/2017 data. Table 6-24 summarizes the total amount of suitable habitat and known occurrences of San Diego cactus wren within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Habitat Model (TNC 2015)

- Higher Suitability (values 0.75 - 1)
- Moderate Suitability (values 0.5 - 0.75)

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-21 San Diego Cactus Wren-SDMMP.mxd Date: 12/19/2018 34153

Figure 6-21
San Diego Cactus Wren - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-24. Conservation Analysis Summary: San Diego Cactus Wren

	Higher Value (0.75 – 1.0) Suitable Habitat (acres)	Moderate Value (0.5 – 0.75) Suitable Habitat (acres)	Total suitable Habitat (acres)	Current Known Occurrences	
				Locations	Population
Total in Subarea Plan Area	1,892.9	635.3	2,528.2	6	6
Conservation					
Conserved through Subarea Plan Preserve System					
Existing Preserves	243.8	91.4	335.2	-	-
Currently Protected Open Space, Not Fully Managed	141.7	21.5	163.2	-	-
Hardline Preserves (100%)	847.0	264.8	1,111.8	2	2
Softline Areas (75%)	202.3	53.3	255.6	1	1
Total Conserved	1,434.8	431.0	1,865.8	3	3
Percent Conserved	75.8%	67.8%	73.8%	50.0%	50.0%
Anticipated Conservation Based on MSCP MHPA					
Total Conserved	877.1	273.2	1,150.2	1	1
Percent Conserved	46.3%	43.0%	45.5%	16.7%	16.7%
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA					
Total Conserved	+557.7	+125.9	+132.6	+2	+2
Percent Conserved	+29.5%	+18.5%	+17.7%	+33.3%	+33.3%
Impacts [a]					
Estimated Impacts from Covered Activities					
Covered Development Projects	292.2	115.0	407.2	3	3
Covered Street Projects	-	-	-	-	-
Covered Drainage Projects	-	-	-	-	-
New Trail Segments	0.3	-	0.3	-	-
Future Development Activities	93.4	22.3	115.7	-	-
Total Impacted	385.9	137.3	523.2	3	3
Percent Impacted	20.4%	21.6%	20.7%	50.0%	50.0%

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.19.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.19.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.19.3 Impact Analysis

There is a total of 523.2 (20.7%) acres of potentially suitable habitat for San Diego cactus wren estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

Project specific impacts will be addressed through the avoidance, minimization, and mitigation measures of the Subarea Plan (see Chapter 5.5, *Conservation Measure 3 - Avoidance, Minimization, and Mitigation*). The Fanita Ranch biological resources technical report identifies impacts to occupied cactus scrub habitat. To minimize the direct effects on known clusters of San Diego cactus wren habitat, a cactus wren management plan will be implemented similar to the following:

Cactus Wren Management Plan. A San Diego cactus wren management plan will be proposed and subject to approval by the City and Wildlife Agencies prior to implementation and issuance of any Grading Permit. The Cactus Wren Management Plan will define how habitat enhancement and restoration of cactus wren habitat will occur. This habitat will need to be similar in extent and density as currently occupied patches to be impacted and show use by cactus wren prior to clearing of currently occupied habitat. Use is minimally intended to prove that impacted cactus wren have identified where these patches are located so that they can colonize them once their current habitat patches are cleared. It is anticipated that restoration and enhancement activities will begin prior to construction to provide the most amount of time for maturation.

In order to enhance habitat for cactus wren, appropriate areas within the Preserve will be planted with coast prickly pear (*Opuntia littoralis*) and coastal cholla (*Cylindropuntia prolifera*) in a matrix that is optimal for cactus wren. Studies performed on the Orange County Central Reserve found that indicate an interstitial mix of cactus and sage scrub or grasslands may be optimal. This ratio will be researched and implemented into the Cactus Wren Management Plan, but likely greater than 20% 1m high cactus cover associated with *Sambucus mexicana* will be best. Minimally, three habitat patches will be planted along primarily southern exposure slopes to increase the amount of suitable nesting habitat for cactus wren outside of the proposed development footprint.

The habitat enhancement program will be focused on improving habitat conditions for cactus wren within portions of the project site that are identified for preservation. Site selection will be based on the following criteria:

1. Slope aspect (prioritize southern exposures and southwest-facing ridgelines)
2. Habitat quality (prioritize areas where some cacti were present, but with adequate space to support additional cacti to improve habitat quality for cactus wren)
3. Soil conditions (prioritize areas with similar soil conditions compared to occupied cactus scrub habitat)
4. Proximity to occupied cactus patches (prioritize areas that are closer to documented coastal cactus wren occurrences to provide opportunities for dispersal; try to enhance areas within 200m to 1,000m of occupied habitat)
5. Access (prioritize areas that would be accessible to a planting and maintenance crew)

The approach to habitat enhancement will include planting coast prickly pear and cholla by means of pad and segment cuttings in up to 10 selected enhancement areas within three areas.

Cacti plants take several years to mature to the size that can support cactus wren nesting. Therefore, the planted cuttings may be augmented with larger container plants in a subsequent year after the most successful planting sites can be determined. In addition, future pre-construction salvage of whole cactus plants and pads may be used to further enhance the structure of the cactus patch areas at the time of construction.

It is not expected that all 10 sites will be successful or perform at equivalent levels. Therefore, a subset of planted areas will be selected in the second year to focus maintenance efforts on sites with the greatest potential to develop into habitat suitable for cactus wren occupation. The sites that develop into suitable habitat will be monitored annually for cactus wren use or occupation over a period of 5 years in order to maintain a documented record of cactus wren use of targeted areas for enhancement.

Enhancement Methods and Implementation Procedures. Proposed planting for cacti will focus primarily on the installation of prickly pear pads and cholla segment cuttings to achieve the project goals. Cactus cuttings will be taken from onsite cacti patches that are unoccupied by cactus wren. Less than 20% of each individual plant will be taken to allow for regrowth of cacti plants within a single growing season. Approximately 1-2-foot long pads and segments will be harvested from adjacent habitat within the proposed project impact footprint and allowed to callous for a period of at least two days prior to planting.

Before planting, an auger or shovel will be used in the designated sites to excavate the cacti receptor holes to the appropriate depth for planting. The holes will be thoroughly watered prior to transplanting. The segments and pads will be planted to a depth of approximately one-third to one-half their length. After placement of the segments and pads, native soil will be used to backfill around the cuttings. A watering basin shall be formed around each of the planted segments and pads, or groups of closely planted segments and pads. The soil shall be watered-in around the cuttings after planting to help settle the soil and remove air pockets. Native cobble, if present, shall be replaced on the surface surrounding the base of cacti.

If the salvaged cacti segments cannot be directly salvaged and planted, the segments shall be transferred to a nursery for potting and rooting until they can be planted on site.

Maintenance, Monitoring and Reporting Program. A two-year maintenance and monitoring program will be conducted to document the establishment and persistence of the planted cacti. Monitoring will include semi-annual site visits to assess site health and cactus wren occurrence. The evaluation of site health will consist of estimating plant establishment success rates (percent survival), growth rates (height and width measurements of a sampling subset of 10% of planted individuals), and a review of maintenance needs (soil moisture, herbivory, vandalism, etc.)

Maintenance at the enhancement sites will occur at least six times per year for the initial two-year maintenance period. Maintenance visits will be focused during the growing season when the need for supplemental watering and weed control will likely be the greatest. Maintenance will include weed control within the planting basins, including a three-foot radius surrounding the basins, and supplemental watering during the growing season. Supplemental watering will only be provided if natural rainfall does not provide adequate soil moisture to support establishment and persistence of the cacti cuttings. Due to highly variable rainfall expected in the region, supplemental watering is anticipated to be needed approximately four times per

year. Supplemental watering will be provided by watering by hand utilizing a pick-up truck with a water tank and pump.

Upon the completion of the two-year program, annual maintenance and monitoring may continue based on the results of the enhancement effort to date. Depending on success rates, only a subset of the sites (e.g., those that are expected to develop into suitable habitat for cactus wren) may continue to be monitored and maintained.

Adaptive Management. This plan proposes to employ an adaptive management strategy to achieve the project goals. Due to the complexity and dynamic nature of ecosystems, and anticipation of unexpected events or outcomes, a flexible management plan is desirable. Adaptive management involves gathering existing available information, documenting changed site conditions, exploring alternative actions, making predictions about potential outcomes, selecting one or more actions to implement, monitoring to see if the outcomes match the predictions, and then using the results to learn and adjust future management actions. Consistent monitoring is key to effective adaptive management, to ensure that the decisions regarding future management are based on accurate assessments of the status of the resources being managed.

Treatments will be selected based on the results of monitoring conducted in accordance with this Plan. Potential adaptive management measures may include the following:

- Installation of protective cages to discourage herbivory
- Augmenting enhancement areas with additional cacti cuttings
- Selecting alternative enhancement locations
- Propagating larger cacti plants at a nursery for outplanting
- Native seed application to improve overall habitat conditions as selected enhancement sites
- Extended supplemental watering of planted cacti cuttings and/or container plants

6.4.19.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of San Diego cactus wren and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for San Diego cactus wren.

6.4.20 Southwestern Willow Flycatcher

Federal: Endangered—1995.

State: Endangered (as Willow Flycatcher)—1990.

Critical Habitat: Final critical habitat was designated in July 1997 and final revised critical habitat designated in February 2013 (USFWS 2013). There are no areas of critical habitat for southwestern willow flycatcher located within or in the vicinity of the Subarea Plan Area.

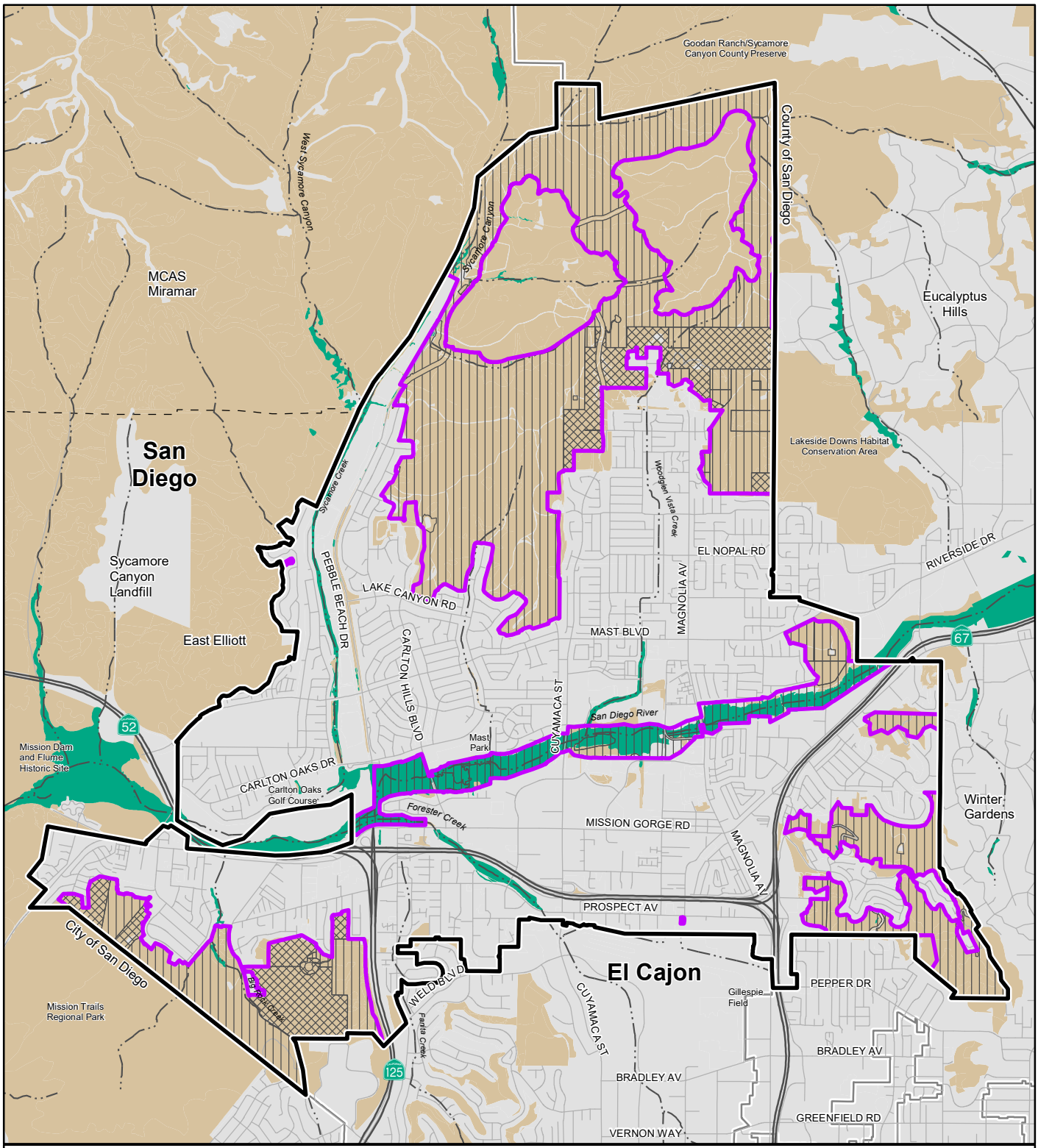
Species Background: Southwestern willow flycatcher is a small, insect-eating, migratory songbird in the tyrant flycatcher family (Tyranniade). It is visually indistinguishable from other subspecies of willow flycatcher which may migrate through southern California. Southwestern willow flycatcher typically arrives on breeding lands in May and nests are begun in May or June. Southwestern willow flycatcher require a more dense and complex riparian structure than is utilized by many other sensitive riparian birds including least Bell's vireo. Southwestern willow flycatcher only breed in dense riparian habitat near water or saturated soil (USFWS 2002). A habitat suitability model was developed for this Subarea Plan based on vegetative cover. See section 3.7.4, *Bird Species Profile: Southwestern Willow Flycatcher*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 20 (S-20): Provide for the conservation of southwestern willow flycatcher within the Subarea Plan Area.

6.4.20.1 Conservation of Suitable and Occupied Habitat

Species Objective 20.1 (S-20.1): Protect and maintain 259 acres of suitable habitat for southwestern willow flycatcher within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 259.0 acres of suitable habitat for southwestern willow flycatcher (see Figure 6-22). This is 71.4% of the suitable habitat within the Subarea Plan Area and exceeds the amount of least Bell's vireo habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There no known current known nesting occurrences of southwestern willow flycatcher within the Subarea Plan Area. Observations of migrants have been observed along San Diego River (Lynn et al. 2009). One willow flycatcher was observed on May 23, 2017 within Fanita Ranch, but was determined to be a migrant and was not the listed southwestern willow flycatcher (Dudek 2018). Pairs of southwestern willow flycatchers have been detected in the upper reaches of the San Diego River watershed and well upstream from the Subarea Plan Area (Lynn et al. 2009). However, the San Diego River was identified as a potential drainage for establishing a flycatcher population (part of the Coastal California Recovery Unit) in the Southwestern Willow Flycatcher final recovery plan (USFWS 2002). Table 6-25 summarizes the total amount of suitable habitat of southewestern willow flycatcher within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)
- Suitable Habitat

Species Occurrence Locations

None within Plan Area

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-22 Southwestern Willow Flycatcher-Unique.mxd Date: 12/19/2018 34153

Figure 6-22
Southwestern Willow Flycatcher - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-25. Conservation Analysis Summary: Southwestern Willow Flycatcher

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	362.5	-	-
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	39.0	-	-
Currently Protected Open Space, Not Fully Managed	215.6	-	-
Hardline Preserves (100%)	4.2	-	-
Softline Areas (75%)	0.2	-	-
Total Conserved	259.0	-	-
Percent Conserved	71.4%	-	-
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	195.9	-	-
Percent Conserved	54.0%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+63.1	-	-
Percent Conserved	+17.4%	-	-
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	1.6	-	-
Covered Street Projects	0.9	-	-
Covered Drainage Projects	7.6	-	-
New Trail Segments	1.5	-	-
Future Development Activities	32.5	-	-
Total Impacted	44.1	-	-
Percent Impacted	12.2%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.20.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.20.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.20.3 Impact Analysis

There is a total of 44.1 (12.2%) acres of potentially suitable habitat for southwestern willow flycatcher estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

6.4.20.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of southwestern willow flycatcher and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for southwestern willow flycatcher.

6.4.21 Tricolored Blackbird

Federal: None (USFWS Bird of Conservation Concern).

State: Candidate—2015.

Critical Habitat: None. This species has not been listed by USFWS.

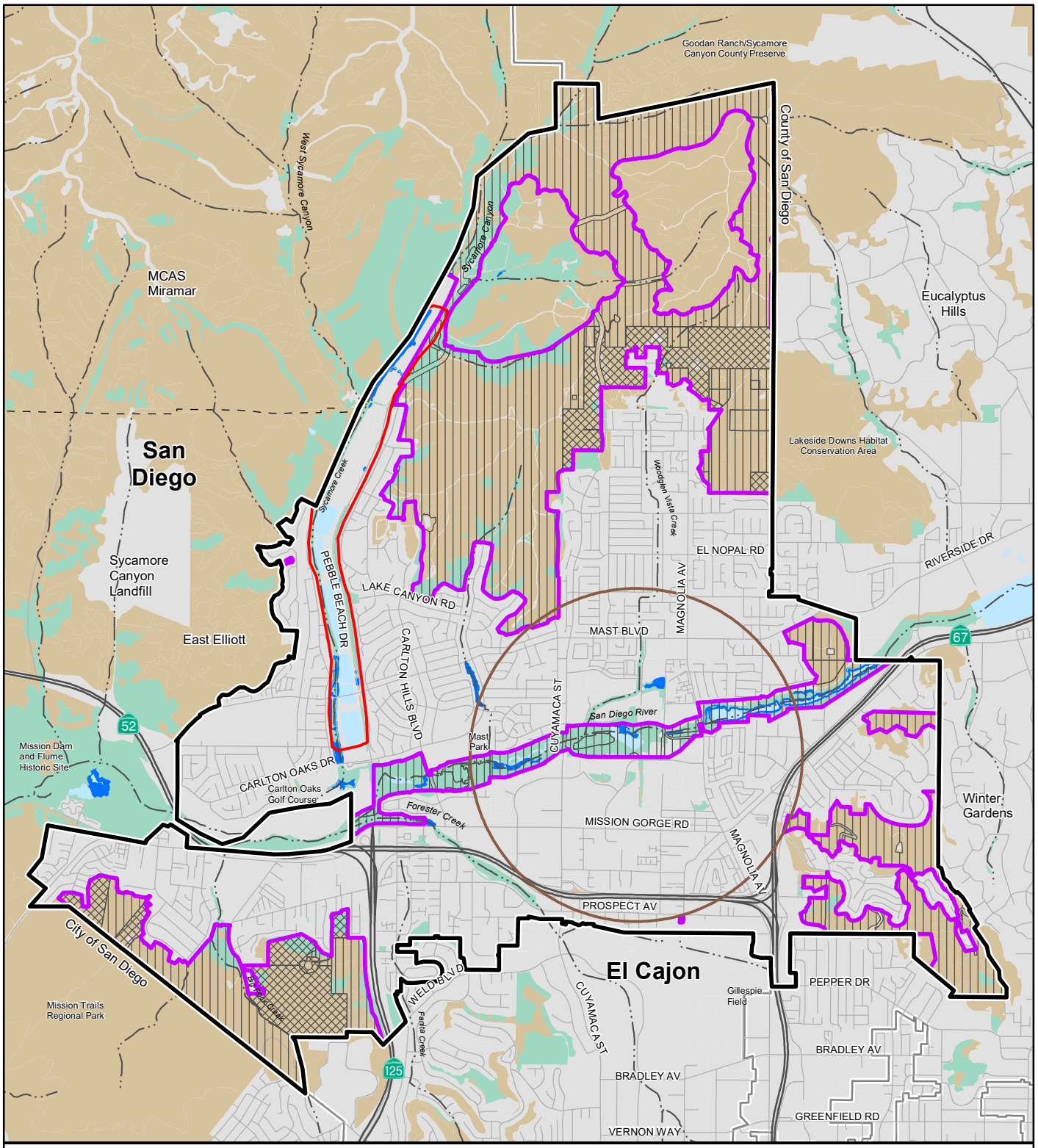
Species Background: Tricolored blackbird is a communal nesting blackbird (Icteridae). They nest in large, dense colonies, usually in freshwater marshes. Most colonies are in cattail marshes, but they may also nest in riparian areas, blackberry thickets, or dense stands of black mustard. Tricolor blackbird flocks will forage away from nesting habitat outside of the breeding season, but typically roost in freshwater marsh (Unitt 2004). Alfalfa or other insect rich crop areas are prime feeding habitat. Blackbirds are opportunistic feeders, and will also eat grains and snails in addition to insects. Other foraging habitat includes grasslands and open sage scrub areas. A habitat suitability model was developed for this Subarea Plan based on vegetative cover for nesting habitat and foraging habitat within a buffer (5 kilometers) around nesting habitat. See section 3.7.5, *Bird Species Profile: Tricolored Blackbird*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 21 (S-21): Provide for the conservation of tricolored blackbird within the Subarea Plan Area.

6.4.21.1 Conservation of Suitable and Occupied Habitat

Species Objective 21.1 (S-21.1): Protect and maintain 495 acres of a combination suitable colony and foraging habitat for tricolored blackbird within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 459.0 acres of suitable colony and foraging habitat for tricolored blackbird (see Figure 6-23). This is 55.0% of the suitable habitat within the Subarea Plan Area and exceeds the amount of tricolored blackbird habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. There no known current known occurrences of tricolored blackbird within the Subarea Plan Area. Tricolored blackbird have historically been observed within the Subarea Plan Area at Santee Lakes (CNDDB EO# 465) and the San Diego River (CNDDB EO# 464). These locations have been recorded as colony sites monitored as part of the Statewide Tricolored Blackbird Survey (UC Davis Tricolored Blackbird Portal). More recent surveys at these locations have been negative for the presence of tricolored blackbird. In addition, no tricolored blackbird were observed onsite during surveys of Fanita Ranch (Dudek 2018). Table 6-26 summarizes the total amount of suitable habitat of tricolored blackbird within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Habitat Model

- Suitable Colony Habitat
- Suitable Foraging Habitat (breeding season)

Species Occurrence Locations

- Current (post-1999)
- Historic (pre-2000)

- Open Water
- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-23 Tricolored Blackbird-Unique.mxd Date: 12/19/2018 34153

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Figure 6-23
Tricolored Blackbird - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-26. Conservation Analysis Summary: Tricolored Blackbird

	Suitable Colony Habitat (acres)	Suitable Foraging Habitat (acres)	Total suitable Habitat (acres)	Current Known Occurrences: Locations	Current Known Occurrences: Population
Total in Subarea Plan Area	30.6	870.2	900.8	-	-
Conservation					
Conserved through Subarea Plan Preserve System					
Existing Preserves	-	76.2	76.2	-	-
Currently Protected Open Space, Not Fully Managed	15.5	168.8	184.3	-	-
Hardline Preserves (100%)	0.1	212.7	212.8	-	-
Softline Areas (75%)	-	21.7	21.7	-	-
Total Conserved	15.6	479.4	495.0	-	-
Percent Conserved	51.0%	55.1%	55.0%	-	-
Anticipated Conservation Based on MSCP MHPA					
Total Conserved	14.9	310.8	325.7	-	-
Percent Conserved	48.7%	35.7%	36.2%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA					
Total Conserved	+0.7	+168.6	+169.3	-	-
Percent Conserved	+2.3%	+19.4%	+18.8%	-	-
Impacts [a]					
Estimated Impacts from Covered Activities					
Covered Development Projects	0.2	185.3	185.5	-	-
Covered Street Projects	-	1.2	1.2	-	-
Covered Drainage Projects	2.1	8.1	10.2	-	-
New Trail Segments	0.1	1.7	1.8	-	-
Future Development Activities	7.4	66.8	74.2	-	-
Total Impacted	9.8	263.1	272.9	-	-
Percent Impacted	32.0%	30.2%	30.3%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.21.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.21.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [X] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.21.3 Impact Analysis

There is a total of 272.9 (30.3%) acres of a combination of suitable colony and foraging habitat for tricolored blackbird estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

6.4.21.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of tricolored blackbird and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for tricolored blackbird.

6.4.22 Western Burrowing Owl

Federal: None (USFWS Bird of Conservation Concern).

State: Species of Special Concern.

Critical Habitat: None. This species has not been listed by USFWS.

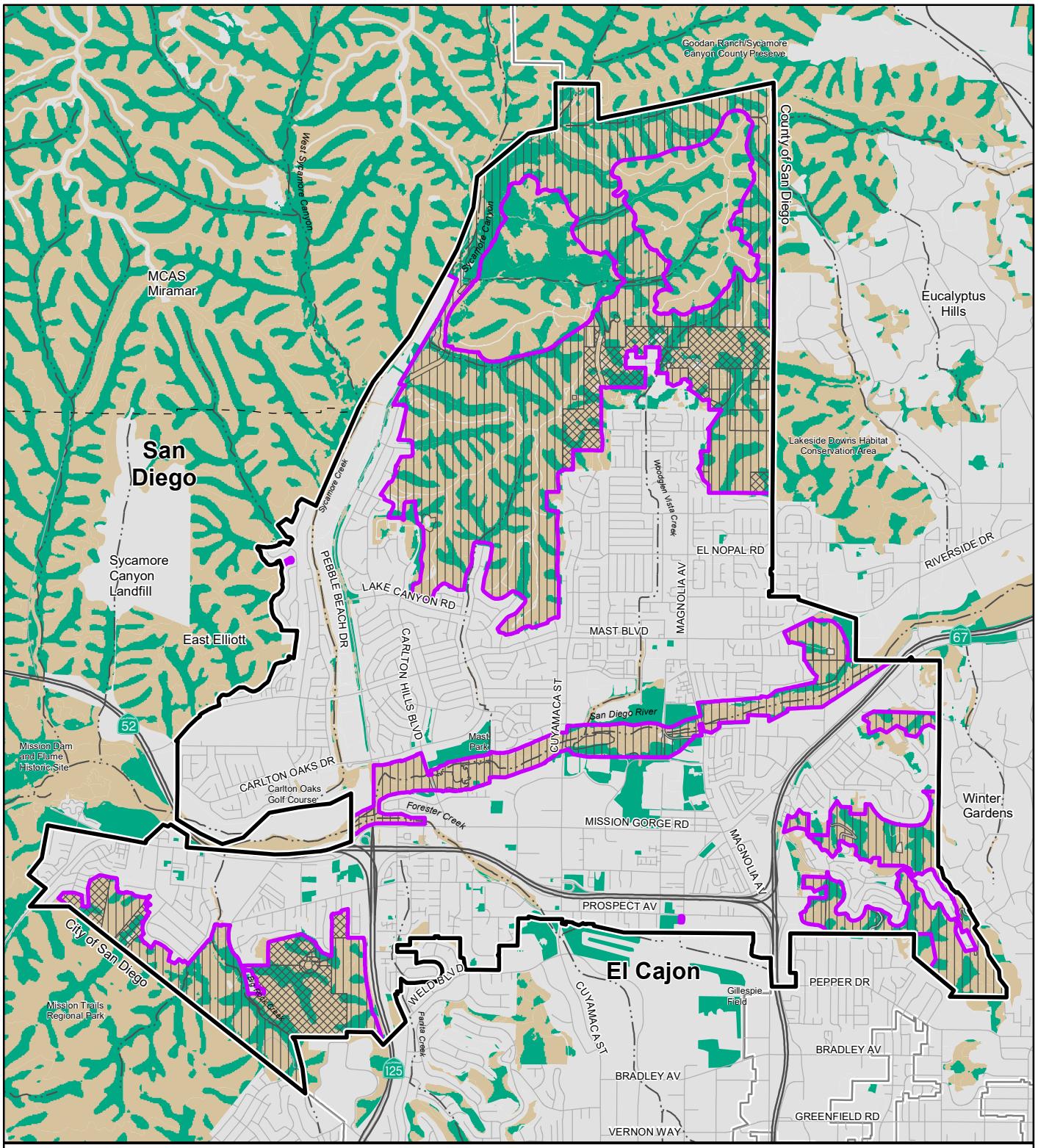
Species Background: Western burrowing owl is a small, long-legged, ground-dwelling owl (Strigidae). They require burrows for nesting and roosting. They typically utilize burrows constructed by fossorial mammals including California ground squirrel (*Otospermophilus beecheyi*), and often use several burrows in a vicinity within one nesting season. Preferred habitat for western burrowing owl in California includes open, relatively flat expanses including grasslands, desert, pasture, and edges of row crops. Highest quality habitat would include well-drained soils, with multiple suitable burrows, and good visibility to watch for predators including coyotes, ravens, and hawks. A habitat suitability model was developed for this Subarea Plan based on vegetative cover and topography. See section 3.7.6, *Bird Species Profile: Western Burrowing Owl*, for more information on habitat requirements, key seasonal periods, species distribution and population trends, habitat suitability mapping, and threats and other management considerations.

Species Goal 22 (S-22): Provide for the conservation of western burrowing owl within the Subarea Plan Area.

6.4.22.1 Conservation of Suitable and Occupied Habitat

Species Objective 22.1 (S-22.1): Protect and maintain 1,063 acres of suitable habitat for western burrowing owl within Subarea Plan Preserve System.

Implementation of the Subarea Plan and assembly of the Subarea Plan Preserve System will result in the conservation of 1,063.6 acres of suitable habitat for western burrowing owl (see Figure 6-24). This is 57.9% of the suitable habitat within the Subarea Plan Area and exceeds the amount of western burrowing owl habitat that was anticipated for conservation within the Subarea Plan Area under the MSCP Subregional Plan MHPA. No burrowing owls are currently known to nest in the Subarea Plan Area. In addition, no burrowing owls were observed on Fanita Ranch during focused surveys in 2016 (Dudek 2018). There are few remaining breeding populations in San Diego County but the Subarea Plan Area in within the range of this species and there is potential for western burrowing owl to occupy suitable habitat within the Subarea Plan Area. Table 6-26 summarizes the total amount of suitable habitat of western burrowing owl within the Subarea Plan Area, the conservation within the Subarea Plan Preserve System, and estimated impacts resulting from Covered Activities.



Legend

- Subarea Plan Area
- Suitable Habitat
- Preserve Boundary

Preserve Type

- Currently Protected (Hardline Area)
- Future Preserves 75% (Softline Area)

Species Occurrence Locations

None within Plan Area

- Natural Vegetation
- Developed/Agriculture/Disturbed Habitat

N

0 4,450

Feet

\\PDCCITRDSGIS1\San Diego\projects\City_of_Santee\MSCP_SAP_00641_14\mapdoc\SpeciesModels\Figure 6-24 Western Burrowing Owl-Unique.mxd Date: 12/19/2018 34153

Figure 6-24
Western Burrowing Owl - Known Occurrences and Suitable Habitat Protected Through Subarea Plan Preserve System
Santee MSCP Subarea Plan

Table 6-27. Conservation Analysis Summary: Western Burrowing Owl

	Suitable Habitat (acres)	Current Known Occurrences	
		Locations	Population
Total in Subarea Plan Area	1,837.4	-	-
Conservation			
Conserved through Subarea Plan Preserve System			
Existing Preserves	201.0	-	-
Currently Protected Open Space, Not Fully Managed	129.8	-	-
Hardline Preserves (100%)	623.4	-	-
Softline Areas (75%)	109.4	-	-
Total Conserved	1,063.6	-	-
Percent Conserved	57.9%	-	-
Anticipated Conservation Based on MSCP MHPA			
Total Conserved	758.7	-	-
Percent Conserved	41.3%	-	-
Conservation Difference Between Subarea Plan Preserve System and MSCP MHPA			
Total Conserved	+304.9	-	-
Percent Conserved	+16.6%	-	-
Impacts [a]			
Estimated Impacts from Covered Activities			
Covered Development Projects	393.8	-	-
Covered Street Projects	2.1	-	-
Covered Drainage Projects	4.0	-	-
New Trail Segments	0.7	-	-
Future Development Activities	82.0	-	-
Total Impacted	482.6	-	-
Percent Impacted	26.3%	-	-

[a] Project specific impacts will be evaluated relative to avoidance, minimization, and mitigation measures. See Section 6.4.22.3, *Impact Analysis,* for discussion of project specific mitigation.

6.4.22.2 Avoidance, Minimization, and Mitigation Measures

The following checked conservation and protection measures are relevant to the avoidance, minimization, and mitigation of direct and indirect effects on this species:

- [X] Avoidance and Minimization of Sensitive Biological Areas
- [X] Uniform Mitigation Standards
- [ ] Wildlife Corridor and Crossing Structures
- [X] Fire and Fuel Management
- [ ] Wetlands Protection Standards
- [ ] Narrow Endemic Species Standards
- [ ] Vernal Pool Conservation Standards
- [X] Species-Specific Conservation Standards

6.4.22.3 Impact Analysis

There is a total of 482.6 (26.3%) acres of suitable habitat for western burrowing owl estimated to be directly affected by the Covered Activities. Refer to Table I-1 in Appendix I, *Subarea Plan Conservation Calculation Tables*, for a more detailed list by each project.

6.4.22.4 Rationale for Coverage

The conservation actions and policies under the Subarea Plan will provide for the conservation and management of western burrowing owl and will ensure that the impacts from Covered Activities are minimized and mitigated. No additional conditions for coverage are identified for western burrowing owl.

Chapter 7
Management and Monitoring

This chapter describes the management and monitoring requirements and approach for the Subarea Plan. The types of monitoring addressed in this chapter include:

1. Compliance Monitoring
2. Preserve Management and Monitoring
3. Guidelines for Habitat Restoration

7.1 Compliance Monitoring

Compliance Monitoring, also known as Implementation Monitoring, is a process used to ensure that the Conservation Strategy is implemented in accordance with Permit requirements. Compliance Monitoring provides information that allows the Wildlife Agencies to track Subarea Plan implementation. Key elements of Compliance Monitoring will include:

1. **Tracking Impacts** – The Subarea Plan Coordinator and Preserve Steward will be responsible for collecting and maintaining information that tracks impacts on natural resources resulting from Covered Activities to ensure that the amount of impacts that ultimately occurs under the Subarea Plan stays at or below the amount of impacts estimated during Subarea Plan development. The City of Santee (City) will track: (1) impacts on habitat types resulting from development projects within softline areas, (2) impacts and mitigation covered through the Subarea Plan Conservation Fund, and (3) impacts on habitat types resulting from Covered Activities within preserves. The City will use this information to make sure the Subarea Plan maintains rough step proportionality of project impacts with conservation measures.
2. **Oversight of Preserve Management and Monitoring** – The City will provide oversight of the Preserve Managers, as outlined in Section 7.2, *Preserve Management and Monitoring*. The Subarea Plan Coordinator and Preserve Steward will actively coordinate with the group of Preserve Managers on an as-needed basis to address a variety of potential issues related to public access, enforcement, adaptive management, and funding. In addition, the City will host an annual meeting involving the Preserve Managers, Subarea Plan Coordinator, Preserve Steward, and the Wildlife Agencies where implementation, policy, and technical issues of Subarea Plan Preserve System management will be addressed.
3. **Annual Reporting** – The City will prepare a Subarea Plan Annual Report summarizing activities over the reporting year (January 1 to December 31). A public meeting on the report will be held in conjunction with the report submittal. The annual report will include descriptions and location of Covered Activities completed, summary of any Minor or Major Amendments, summary of impact tracking, status of preserve management and monitoring, status of restoration projects, and summary of Subarea Plan funding (see Section 8.5.2, *Annual Report*).

7.2 Preserve Management and Monitoring

This section defines management and monitoring requirements to be undertaken by the Preserve Managers for each individual preserve property that will make up the Subarea Plan Preserve System. The management and monitoring activities are established to assess and monitor the status of Covered Species, natural communities, and ecosystem processes on each individual preserve property and evaluate the effects of preserve management actions to ensure the success of the Subarea Plan Conservation Strategy. This section establishes guidelines for the management and monitoring of the preserve properties to ensure the long-term health and viability of species and ecological values throughout the Subarea Plan Preserve System.

The guidelines included in this section are to be used by the Preserve Managers in developing preserve-specific Preserve Management Plans (PMPs). This section outlines the types of monitoring that will be done on the preserves and explains how an adaptive approach will be followed by the Preserve Managers using an iterative decision-making and learning process. Preserve management and monitoring will use the following approach:

1. Preserve Managers will manage the preserves in accordance with the principles and procedures for adaptive management, as set forth in Section 7.2.16, *Adaptive Management and Monitoring of the Preserves*.
2. Effectiveness monitoring will be completed approximately every 3–5 years for Covered Species and every 10 years for natural communities to evaluate and measure Subarea Plan goals and objectives and individual preserve management actions.
3. The PMPs will set forth preserve-specific goals and objectives that tie in with Subarea Plan goals and objectives. Additional targeted monitoring may be integrated where necessary to address site-specific threats to Covered Species and natural communities within the preserves and/or address issues related to adaptive management that will be defined and prioritized as part of the development of preserve-specific PMPs. PMPs will be reviewed every 5 years and revised as needed.
4. The City and Preserve Managers will coordinate with each other, Wildlife Agencies, and other preserve management entities in the region to share concepts, techniques, and resources to the extent practicable for adaptive management.

7.2.1 Preserve Management and Monitoring Responsibilities

As described in Section 5.4, *Conservation Measure 2 – Manage and Enhance Preserve System*, there will be multiple land owners within the Subarea Plan Preserve System boundaries, and each land owner will have a Preserve Manager responsible for the day-to-day management and monitoring of their properties. The City will be responsible for the management and monitoring of properties within the Subarea Plan Preserve System owned in fee title by the City (approximately 6% of the Subarea Plan Preserve System). The large majority of the Subarea Plan Preserve System will be managed by the other public entities, private landowners, and/or third-party land management entities.

7.2.1.1 Responsibilities on City Lands

The City will be responsible for the management and monitoring of City-owned properties within the Subarea Plan Preserve System. This will be accomplished through either:

- **Land Management Entity**. For some of the City-owned properties within the Subarea Plan Preserve System, the City granted a conservation easement as part of mitigation for development projects, and these properties are fully managed through a third-party land management entity with a Preserve Manager.
- **City of Santee.** For a number of City-owned properties within the Subarea Plan Preserve System, the City of Santee Public Works Department currently provides the land stewardship and maintenance activities. This includes maintenance of fencing, signage, and trails, and trash collection activities. As part of the Subarea Plan implementation, the City will seek to expand the number of arrangements to have City-owned properties managed by third-party land management entities. For those City-owned properties that continue to be managed by the City, the City will prepare a PMP within 2 years of the signing of the Implementing Agreement (IA) that will address how management of City-owned properties will occur.

In addition to the direct management and monitoring role of the City on properties owned by the City, as described in Section 5.4.2, *City Role for Overview and Coordination of Preserve System*, the City will have an active role in providing oversight and coordination of the management and monitoring activities undertaken by each the Preserve Managers operating within the Subarea Plan Preserve System. The City will have two roles—Subarea Plan Coordinator and Preserve Steward—focused on the administration and oversight of the Subarea Plan Preserve System (see Section 8.2.2.1, *Subarea Plan Coordinator and Preserve Steward*, for a description of how the City will staff these roles). An important component of the roles and responsibilities of the Subarea Plan Coordinator and Preserve Steward will be to pursue grant funding opportunities to implement actions to improve and enhance management of the Subarea Plan Preserve System from a City-wide perspective. This may include activities such as controlling cowbirds, improving public access control and enforcement, restoring habitat for Covered Species, and/or removing regional invasive species. A description of the full roles and responsibilities of these positions is included in Section 8. 2, *Roles and Responsibilities.*

7.2.1.2 Responsibilities on Private and Other Public Preserve Lands

The large majority of the Subarea Plan Preserve System will be under control of the other public entities or private landowners with the responsibility for management and monitoring of their preserve property. As described in Section 5.3.1, *Preserve Assembly and Components*, the Santee Subarea Plan Preserve System will be assembled from a variety of components, including existing preserves that are fully managed, currently protected open space that is not fully managed (but has the potential for additional management and monitoring), lands set aside as onsite mitigation for known future projects (hardline areas), lands set aside as onsite or offsite mitigation as part of the future development permitting (softline areas), and lands otherwise dedicated or acquired in the future for conservation purposes. The following describes the responsibilities for management and monitoring for the private and other public preserve lands depending on their status during the adoption of the Subarea Plan:

- **Existing Preserve, Fully Managed**. The properties listed in Section 5.3.1 as ”existing preserves, fully managed” already meet the criteria as a habitat preserve (i.e., managed for protection of

wildlife, irrevocable land protection, approved PMP, secure funding for long-term management and monitoring, annual reports provided to the City and Wildlife Agencies, and currently conducting management and monitoring generally as described in this chapter). The adoption of the Subarea Plan will not result in additional management and monitoring responsibilities for these properties such that cost for management and monitoring would increase. The City will collaborate with the existing Preserve Managers to determine, to the extent feasible, how preserve management and monitoring activities can be coordinated and foster a level of uniformity and consistency for preserve management across the City.

- **Protected Open Space, Not Fully Managed**. As described in Section 5.3, *Create Incentives and Opportunities to Increase Management and Monitoring*, through implementation of the Subarea Plan, the City will work to increase the level of management and monitoring on the currently protected, but not fully managed properties. The City will identify and coordinate with the property owners to determine if there are basic general stewardship actions (e.g., installation of a gate to prevent trash dumping and trespassing) that can be undertaken within existing funding constraints. In addition, the City will pursue different methods to secure additional funding (grant funding, Subarea Plan Conservation Fund, mitigation credits) that can be applied towards increasing the level of management and monitoring on these properties in perpetuity. The City will maintain an inventory of the status of each these properties and summarize in the annual report steps being taken to enhance and expand management and monitoring as feasible.
- **Future Preserves**. As part of the project approval process for future projects (development projects within hardline or softline boundaries), the City will require the hardline preserve be established consistent with the management and monitoring requirements set forth in this chapter. The project proponent will identify and fund a Preserve Manager to implement management and monitoring in perpetuity.

7.2.2 Preparation of Preserve Management Plans

For each property that is part of the Subarea Plan Preserve System, a preserve-specific PMP will be prepared to guide preserve management activities. The PMP will be developed by the property owner and Preserve Manager. A PMP will include preserve-specific goals and objectives relating to natural communities, Covered Species, and other ecosystem function(s) (e.g., for connectivity/wildlife movement), which demonstrate how the preserve supports and will be based on the overall goals and objectives of the Subarea Plan. In order to accomplish the identified preserve goals and objectives, the PMP will identify required site-specific management strategies and actions for Covered Species and natural communities, and also include guidelines for managing public access and education. Importantly, the PMP will set forth an adaptive management approach for iterative decision-making and learning and will identify critical uncertainties to be resolved in order to accomplish the preserve-specific and/or Subarea Plan goals and objectives. PMP development will be guided by the reconnaissance and baseline surveys (often completed as part of the project approval process). PMPs will be prepared following a general format to be established by the City. PMPs will be accomplished within 2 years of issuance of grading permit or within 2 years of the acquisition of the preserve if the preserve is acquired after City approvals. The PMPs will be reviewed every 5 years and updated as necessary to prioritize management actions based on the changing preserve needs. The PMP, including subsequent revisions, must be reviewed and approved by the City.

7.2.3 Land Protection Mechanism

In addition to PMPs, each preserve property will have a legal mechanism to ensure it is maintained and managed in perpetuity as a habitat preserve and will be protected from future development. A conservation easement or equivalent land protection mechanism (e.g., Restricted Covenant) will be recorded for each preserve. The land protection mechanism will be recorded prior to issuance of grading permit. Conservation easements or equivalent land protection mechanisms will be held by appropriate entities, depending upon the Preserve Manager. The City will review and approve all land protection mechanisms.

7.2.4 Preserve Management Guidelines

The guidelines below provide the framework that the Preserve Managers will use when preparing the PMPs. Because each preserve property is unique, these guidelines are meant to describe the range of management activities that could be needed, depending on a variety of preserve-specific conditions. Preserve management strategies, the types of activities that could be authorized on each preserve property, and monitoring obligations will then be further refined to suit each preserve. In addition, Preserve Managers will provide information to adjacent landowners regarding how to avoid/minimize conflicts with preserve commitments and reduce edge effects.

7.2.4.1 Vegetation Management

Native Plants

Pruning of native vegetation will generally be avoided except when necessary as part of minor road and trail maintenance activities or fuel management and fire control activities, as described in Section 7.2.4.8, *Fire Management*. A dense canopy, multi-layered understory, and mid-story growth provide valuable nesting, foraging, and sheltering opportunities for wildlife species and thus should be protected from unnecessary pruning.

Any native leaf litter, duff materials, and native vegetation/tree trimmings resulting from permitted management and maintenance activities will be retained onsite and placed in appropriate native habitat areas based on restoration ecologist recommendations. Native materials preserved onsite should be kept out of fuel modification areas and away from public roads (unless they are being utilized as a management tool) to prevent the risk of fire. Decomposing vegetation provides valuable microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of dead wood and leaf litter is necessary for the replacement of soil nutrients and minerals.

If pruning of native tree foliage, limbs, and/or root zones is necessary for permitted maintenance activities, the Preserve Manager will have a certified arborist provide recommendations for appropriate pruning locations and methods.

The collection of plant species, except for approved research, study, and/or restoration, is prohibited. Coordination between the Preserve Managers, City, and the researcher will take place, as appropriate.

Invasive Nonnative Plants

The control of invasive nonnative plant species is one of the most important components of a PMP because these species can aggressively out-compete native species, thereby reducing habitat quality within a preserve property.

- Prioritize areas for nonnative species control based on the aggressiveness of invasive species, the degree of threat to Covered Species, native vegetation, and ecosystem processes, and the ability to manage those invasive species. The Preserve Manager will monitor those species with high priority for eradication, as determined by the current California Invasive Plant Inventory (Cal-IPC 2006). A species with a Cal-IPC rating of "high" will be a priority for eradication or control, with the objective to control and remove it as soon as possible after discovery. Examples of high-priority plant species include, but not limited to, arundo, salt cedar (*Tamarix spp*.), castor bean, (*Ricinus communis*), fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), artichoke thistle (*Cynara cardunculus*), and pampas grass (*Cortaderia* spp.). Species rated "moderate" or "limited" are a lower priority and may be allowed to persist if monitored at low population levels following initial eradication efforts or may be selectively controlled as part of species enhancement or habitat restoration efforts (e.g., invasive annual grasses or forbs).
- Develop and implement an early detection program for invasive plant species to ensure that emerging invasive species (including species new to the region or Subarea Plan Area) are detected in a timely fashion and eradicated before they become a long-term problem. Preserve Managers will maintain a list of potentially occurring invasive species, based on regional and local sources (e.g., CalWeedMapper, San Diego Management and Monitoring Program [SDMMP]). The Preserve Manager will monitor for these species during general stewardship and biological reconnaissance activities.
- Where feasible, use an Integrated Pest Management (IPM) approach (i.e., an approach that achieves the desired goals with the least biologically intrusive control method at the most appropriate period of the growth cycle) to eradicate undesirable species.
- Consider both mechanical and chemical methods of control. Only herbicides that are compatible with the biological goals and objectives will be used. A list of herbicides to be used within a preserve will be included in the PMP. Licensed pest control advisors who are familiar with Department of Pesticide regulations will be used to make specific pest control recommendations.
- Dispose of all invasive plant materials that are removed from the preserves at an appropriate facility or onsite at a secure, designated location to avoid the spread of nonnative plant species through seeds or propagules. All removed plant materials will be covered during transport, and the compost pile will be periodically spot-treated with herbicide to kill any resprouting plants. Nonnative invasive plant material that is removed offsite will go to a "green" waste recycling facility or otherwise legally disposed of, as necessary.
- If applicable, revegetate invasive plant removal areas with native species appropriate to the biological goals and objectives for the preserve and/or adjacent native habitat.

7.2.4.2 Wildlife Species Management

Protection measures specific to wildlife species management include seasonal restrictions, wildlife corridor protection measures, and general restrictions, as described below.

Seasonal Restrictions

As noted above, native vegetation removal is prohibited on the preserves, except when necessary as part of fuel management and fire control activities, minor road maintenance activities, or habitat restoration or enhancement for Covered Species. Use of equipment and power tools may be necessary for fuel management and road maintenance tasks as well as preserve management activities such as nonnative weed control and the installation of erosion control best management practices (BMPs). In the event that vegetation clearing—including native and nonnative tree and vegetation removal and the use of loud and disruptive equipment and tools—is required as part of these permitted activities, these activities will be restricted during the general breeding season for birds, including raptor species (March 1 to September 15). If vegetation clearing or other loud/disruptive activities are required within or adjacent to areas that potentially support nesting bird species between March 1 and September 15, a preconstruction nesting bird survey will be performed prior to these activities. Work activities will be restricted within designated buffer areas around any active nests, as determined by a qualified wildlife biologist. The wildlife biologist will monitor all clearing activities. If there are no nesting birds within the work area, work may proceed under the supervision of the wildlife biologist.

Wildlife Corridor Restrictions

The Subarea Plan Preserve System includes areas that are important for regional wildlife movement. There are a number of wildlife corridor protection and management guidelines that apply to the activities permitted in the preserves, including the following:

- **Permanent Road/Trail Closure**. Certain roads/trails may be permanently or temporarily closed because of their proximity to existing wildlife corridors. Equipment storage and staging will not occur within any designated wildlife corridors. Locked gates will be used to control access to closed roads and roads that are off-limits to vehicles.
- **Speed Limit.** The speed limit on all roads that are adjacent to or extend across preserve properties may be restricted.
- **Signage.** Signs that identify wildlife crossings and corridors will be posted within 100 feet of each point where a road traverses the wildlife corridor.
- **Fencing**. Wildlife-friendly fencing will be used for all internal fences and exterior fencing, where appropriate, to allow for wildlife movement. Fencing may also be installed to direct wildlife through safer routes such as road undercrossings.

Invasive Nonnative Species

- Control the spread of invasive ant species by following the guidelines below:
    - Ensure that all landscaping and native habitat restoration materials do not contain invasive ant or other species by inspecting all container stock before it enters the preserves.
    - Monitor landscaping irrigation adjacent to the preserves to avoid any overflow, which may attract and sustain nonnative ants by increasing soil moisture.
    - Empty trash receptacles located along trails and/or associated with edges of the preserves on a regular basis, as determined by the Preserve Manager's monitoring of actual needs.

- Manage aquatic predators such as nonnative species of turtles, fish, African clawed frogs, bullfrogs, and crayfish by following the guidelines below:
    - Monitor and control nonnative aquatic predators when in conflict with native species.
    - Coordinate with the Wildlife Agencies to implement nonnative animal trapping and eradication activities when necessary. Methods may include trapping, netting, electro-fishing (prior approval by the California Department of Fish and Wildlife [CDFW] needed), or hand captures.

Cowbird Trapping

- Document and periodically monitor (as determined by a qualified biologist) the extent of cowbird parasitism on Covered Species nests in conserved habitat and near equestrian use areas where feed is given and stored, such as stables, feed lots, staging corrals, and equestrian trails.
- If necessary, establish a cowbird trapping program to increase nesting success of Covered Species affected by cowbird parasitism.
- Adaptively implement cowbird trapping as necessary in response to observed and/or documented parasitism. Place traps in select locations that maximize cowbird captures and reduce cowbird parasitism pressures. Cowbird traps will be operated consistent with current state and federal protocols.

Feral and Domestic Animal Control

- Dogs on trails within the preserves will always be leashed.
- Document evidence of feral or domestic animal activity in the preserves during general stewardship monitoring.
- If a problem exists based on the judgement of the Preserve Manager, establish a feral animal removal program for conserved habitat or refer the problem to the local animal control agency.
- If a Preserve Manager resides on a preserve and has a pet dog, ensure that the dog stays in the immediate vicinity of the house and is not allowed to be off leash in the preserve.
- If a problem exists, fence areas between conserved habitat and adjacent housing to keep pets out of the preserves, to the degree feasible.

7.2.4.3 Property Management

Trash and Debris

- Remove loose trash and debris on an as-found or as-reported basis. Trash and debris can be an attractant and a hazard for wildlife and may support nonnative ant species (e.g., Argentine ants).
- Locate wildlife-proof trash receptacles in or near all areas of public access. Patrol public use areas to pick up any loose trash and debris, and empty trash receptacles regularly, based on the amount of use.

Lighting and Noise

- Eliminate lighting in or adjacent to conserved habitat except where essential for roadway use, facility use, safety, or security purposes. Use low-pressure sodium illumination sources or other similar technology. Do not use low-voltage outdoor or trail lighting, spotlights, or bug lights. Shield light sources adjacent to conserved habitat so that the lighting is focused downward.
- Do not allow public access or trail use during nighttime hours without permissions.
- If Covered Activities that generate noise cannot be completed outside of breeding season, address potential indirect effects of noise at the nest location of covered bird species by keeping noise levels at or below 60 dBA Leq(1) or by not increasing noise levels more than 3 dB above ambient noise levels, whichever is greater, during the breeding season. Avoid the use of noise-generating equipment.
- Prepare and disseminate informational materials to adjacent neighbors and users of preserve properties to educate the public about the importance of minimizing edge effects such as nighttime lighting and noise.

Fencing

- Eliminate unnecessary fencing from interior habitat areas that may impede the movement of native wildlife.
- Maintain or install fencing when necessary to:
    - Limit road kills
    - Direct wildlife through wildlife movement corridors, including undercrossings
    - Discourage off-trail use that may cause habitat degradation
    - Protect erosion control or revegetation efforts
    - Protect native vegetation during construction
    - Protect particularly sensitive resources (e.g., vernal pools, small populations of sensitive plants)
    - Provide public safety or security
- Select fencing that best accomplishes access control with minimal wildlife interference per discretion of the Preserve Manager. Fencing to control human use of an area will generally be a minimum of 5 to 6 feet high. Fences within or at the boundary of the conserved habitat may consist of three- to five-strand wire (barbed or smooth), which does not significantly impede wildlife movement. Welded wire fences, tall wooden fences, split-rail fences (where appropriate and sufficient), or masonry/stone walls are all potentially suitable at the perimeter of human use areas to restrict humans and domestic pets from the preserve properties. Smaller portions of chain link fencing may exist in some locations. This fencing may be left in place unless it is determined that the fencing is prohibiting wildlife movement. Fences installed to minimize road kill must meet height and design standards based on current research for effective directional fencing. The specific type(s) of fencing used will depend on the particular preserve landscape and species.
- Maintain fence lines in a way that minimizes impacts on sensitive species and habitats.

Signage

- Provide educational brochures, kiosks, interpretive centers, and signs to educate the public about the preserve's conservation goals, biological/physical resources, and appropriate uses on and adjacent to the preserve, including appropriate trail user etiquette.
- Install signage for access control and education at the periphery of conserved habitat that is open to human access. Post signs to prohibit firearms, open flames, and smoking.
- Limit the use of signs that attract attention to the specific location of species that are sensitive to human disturbance.
- Use temporary signs to indicate habitat restoration or erosion control areas.
- Use barriers and informational signs to discourage shortcuts from being developed in the trail system.

7.2.4.4 Hydrology and Erosion Control

Changes in natural hydrology within or upstream of the preserves can have many adverse effects on water quality, habitats, and native species in wetland and upland communities.

- Install permanent or temporary BMPs as necessary to reduce bank erosion (excess scour and undercutting) or sedimentation caused by changes in upstream hydrology.
- Inspect vulnerable areas, such as trails and drainages, immediately after a heavy rainstorm to identify problems with erosion and sedimentation. Install BMPs as soon as possible to avoid further damage.
- If existing flood control channels are present in the preserves, coordinate the performance of standard maintenance, such as clearing and dredging, during the months of September through February to avoid disturbance during the breeding season of riparian birds (generally March 1 through August 15) and other breeding wildlife.

7.2.4.5 Land Uses within Preserves

Conditionally Allowed Uses

The following land uses are typically conditionally allowed within a preserve property, provided that they can be demonstrated to have minimal impacts on resource values within the preserve:

- **Recreation**—passive recreation and limited creation/maintenance of trails for hiking, biking, or equestrian use is conditionally allowed in some preserves, provided the trails are sited to avoid sensitive resources, marked with signage to keep all activities strictly on the trails, monitored and maintained, and designed to meet all other goals and guidelines of the Subarea Plan. See description of public access below.
- **Public infrastructure**—including construction, replacement, or maintenance of electrical transmission lines, gas pipelines, water lines, sewer lines, or other linear facilities that generally result in minor and temporary impacts on natural habitats, provided the habitats are restored to preconstruction conditions following any impacts. Water tanks, cell phone towers and other public and private infrastructure facilities, such as stormwater collection basins, that generally have minimal onsite maintenance and lighting can be included into the Subarea Plan Preserve

System boundaries as long as the installation of the facilities meets the avoidance, minimization, and mitigation measures outlined in this Subarea Plan during project design.

- **Public services**—such as law enforcement, fire control, and actions by other agencies when responding to natural disasters.

Prohibited Uses

The following land uses and activities are generally prohibited within all dedicated preserves:

- **Development** involving the construction of buildings, parking lots, or other structures. This includes residential, commercial, industrial, and institutional development. A limited amount of construction for new maintenance facilities is allowed as necessary for preserve management operations, following the avoidance, minimization, and mitigation measures as described in Section 5.5, *Conservation Measure 3 – Avoidance, Minimization, and Mitigation*.
- **Agricultural uses** that require the conversion of natural habitats, including all row crops, orchards, improved pastures, nurseries, greenhouses, and feedlots.
- **Active recreation**, including ball fields, golf courses, improved park facilities, off-road vehicle areas, geocaching, or any other recreational activity that requires the conversion of native habitats (e.g., clearing, grubbing, or planting of nonnative vegetation or turf grasses) or facility construction (e.g., equestrian facilities, buildings, or paved pathways) or otherwise negatively affects natural vegetation or wildlife habitat values.
- **Camping**.
- **Mineral extraction**, including all sand and gravel mining activities.
- **Landfills**.
- **Itinerant worker camps**.
- **Brush control or fuel management**, except where it is necessary on existing preserves to prevent the loss of human life or property during a fire event or prevent the loss of or to enhance sensitive biological resources. New development adjacent to Preserves must accommodate fuel management zones or other vegetation management actions outside of the Preserve boundary.
- **Shooting, archery, target practice, hunting**.
- **Paintball, airsoft, etc.**
- **Off-road vehicle use**.

7.2.4.6 Land Uses Adjacent to Preserves

Preserve Managers will enforce trespassing regulations and prevent and remove illegal intrusions into preserves. Barriers (fencing, rocks/boulders, appropriate vegetation) and/or signage in communities will be installed where necessary to protect the preserves' sensitive biological resources and direct public access to appropriate locations. Additionally, educational information will be disseminated to adjacent residents and landowners to heighten their awareness of the preserves' role in achieving the Subarea Plan biological goals, and provide information regarding approved access, appropriate plantings, restrictions on construction or disturbance within preserve boundaries, pet and livestock control, fire management, and other adjacency issues.

The City will ensure that new developments adjacent to the boundaries of the Subarea Plan Preserve System adhere to the following adjacency guidelines:

- **Drainage**—all developed and paved areas must prevent the release of toxins, chemicals, petroleum products, excess water, exotic plant materials, and other elements that might degrade or harm the natural environment or ecosystem processes within the preserves. This will be accomplished using a variety of methods, including natural detention basins, grass swales, or mechanical trapping devices.
- **Lighting**—lighting of all developed areas adjacent to the preserve should be directed away from the preserve wherever feasible and consistent with public safety. Low-pressure sodium lighting should be used whenever possible.
- **Noise**—uses adjacent to the preserve should be designed to minimize noise impacts. New development adjacent to the San Diego River shall incorporate noise reduction strategies in site design, landscaping, and buffer separation.
- **Invasive species**—no invasive nonnative plant or animal species can be introduced into areas immediately adjacent to the preserve. All open space slopes immediately adjacent to the preserve should be planted with native species that reflect the adjacent native habitat.
- **Buffers**—there are no requirements for buffers outside the Subarea Plan Preserve System, except as may be required for wetlands pursuant to federal and/or state permits or by local agency CEQA mitigation conditions.
- **Fuel modification zones**—fuel modification zones should be fully contained on adjacent properties for all new development. Prior to implementing new developments adjacent to the Subarea Plan Preserve System, the local fire authority should review and approve proposed fuel modification treatments to ensure that no new fuel modification will be required within the preserve properties.

7.2.4.7 Public Access and Recreation

The primary purpose of the Subarea Plan Preserve System is to meet the biological requirements of the Subarea Plan. Additionally the City will plan for opportunities and benefits for passive recreation within the Subarea Plan Preserve System. Activities within the Subarea Plan Preserve System should be for daytime hours only and only those that are shown to be compatible with the protection of the Covered Species and natural communities. The location, type, seasonal timing, and frequency of activities in the preserves should all be modified to reduce or remove impacts on and stressors to biological resources.

Passive recreational use in the preserves will be managed to accommodate the diversity of compatible recreational uses but must first and foremost be consistent with the protection and enhancement of biological resources. Passive recreation includes activities such as walking, jogging, hiking, bird watching, non-competitive mountain biking, equestrian use, and limited picnicking. Existing recreational facilities should be managed to promote the maintenance of habitat value surrounding these facilities. Passive recreation will be allowed within some of the preserves but will be managed and directed away from the more sensitive biological resources.

Each PMP will include a recreation plan component that addresses recreational issues and allowable uses within different areas that are compatible with the goal and objectives of this Subarea Plan. The

following guidelines should be considered for the public access and recreation component of each PMP:

- Determine appropriate levels of passive recreational activities within the preserve, depending on the resources to be protected, season, and successional stage of the vegetation. Periodically review access and recreational uses within the preserve to determine their consistency with the evolving preserve management policies, practices, and priorities under the adaptive management program.
- Designate authorized and approved trails as part of the development of PMPs for each preserve. Align authorized trails with existing access and fire roads. Keep trails away from creeks and jurisdictional wetlands, and minimize creek crossings. Provide signage within a preserve for authorized trails and trails that have been selected to be decommissioned. Where there are existing authorized trails (designated as part of a regional or general plan) that occur within a preserve and are compatible with the goals and objectives of the Subarea Plan, these trails will be incorporated into the PMP as appropriate.
- Prohibit nighttime use of trails without permissions. Certain trails adjacent to and across the San Diego River remain accessible during nighttime hours.
- Prohibit recreational activities that require construction of new facilities or roads that remove or degrade habitat for Covered Species required to achieve Subarea Plan conservation goals, unless offset by the addition or restoration of habitat with equivalent or greater habitat value for those species.
- Design any new trail construction to address the avoidance of sensitive species, unique habitats, wildlife corridors, erosion control, and access to major features.
- Monitor existing access areas to ensure that they do not degrade biological values, and site future access areas away from the most sensitive biological resources (e.g., riparian areas, areas occupied by Covered Species).
- Seasonally restrict access to certain trails if deemed necessary to prevent disturbance of breeding activities or to minimize the potential for erosion.
- Close and restore unnecessary trails to minimize biological impacts. Close and restore steep eroding trails and/or trails that bisect sensitive habitat types with the potential to support Covered Species.
- Locate new trails away from sensitive biological resources or restrict their use so that Covered Species or sensitive species (e.g., nesting raptors) are not adversely affected.
- Construct trails to prominent features or viewpoints, as appropriate, which are likely to attract trail users, thereby preventing extensive off-trail trampling and compaction.
- Install water breaks on steep trails to prevent accelerated runoff and erosion.
- Establish regular patrols to identify trail maintenance needs, garbage, vandalism, and habitat degradation and enforce land use restrictions. Utilize cameras and other technologies as appropriate.
- Limit or restrict passive uses in critical wildlife areas during the breeding season, as determined appropriate.
- Minimize adverse effects of passive recreation, such as trampling vegetation and erosion.

- Provide litter control measures, such as closed garbage cans and recycling bins, at access points in each Preserve Area.
- Site picnic areas at the edges of preserves.
- Collect garbage frequently and instruct (through signage) day users not to feed wildlife.
- Develop an educational/outreach program to inform the public and adjacent landowners about allowable uses and activities in and around the preserve. The program may include distributing brochures in surrounding neighborhoods, working with homeowners associations in the vicinity, developing an informational website, installing educational kiosks, providing outdoor experiences, etc.
- Accommodate scientific research within the preserve by allowing researchers and students to access the areas. Scientific research projects are subject to approval by the Preserve Manager, who will informally discuss the costs and benefits of the proposed work with the Wildlife Agencies.
- Preserve Manager will coordinate with special interest groups and the City to encourage volunteer opportunities, such as trash pick-up and weed removal programs that support the goals of this Subarea Plan.

Equestrian Use

Equestrian use of trails should be limited to existing authorized equestrian trails (not including trails closed for restoration or protection of biological values). Where equestrian uses are allowed within preserves, the following guidelines will apply:

- Prohibit horses along riparian areas and minimize creek crossings. Allow trails that are away from riparian or other sensitive habitat.
- Limit equestrian use to specified trails that are wider than foot trails (minimum of 8 feet wide) to prevent trail edge disturbance, with grades no greater than 25%. If trails become degraded because of heavy use, rotate or limit use during certain seasons to minimize further degradation.
- Restrict or significantly limit development of new corrals, arenas, stables, and other associated equestrian facilities within the preserve. Locate staging areas for trailheads adjacent to existing roads and away from sensitive biological resource areas and in previously disturbed areas to the maximum extent possible.

Mountain Biking

- Limit mountain bike trails to areas that are not highly susceptible to erosion and out of riparian and/or wetland areas or other biologically sensitive areas.
- Maintain trails that are wider than foot trails (minimum of 6 feet wide) to prevent trail edge disturbance, with grades no greater than 25%.
- Rotate bike use by closing and rehabilitating trails periodically to prevent trail degradation if a problem develops at the discretion of the Preserve Manager.
- Construct barriers to restrict access to sensitive areas.
- Prohibit competitive mountain bike racing that often involves riding off of trails.

Enforcement of Public Access

Damage caused by unauthorized public access is one of the greatest threats in a Preserve System near urban population centers. Without enforcement, it is often difficult to change human behavior, especially in areas that have been used historically for activities that are not compatible with habitat conservation (e.g., off-road vehicle use).

Recognizing the importance of appropriately managing recreational use within the Subarea Plan Preserve System to protect habitat areas from intrusions, Preserve Managers will take the following steps to increase enforcement capabilities and thereby minimize impacts of recreational use on preserve habitat values:

- Trail user groups will be encouraged to develop and participate in "self-monitoring and policing" programs to minimize instances of off-trail activities and other abuses of habitat resources within the Preserve.
- As allowed by state and local regulations, Preserve Managers and their staff may be given the authority to issue citations for misuse of trail and other preserve facilities. Only specific state and county entities are given the authority to issue citations.
- Fines levied for abuse of preserve facilities resulting in harm to species or sensitive habitat will be enough to discourage repeat occurrences. Preserve Managers will coordinate with law enforcement to issue fines, as needed.
- Repeated offenses by multiple users will provide the grounds for temporary closure of trail segments and, where necessary, an entire preserve as a means of avoiding unacceptable adverse impacts on habitats/species within the preserve. Such temporary closures will also serve to educate users concerning the need to obey preserve rules and regulations, thereby reducing future recreational impacts on biological resources of the preserve.

Enforcement of laws and regulations in preserves falls into two categories of offences. First are the minor infractions, such as hiking or riding off trail or on a closed trail, unauthorized equestrian or mountain biking use, and over-watering the adjacent landscape that leads to erosion or degradation on preserve properties. Minor infractions should be handled by the Preserve Manager through discussion and education of the offending party. Preserve Managers can work together and with local community groups on a public education program to explain goals and regulations as well as educate the public about the area's resources.

Major infractions would include illegal off-road vehicle use; illegal dumping; repetitive hiking or riding off trail or on closed trails; vandalism, including cutting vegetation or building new trails or bike jumps; illegal encampments (itinerant workers and transients); and excessive repeat offences of minor infractions. Unfortunately, vandalism is a common occurrence in many preserves, and fencing and signage are frequent targets of vandals. Involvement of law enforcement officials (Sheriff office) is necessary to address major infractions.

7.2.4.8 Fire Management

Preserve Managers will have the responsibility for fire management on lands they manage. Preserve management for fire will include the following elements, which will be incorporated into a fire management section of the PMPs or as a separate Fire Management Plan (FMP):

- In consultation with the City of Santee Fire Department, prepare site-specific fire management information as part of the preparation of an FMP that will be included within the PMP or as a stand-alone document. The FMP will establish policies and approaches to maximize protection of biological resources during fire suppression activities, to the degree feasible. Include the Santee fire department contacts and guidelines for pre-fire prevention activities, fire suppression, and post-fire restoration. The FMP will identify environmentally sensitive lands (ESLs) that should be avoided to minimize irreparable impacts on biological and cultural resources during fire suppression activities. The ESLs will include Covered Species locations and sensitive natural communities. A map will be prepared that shows fire management and ESLs consistent with the City fire management program and will include the following:
    - Preferred access points and access routes on the preserve and potential staging areas for fire suppression activities.
    - Covered Species, sensitive species, and sensitive natural communities that are highly susceptible to fire or fire suppression activities (e.g., coast prickly pear scrub, and locations of previously recorded rare plant observations). The ESL map should distinguish between areas that should be protected from fire versus areas that should be protected from surface disturbance (e.g., grading) based on the ability of target resources to recover from these impacts.
    - Location of bulldozer lines, if these are a potential component of the fire suppression strategy for the preserve.
- Conduct pre-fire management, as appropriate, such as the limited removal of combustible, nonnative plants.
- Establish fuel management zones. If necessary, exceptions to avoid impacts on sensitive species and habitats will be identified by the Preserve Managers, with concurrence sought from the City of Santee Fire Department.
- Coordinate with surrounding landowners to ensure that adequate setbacks are established that allow fuel management zones to be established outside of the preserve boundaries (up to 100 feet from structures and 50 feet from roads) for new structures and facilities.
- When available, establish fuel management zones that take advantage of existing roads and disturbed or developed habitats, thus avoiding sensitive habitats. Where feasible, provide approximately 15 feet of horizontal clearance to enable fire authority vehicles access to major access roads within the preserve.
- Conduct emergency post-fire erosion control where necessary. Repair and restore fences, trails, culverts, and landscaped contours to pre-fire conditions. Monitor post-fire recovery closely and immediately remediate new problems associated with erosion, sedimentation, invasion by nonnative species, etc.
- Plan all post-fire actions, such as restoration, invasive species removal, erosion control, or trail stabilization, in consultation with the City prior to project initiation.

7.2.4.9 Public Outreach and Education

Public education and involvement are critical components for ensuring successful management and public support of the Subarea Plan Preserve System. If the public is properly informed of the biological values, goals, and activity restrictions within the Subarea Plan Preserve System, it is more

likely that management goals and guidelines will be respected and followed. The Subarea Plan Coordinator, Preserve Steward, and Preserve Managers will coordinate to determine the most effective methods and materials for educating the public. They may include the following:

- Hold annual public meetings to present information regarding preserve goals, guidelines, restrictions, and compatible uses. These meetings may be held concurrently with the annual Subarea Plan reporting meeting.
- Establish a website that provides information on the preserve, Preserve Manager contact information, and links to additional information on preserve goals and guidelines.
- Provide signs, displays, and pamphlets that explain preserve rules and management goals.
- Develop a volunteer program that addresses a variety of education and management issues, including, but not limited to, preparation of educational materials, trail repair, erosion control, invasive species removal, native habitat and plant restoration, trash removal, biological monitoring, and management patrols.

7.2.5 Adaptive Management and Monitoring of the Preserves

Adaptive management and monitoring of the preserves will be implemented to (1) ensure that City is in compliance with Subarea Plan requirements, (2) assess the status and trend of conserved resources (Covered Species, natural communities, ecosystems), (3) measure the effectiveness of conservation and management actions, and (4) provide information to guide and refine management actions to benefit conserved resources and improve the health and stewardship of the Subarea Plan Preserve System.

Adaptive management is an iterative decision-making and learning process used when there is uncertainty regarding resource responses to management actions (Atkinson et al. 2004, Williams et al. 2009, Lewison and Deutschman 2014). The HCP Handbook (USFWS 2016) defines *adaptive management* as "an integrated method for addressing uncertainty in natural resource management that incorporates a structured process for learning by doing." Pursuant to Section 2805(a) of the California Fish and Game Code, "'adaptive management' means to use the results of new information gathered through the monitoring program of the plan and from other sources to adjust management strategies and practices to assist in providing for the conservation of covered species." Adaptive management seeks to reduce uncertainty and improve success in achieving conservation goals through structured monitoring and evaluation of management actions. Under this Subarea Plan, PMPs for each preserve will include an adaptive management component.

This section provides the framework for developing, implementing, and evaluating conservation strategies to meet measurable biological goals and objectives and modifying management actions in accordance with new findings or changed conditions. In this way, adaptive management incorporates flexibility into long-term planning and management of Covered Species and habitats (Atkinson et al. 2004, Williams et al. 2009). General guidelines for preserve-level monitoring and adaptive management are described below; detailed guidelines will be included in the PMPs.

7.2.5.1 Roles and Responsibilities

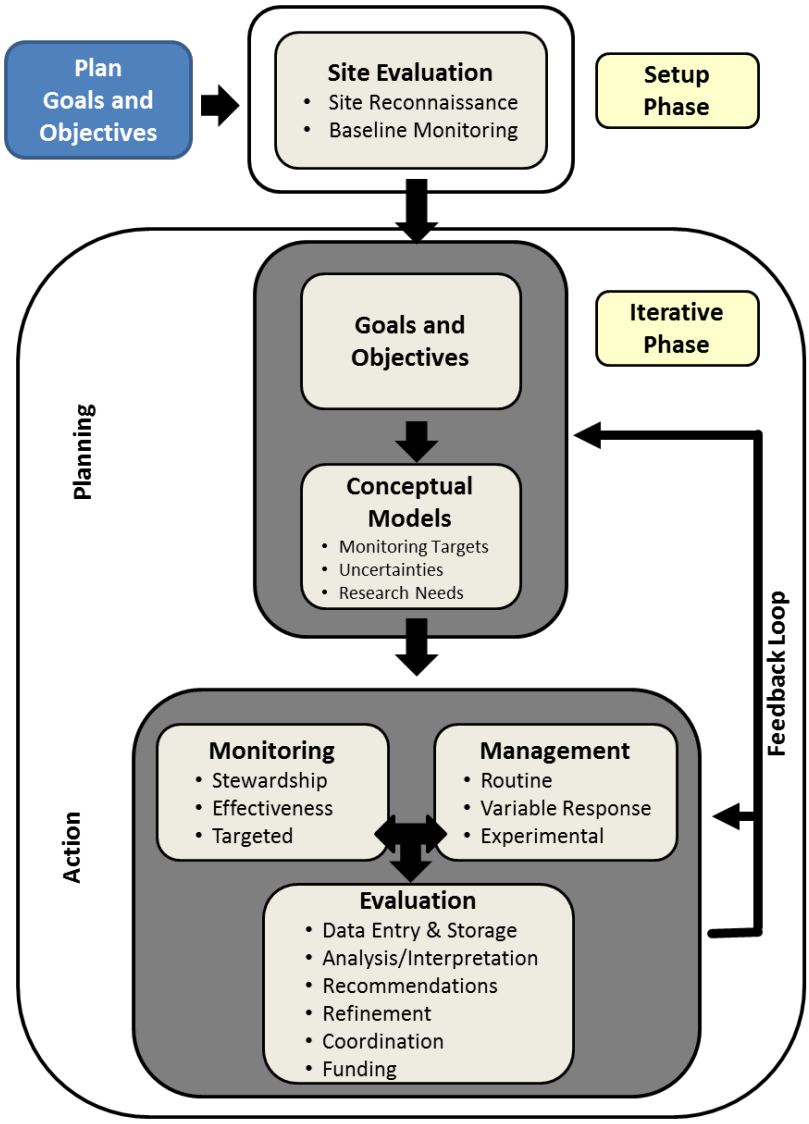
The monitoring and adaptive management of the preserves will be a cooperative effort between Subarea Plan Coordinator, Preserve Steward, Preserve Managers, Wildlife Agencies, and the public. Preserve Managers will be responsible for general stewardship and biological monitoring of the

individual preserves that make up the Subarea Plan Preserve System. The City will provide oversight and coordination of the Preserve Managers. This will be a primary role of the Subarea Plan Coordinator and Preserve Steward. The Preserve Managers will implement and monitor management actions and evaluate their effectiveness. Regular coordination will occur with the Preserve Managers and City to ensure that all activities are consistent with commitments made within the Subarea Plan. The Preserve Manager will be responsible for the development of the PMPs and providing preserve-specific annual reports to the City. The City is responsible for the preparation of a Subarea Plan annual report that will include references to the individual preserve annual reports. The Wildlife Agencies will review these documents and will be involved in regular Subarea Plan Preserve System oversight through annual meetings. These documents will be available to the public for review and input. In addition, coordination with other regional preserve managers will occur to help determine and address regional and local trends in adaptive management that may be occurring across the San Diego County region. See Section 8.2, *Roles and Responsibilities [for Subarea Plan Implementation],* for more details of the Subarea Plan participants.

7.2.5.2 Adaptive Approach

Monitoring and adaptive management will follow guidelines set forth in Atkinson et al. (2004) and refined in later documents (e.g., Hierl et al. 2007, Lewison and Deutschman 2014). This approach includes setup, planning, and action phases (see Figure 7-1), and should be initiated early in preserve management and PMP development. The Setup phase identifies preserve-level conservation resources and potential threats and stressors. The Planning phase defines and prioritizes monitoring and management issues. The Action phase (1) monitors resources to assess status or trends and determine management needs, (2) implements management actions to enhance resource functions and reduce adverse effects from threats and stressors, (3) evaluates resource response to management actions, and (4) modifies monitoring and management actions, as necessary. Except for the initial site evaluation, all elements are iterative; thus, planning and action phases may overlap.

Figure 7-1. Adaptive Management Process



Source: Lewison and Deutschman 2014.

Key elements of preserve-level adaptive management and monitoring include:

- Site Evaluation
- Goals and Objectives
- Conceptual Models
- Uncertainties
- Research
- Monitoring
- Management
- Evaluation

It is important to reiterate that adaptive management is used when there is uncertainty regarding management outcomes. Management issues that do not include uncertainty do not require an adaptive management approach.

7.2.5.3 Adaptive Management and Monitoring Guidelines

Biological monitoring and management are mandatory elements of all NCCPs and HCPs and interdependent components of any adaptive management program. The sections below provide a structured process for developing, implementing, and evaluating monitoring and management actions to protect and enhance conserved resources, minimize or avoid threats to those resources, and improve management effectiveness and efficiency through iterative learning.

Site Evaluation

Site evaluation will be conducted within 1 year of preserve acquisition. The Preserve Manager will evaluate available data for the preserve, conduct a site reconnaissance to identify what field surveys should be prioritized and a proposed timeframe (e.g., for Covered Species), identify appropriate land uses and roads or trails that should be closed, and identify immediate management and maintenance needs (e.g., fencing, runoff from adjacent properties, invasive species, removal of structures or trash). Baseline surveys for conserved resources will be conducted subsequent to the site reconnaissance in order to obtain data necessary to assess resource status and management needs. Subarea Plan goals and objectives will focus the evaluation on key conservation resources (e.g., Covered Species, vegetation communities, ecosystems, connectivity) and potential threats and stressors.

Existing regional and preserve-level documentation will be reviewed to identify and describe conservation resources (including types of data available), data gaps, and site history (i.e., land uses, fire, any previous management and monitoring) relevant to resource management. Potential data sources include (but are not limited to) the Subarea Plan, biological reports, regional databases (e.g., California Natural Diversity Database [CNDDB], Biogeographic Information and Observation System [BIOS], Cal-IPC Weed Mapper), other conserved lands near the preserve, and expert opinion (species experts, science advisors, other Preserve Managers, Wildlife Agencies). Based on this assessment, the Preserve Manager will prepare a preserve-specific list of conservation resources and data gaps, including potential threats and stressors.

As part of the initial site reconnaissance or subsequent baseline surveys, the Preserve Manager will map vegetation communities (using the *Vegetation Classification Manual for Western San Diego County* [SANDAG 2011]) and level of disturbance, identify threats and stressors, and evaluate the potential of the property to support Covered Species. Prior to surveys, the Preserve Manager will identify type(s) of data required to evaluate status and/or management needs for each resource to ensure appropriate data collection and desired outputs. The emphasis during this stage is on surveys that are broad-based, comprehensive, and relatively rapid, with a focus on habitat condition and potential to support Covered Species (Lewison and Deutschman 2014).

Upon completion of site evaluation (site reconnaissance and baseline monitoring), the Preserve Manager, in consultation with and with approval by the City, will develop the PMP (including adaptive management program) for the preserve and a 5-year timeline of priority surveys and management needs.

Goals and Objectives

Goals and objectives guide decision-making and provide a standard for measuring management effectiveness and, ultimately, the biological success of the Subarea Plan (Atkinson et al. 2004, Lewison and Deutschman 2014). Goals are "broad, concise visionary statements that set the overall direction for monitoring and management, while objectives are concrete, measurable statements that detail how a specific goal can be attained" (Lewison et al. 2011). A single goal may have multiple objectives. Further, each objective may require one or more management actions (implementation tasks) (Lewison et al. 2011).

Subarea Plan goals and objectives are presented in Section 5.2, *Biological Goals and Objectives*. Using site evaluation and baseline monitoring results, if available, as a guideline, the Preserve Manager will review Subarea Plan goals and objectives for applicability at the preserve-level and will identify and incorporate preserve-level goals and objectives into the PMPs.

Preserve-level objectives will be refined to meet SMART criteria (Adamcik et al. 2004, Lewison et al. 2011, SDMMP 2017a, Lewison and Deutschman 2014), which are defined as:

- **Specific**—objectives will be detailed, clear, concise, and unambiguous.
- **Measurable**—objectives will include criteria for measuring progress.
- **Achievable**—objectives will not be unrealistic to achieve nor below acceptable standards.
- **Results-oriented**—objectives will specify an end result.
- **Time-fixed**—objectives will specify an end-point for being met.

Well-defined objectives promote effective and efficient use of management and monitoring resources.

All objectives will be prioritized. Priority 1 objectives will be implemented on an ongoing basis and, in general, accomplished through the implementation of effectiveness monitoring, general stewardship monitoring, and general preserve management. Each preserve will have funds allocated to cover activities for Priority 1 objectives. The Priority 1 objectives will occur first, and the results of the Priority 1 efforts will inform further adaptive management decisions that will be prioritized as Priority 2 objectives. Priority 2 objectives will be funded, in general, using either funds allocated for adaptive management, by reprioritizing general stewardship monitoring and preserve management actions, as appropriate, or using outside funding sources (e.g., grants).

Priority 2 objectives will be implemented in consultation with the City for conserved resources that are impacted or declining, based on monitoring results. Within Priority 2, objectives will be further prioritized based on (1) alignment with Subarea Plan goals and objectives, (2) regional context (e.g., value or importance of a preserve for a given resource), (3) level of threat, (4) expected effectiveness of proposed action (e.g., proven methods available to affect change) (5) logical sequencing (e.g., invasive species control may precede restoration), (6) catastrophic events (e.g., wildfire may necessitate a shift in priorities), (7) funding and staffing, and (8) "SMARTness" of objectives (i.e., well-defined objectives are easier to achieve than poorly defined objectives).

Conceptual Models

Conceptual models provide a vision or concept of how a species, habitat, or ecosystem functions and how it might be influenced by management actions (Atkinson et al. 2004, Hierl et al. 2007, Williams

et al. 2009, Deutschman et al. 2012, Lewison and Deutschman 2014). Further, conceptual models organize and articulate the relationship between change agents and natural drivers. For example, a conceptual model for a Covered Species will depict life history traits that influence species persistence, as well as natural and anthropogenic drivers (threats and stressors) and uncertainties that may affect those traits. Conceptual models allow for structured decision-making and are used to test management hypotheses and identify appropriate monitoring targets, uncertainties, and research needs.

Conceptual models vary in complexity and format, and numerous sources are available to assist in model development (e.g., Atkinson et al. 2004, Hierl et al. 2007, Williams et al. 2009, Deutschman et al. 2012, Lewison and Deutschman 2014). To be scientifically defensible, model development must be based on existing data and literature- or field-based assumptions; documentation of these sources is an integral part of model development. The following principles and format elucidated in Hierl et al. (2007) and refined by the Institute for Ecological Monitoring and Management (IEMM) in a conceptual model workshop (Deutschman et al. 2012), Adaptive Management Framework (Lewison and Deutschman 2014), and species-specific models (Strahm 2012) are useful guidelines for model development for adaptive management:

- Simpler models that represent the current state of knowledge and are supported by data are preferable to complex models with a high degree of uncertainty.
- Models should clearly identify management and monitoring goals.
- Models should include those life history traits (species variables) that influence persistence and should focus on those variables that may respond to monitoring and adaptive management (potential monitoring targets).
- Models should identify and differentiate between anthropogenic (threats and stressors) and natural drivers of the system.
- Putative or secondary relationships, if included, should be differentiated from data-based primary relationships.
- Proposed management actions should support the management goal; proposed monitoring should measure the effectiveness of management actions, followed by a modification in management, if warranted.

Preserve Managers will review these models for applicability at the preserve-level. Where models have been designed for other regions or purposes, they may be refined to reflect preserve-specific conditions and/or simplified to focus on key management questions. Where models do not exist, Preserve Managers will need to work with experts to develop models to guide the adaptive management process. Conceptual models can be developed for threats and stressors as well as conservation resources. Further, a single conceptual model may serve multiple resources that share similar life histories and natural and anthropogenic drivers (e.g., covered plant species, riparian birds, scrub-dependent reptiles). During the action phase of adaptive management, monitoring results will be used to refine Conceptual Models, as appropriate.

Uncertainties

Sources of uncertainty will be identified through the site evaluation process and visualized through conceptual models. Types of uncertainty may include (1) effectiveness of management actions, (2) relationship between resource function and threats and stressors, and (3) larger ecosystem

processes (e.g., annual variations in climate and climate change). Although many of these uncertainties may be addressed and reduced through preserve-level management and monitoring, others are best addressed at regional or landscape-levels. For the latter, external sources (e.g., literature, regional monitoring programs) may be useful in understanding and reducing uncertainties.

Research Needs

Potential research needs will be identified through site evaluation, development of conceptual models, and responses to management actions. Appropriately structured monitoring programs are expected to answer some research questions, particularly those that have a direct bearing on management. The Preserve Manager will ensure that preserve-level data are available for analysis by other management entities or researchers focused on key management questions. In addition, the Preserve Manager should encourage research on preserve lands by qualified (and funded) researchers where these efforts benefit preserve resources and do not jeopardize preserve goals and objectives.

Monitoring Guidelines

Monitoring guidelines presented in this section will help the Preserve Managers collect the appropriate data to ensure that the goals and objectives of the Subarea Plan and individual preserves are met, determine if preserve management strategies are having the desired effect, and evaluate if underlying biological assumptions are supported by field-collected data from the preserves. These guidelines include the following activities:

- Tracking the distribution and condition of natural communities and habitats throughout the preserves.
- Periodic monitoring of Covered Species to determine presence/absence and/or relative abundance and distribution over time.
- Monitoring to evaluate effectiveness of specific management actions.
- Identifying and monitoring threats to habitat condition and to Covered Species, including introduction or spread of invasive species and other edge effects.
- Monitoring the effects of public use, encroachment, and other activities within and adjacent to the preserves.

Biological monitoring measures the effectiveness of the overall conservation approach, supports informed adaptive management decisions, assists in defining and modifying biological goals and objectives, and provides the Wildlife Agencies and regional habitat monitoring entities information to monitor trends of habitat and species. The following guidelines have been developed to assist the Preserve Managers in prioritizing monitoring tasks and completing them efficiently and within a reasonable budget and schedule.

The Preserve Manager, in consultation with the City, SDMMP, and Wildlife Agencies, will identify the appropriate types of monitoring to address management questions and select monitoring methods that align with goals and objectives. In some cases, consultation with species experts or experts in monitoring or sampling design may be necessary.

Definitions of Monitoring Types

1. **Initial Reconnaissance Monitoring.** The site reconnaissance identifies survey needs, priorities, and a proposed timeframe (e.g., for Covered Species); identifies appropriate land uses and roads or trails that should be closed; and identifies immediate management and maintenance needs (e.g., fencing, runoff from adjacent properties, invasive species, removal of structures or trash).
2. **Baseline (Inventory) Monitoring.** Baseline monitoring establishes conditions at a given point in time. This monitoring requires biological expertise. It is a one-time event that characterizes the status of conserved resources, as well as threats and stressors, for planning or future comparisons. Baseline monitoring will also include an inventory of existing trails. Baseline monitoring is a necessary precursor to development of a PMP as it identifies both target resources and management issues.
3. **General Stewardship Monitoring.** General stewardship monitoring identifies general management issues and documents whether management actions are carried out as planned. This monitoring is used for general land management activities (e.g., access control, trail closures, erosion control, fence repair, signage installation, routine invasive plant inventory and control). General stewardship monitoring may commence upon preserve acquisition and does not generally involve an adaptive management component because uncertainty in management outcomes is low and BMPs are available to address the issue(s) of concern. Preserve Managers will conduct general stewardship monitoring visits (monthly or as appropriate) of their preserves as part of their ongoing responsibilities and will report any issues to the Subarea Plan Coordinator within 1 week of discovery. As part of general stewardship monitoring, the status and identified threats to biological resources on the preserve will be recorded.
4. **Effectiveness Monitoring.** Effectiveness monitoring assesses status and trends, as well as threats and stressors, and requires biological expertise. The Preserve Manager will be responsible for having effectiveness monitoring completed to assess and track progress towards achieving the Subarea Plan's biological goals and objectives, as well as those of the preserve. Effectiveness monitoring will be completed, at a minimum, following the frequency and survey protocols listed in Table 7-1 in perpetuity. The effectiveness monitoring of the preserves will be compared with baseline surveys and subsequent periodic biological surveys.
5. **Targeted Monitoring.** Targeted monitoring is used to answer specific management questions (hypotheses) and determine the effect of management actions on target resources. Targeted monitoring is completed by the Preserve Manager, and may require additional input from outside sources with respect to sampling design, data collection, and analyses. In addition, results may be used to develop or refine BMPs. Targeted monitoring necessary to address site-specific threats to Covered Species and habitats on the preserves will be identified and prioritized as part of the development of individual PMPs or through subsequent stewardship or effectiveness monitoring.
6. **Regional Monitoring.** The City will not be responsible for collecting additional biological monitoring data for regional assessments but may contribute to such efforts, as appropriate/feasible, through the collection of comparable data. Data comparability will be facilitated through regular interaction with the Preserve Managers, Subarea Plan Coordinator/Preserve Steward, Wildlife Agencies, regional monitoring entities (e.g., SDMMP) and other Preserve Managers in the San Diego region to support the use of similar methods, coordination of survey schedules, and other relevant efforts regarding monitoring issues. The City will ensure access to preserves in the Subarea Plan Preserve System will be available for

other entities to collect regional biological monitoring data, as appropriate. In addition, The City will coordinate the submittal of preserve data to an appropriate data repository, such as the BIOS, CNDDB, or other regional databases.

Methods

There are many monitoring methods or protocols available to address goals, objectives, and management questions. Different methods may be required for different types of monitoring, and methods should be objective-driven. For example, if the objective is to determine whether a species occurs on the preserve, then presence/absence monitoring will suffice. If the objective is to determine whether population size is stable, increasing, or declining over time (trend), full census/total counts, probability sampling (transects, quadrats, trapping lines, grids, visual encounter surveys), or mark-recapture surveys may be required, depending on level of impact of the monitoring effort. Further, linking change to specific threats will require some measure or assessment of those threats. Method selection will also be dependent on the monitoring target, as identified through existing protocols or conceptual models. For many resources, the monitoring target will be obvious (e.g., the species of concern), although targets may also be other objects of interest (e.g., burrows, nests, tracks). Finally, monitoring protocols should be consistent with other protocols in San Diego County and/or southern California to facilitate comparison and help inform data analysis.

It is important to point out that all species may not need the same level, frequency, or intensity of monitoring, depending on status and threats. Further, there are some species for which habitat monitoring may be sufficient to determine trends and threats. However, assumptions about species-habitat relations must be supported by data prior to relying on ”surrogate” monitoring (Atkinson et al. 2004). Surrogate monitoring is generally more appropriate for widely distributed species that do not require specific vegetation characteristics and would benefit from habitat management.

Table 7-1 presents protocols and a timeline for effectiveness monitoring of biological resources. It is possible these protocols will adjust over time, and the City will coordinate with the Wildlife Agencies, other Preserve Managers in the San Diego region, and other relevant efforts about monitoring issues to ensure that the most current, established protocols are being used. Preserve Managers, in consultation with the City and other species experts, will review and select the most appropriate monitoring method(s) to address resource-specific management questions. The Preserve Manager will be responsible for ensuring monitoring is completed by qualified biologists. Monitoring methods, as determined appropriate for each individual preserve, will be included in PMPs.

Table 7-1. Type and Frequency of Periodic Surveys for Effectiveness Monitoring

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
Vegetation	Comprehensive	10 Years	Vegetation communities will be mapped using two compatible classification systems: (1) Holland (1986) as modified by Oberbauer (Oberbauer et al. 2008), and (2) the *Vegetation Classification Manual for Western San Diego County* (SANDAG 2011). Both systems provide methods to classify vegetation. Holland communities are described at a landscape scale and are currently used by Santee for mitigation analysis and to plan conservation targets for the Subarea Plan. The San Diego Vegetation Classification system provides a higher-resolution view into the specific vegetative components of communities and changes within communities over time and is more detailed than the Holland classification system. Vegetation mapping on preserves should be completed based on field surveys using the San Diego Vegetation Classification system and cross-walked to the Holland classification (not the other way around).
Invasive Species	Threats	Ongoing and Annually	Ongoing invasive plant surveys will be conducted along natural conduits for dispersal (trails, drainages, disturbed areas) during general stewardship or biological monitoring, and/or through volunteer patrols. A comprehensive survey and assessment of the distribution of invasive plant species will be completed annually and summarized in the preserve-specific annual report.
Covered Species			
Plants			
Rare Plants: San Diego Ambrosia San Diego barrel cactus San Diego goldenstar San Diego thornmint Variegated dudleya Willowy monardella	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years, depending on precipitation conditions	If the preserve has potentially suitable habitat for rare plants, conduct comprehensive floristic surveys to identify rare plants within the preserve following California Native Plant Society (CNPS) survey guidelines (CNPS 2018). Surveys must be conducted during the blooming period (spring, late summer and fall). Floristic surveys will be led by a qualified rare plant botanist. If populations of rare plants are identified during floristic surveys, map the perimeter of the current extent of the occurrence. This will represent the maximum extent of the occurrence. In subsequent years, the occurrence may vary in size, and the maximum extent will expand to include all areas occupied by the species across survey years.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	Monitoring of known occurrences of San Diego ambrosia will be conducted every 3 years following the most current Management Strategic Plan (MSP) Rare Plant Protocol (SDMMP 2017b). The MSP Rare Plant Protocol is a rapid assessment protocol for assessing the status, habitat, and threats to a rare plant population. The current MSP rare plant protocol provides details on how to conduct the monitoring and how to complete a Rare Plant Occurrence Monitoring Form. The protocol includes the following steps: • Within each sampling area, conduct occurrence status assessment as described in the protocol, using the Rare Plants Occurrence Monitoring Form. • Map the perimeter of the current extent of the occurrence and make a population estimate. This will represent the maximum extent of the occurrence. In subsequent years, the occurrence may vary in size and the maximum extent will expand to include all areas occupied by the plant across survey years. • Conduct photo-monitoring. • Conduct habitat assessment within sampling area using the Rare Plant Occurrence Monitoring Form. • Document threats assessment within the habitat plot on the Rare Plant Occurrence Monitoring Form. Assess the maximum extent of the rare plant population for any other threats.
Vernal Pool Rare Plants: San Diego button-celery San Diego mesa mint	Baseline Surveys and Effectiveness Monitoring for Population Assessment and Threat Assessment	Based on conditions	A tiered three-level monitoring approach will be completed at vernal pool complexes that will be managed under the Santee Subarea Plan that requires both qualitative and quantitative monitoring. Monitoring approaches and methods are described in detail in Appendix G, *Vernal Pool Conservation Standards*. Monitoring would be responsibility of the Preserve Manager and conducted by a qualified biologist so that all will follow a standard monitoring protocol. Monitoring would be coordinated with regional efforts conducted by other entities (e.g., USFWS, SDMMP).
Invertebrates			
Hermes copper butterfly	Habitat Assessment	Initial reconnaissance	Initial reconnaissance visits will include an assessment of the preserve for the distribution of suitable Hermes copper butterfly habitat, defined as any woody (mature) spiny redberry with California buckwheat (or other primary nectar sources) within 15 feet (County of San Diego 2010).

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has suitable Hermes copper butterfly habitat based on the habitat assessment, focused surveys will be conducted following County interim guidelines for Hermes copper (County of San Diego 2010), or any subsequent guidance from the USFWS. Surveys will consist of at least four surveys, conducted at least 8 to 14 days apart, during the peak of the flight season, which is defined as May 25 to June 22 (County of San Diego 2010). Surveys will not be conducted in adverse weather and will not be conducted concurrently with other surveys.
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of Hermes copper butterfly, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should focus on the distribution and quality of mature spiny redberry, associated California buckwheat, and threats and stressors (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of Hermes copper butterfly.
Quino checkerspot butterfly	Habitat Assessment	Initial reconnaissance	Initial reconnaissance visits of a preserve will include a site assessment of potentially suitable habitat for Quino checkerspot butterfly. Site assessments will follow methods described in the USFWS Quino Checkerspot Butterfly Survey Guidelines (USFWS 2014) or superseding versions. Site assessment will include determining which habitat are Excluded Areas, as well as mapping host plant locations, recording presence of nectar plant species, and assessing for unique habitat features including habitat openings and basking rocks. This site assessment will also assess and record information on where the highest quality habitat occurs; highest quality habitat generally includes openings in sage scrub or grasslands habitats supporting host and nectar plants with nearby shrubs for shelter, ridgelines or hill-tops, and rocks or open ground for basking. This site assessment can be conducted concurrently with baseline vegetation mapping or rare plants surveys.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years, depending on weather conditions	For preserves that have host plant populations as determined during the habitat assessment, baseline and effectiveness monitoring surveys will include focused surveys for Quino checkerspot butterfly, conducted at the height of the flight season in the highest quality habitat. Surveys must be conducted by a qualified biologist holding a USFWS recovery permit for this species. Except for the numbers of surveys, the surveys will follow the USFWS survey guidelines (USFWS 2014) regarding timing, weather conditions, and survey coverage. Baseline focused surveys for Quino on identified conserved lands will include at least three surveys. For preserves less than 50 acres, surveys should cover all suitable habitat known to or potentially supporting host plants. For preserves over 50 acres, surveys should cover up to 10 acres of suitable habitat known to or likely to support host plant, and then 20% of the suitable habitat of the entire preserve, focusing on highest potential habitat (as determined by professional judgment of the USFWS permitted surveyor). To avoid surveying during suboptimal seasons, if precipitation totals are 25% or more below the mean rainfall by February of the survey year (i.e., 5th year), the focused surveys would be postponed until the next year (6th year). If rainfall is similarly low in the 6th year, surveys would be postponed until the next year (7th year). Surveys should be conducted during the 7th year regardless of rainfall, and the monitoring period will be reset.
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of Quino checkerspot butterfly, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should focus on the quality of host plants (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of Quino checkerspot butterfly. If multiple populations exist, a threats assessment will be conducted for each occurrence.
Vernal Pool Invertebrates: Riverside fairy shrimp San Diego fairy shrimp	Baseline Surveys and Effectiveness Monitoring for Population Assessment and Threat Assessment	Based on conditions	A tiered three-level monitoring approach will be completed at vernal pool complexes that will be managed under the Santee Subarea Plan that requires both qualitative and quantitative monitoring. Monitoring approaches and methods are described in detail in Appendix G, *Vernal Pool Conservation Standards*. Monitoring would be the responsibility of the Preserve Manager and conducted by a qualified biologist following standard monitoring protocols. Monitoring would be coordinated with regional efforts conducted by other entities (e.g., USFWS, SDMMP).

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
Reptiles and Amphibians			
Belding's orange-throated whiptail and Blainville's horned lizard	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	5 years	If a preserve has potentially suitable habitat for Belding's orange-throated whiptail and/or San Diego horned lizard, conduct presence/absence surveys as part of baseline surveys and effectiveness monitoring. Surveys should be completed using a focused visual encounter survey methodology for terrestrial reptiles during the peak activity period for the species. These surveys will follow the time-constrained search methodology (Corn and Bury 1990).
Southwestern pond turtle	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable breeding habitat for southwestern pond turtle, baseline surveys will include focused surveys for southwestern pond turtle conducted in two steps: (1) visual surveys to identify presence/absence within the preserve and (2) if presence determined, trapping surveys to determine relative abundance and population demographics (age classification, sex ratios) to understand how the preserve could function as a breeding site. Visual surveys will be completed following the U.S. Geological Survey (USGS) Visual Survey Protocol (USGS 2006b). This protocol requires that all aquatic habitat be broken into 250-meter segments and scanned for the presence of basking sites, aquatic refugia, streamside refugia, and upland nesting habitat. Attention will be focused on identifying pond turtles within open pools and potential basking areas. If visual surveys are positive, trapping surveys will be conducted following the USGS Trapping Survey Protocol (USGS 2006a).
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of southwestern pond turtle, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should focus on the quality of aquatic habitat (invasive plant species, presence of nonnative animal species, hydrologic modifications, changes in riparian habitat cover resulting from alteration of fire regime and/or climate modifications, connections between aquatic habitat and nesting and overwintering upland habitat) as it pertains to the habitat needs of southwestern pond turtle. Document the level of perceived human activities in pond turtle habitat (e.g., unauthorized trail use, littering, and vandalism) as well as other threats to determine management needs.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
Western spadefoot toad	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable breeding habitat for western spadefoot toad, surveys will be conducted as part of baseline surveys and effectiveness monitoring every 5 years. It is not typically difficult to determine if spadefoot are present (Rochester et al. 2017). During the winter, spadefoot tadpoles can be observed in the breeding pools for up to 8–10 weeks after breeding, but can be as little as 40 days. Surveys for spadefoot will begin within a week of the first significant winter rain, as early as October or November. Surveys for spadefoot eggs and tadpoles can be done during the day and do not require nighttime surveys. If spadefoot are not detected after the first rains, surveys will be repeated with the next rain event. Once breeding has been confirmed, surveys will be repeated at 4–6 week intervals to document the success or failure of the breeding effort. It is not uncommon for spadefoot to fail to breed every year. Nighttime surveys for adult spadefoot can be done at the onset of the rainy season if desired or if breeding pools do not fill. Listening for calling males is a fast way to determine whether the species is present or not. The presence of eggs and tadpoles is also a positive sign that adults are present (Rochester et al. 2017). Pool size, depth, water temperature, and notes on habitat type and vegetation in and near the pools will be recorded (Fisher et al 2004).
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of western spadefoot toad, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should focus on the quality of breeding and upland aestivation habitat (invasive plant species, presence of nonnative animal species, hydrologic modifications, changes in habitat cover resulting from alteration of fire regime and/or climate modifications, connections between breeding habitat and upland aestivation habitat) as it pertains to the habitat needs of western spadefoot toad. Document the level of perceived human activities in breeding habitat (e.g., trail use, littering, and vandalism) as well as other threats to determine management needs.
Birds			
Coastal California gnatcatcher	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable habitat for coastal California gnatcatcher, conduct comprehensive field surveys for coastal California gnatcatcher as part of baseline surveys and effectiveness monitoring to identify whether occupied habitats exist within the preserve. Surveys will follow, at a minimum, the survey protocol used for the Carlsbad Habitat Management Plan (HMP) (City of Carlsbad 2013), which, with the exception of the timing and number of visits, follows the USFWS coastal California gnatcatcher protocol (USFWS 1997).

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of coastal California gnatcatcher, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should focus on the quality of coastal sage scrub habitat (invasive species, changes in vegetation type cover resulting from alteration of fire regime and/or climate change) as it pertains to the habitat needs of coastal California gnatcatchers. Other potential threats include human activity, edge effects, and nest predation.
Least Bell's vireo	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable habitat for least Bell's vireo, conduct comprehensive field surveys for least Bell's vireo as part of baseline surveys and effectiveness monitoring to identify whether occupied habitats exist within the preserve. With the exception of the number and time separation of visits, surveys for least Bell's vireo will, at minimum, follow the USFWS Least Bell's Vireo Survey Guidelines Surveys (USFWS 2001). A total of three surveys will be conducted—one in mid-May, one in June, and one in early July. The survey methods include: • Surveys will be completed by a qualified biologist familiar with vireo vocalizations, appearance, and behavior. • Surveys should be conducted between dawn and 11:00 a.m. and should not be conducted during inclement weather that may reduce likelihood of detection. • Data pertaining to vireo status and distribution should be recorded. Data pertaining to quality of habitat for vireo nesting and foraging should be recorded. • Numbers and locations of brown-headed cowbirds within riparian areas should be recorded.
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of least Bell's vireo, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should include an evaluation of the vegetation as it pertains to the needs of least Bell's vireo (e.g., nonnative vegetation outcompeting native saplings, low tree density, etc.). Also conduct photo monitoring at riparian locations within the preserve. Take photographs at each photo station in the same cardinal direction as in previous years.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
San Diego cactus wren	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable habitat for coastal cactus wren, comprehensive field surveys will be completed in conjunction with surveys for coastal California gnatcatcher. Because of similar habitat requirements of coastal cactus wren and coastal California gnatcatcher, surveys for coastal cactus wren will be completed simultaneously with coastal California gnatcatchers using the same protocols. The survey results will include the location of pairs and individuals observed onsite. A detailed mapping and inventory of cactus scrub habitat on the preserve will be completed and maintained using the same methods and protocols used by SDMMP to map cactus patches on other preserve lands in San Diego County (TNC 2015). The cactus scrub habitat will be categorized based on size, quality, type, and an assessment of threats (e.g., invasive species). Particular focus will be on large cactus plant individuals, as cactus wren typically have been found nesting at an average height of approximately 50 inches (138 centimeters), with an observed range of 30–90 inches (74–226 centimeters) (Unitt 2004). This information will serve as a baseline of cactus scrub habitat on the preserve, support fire management planning, serve as a benchmark for restoration if a fire occurs, and facilitate the exchange of information with other regional entities on how to addressing cactus scrub habitat distributions.
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of San Diego cactus wren, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment will include an evaluation of the vegetation as it pertains to the needs of San Diego cactus wren (e.g., native or nonnative vegetation overtopping cactus, low cactus density, etc.). Photo monitoring and qualitative site visits of each cactus scrub patch location within the preserve will be completed.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
Southwestern willow flycatcher	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable breeding habitat for southwestern willow flycatcher, comprehensive field surveys of breeding southwestern willow flycatcher will be completed as part of baseline surveys and effectiveness monitoring to identify if occupied breeding habitat exist within conserved lands. With the exception of the number and timing of visits, surveys for southwestern willow flycatcher will follow the survey protocol for Southwestern Willow Flycatcher Surveys (Sogge et al. 2010). At least four complete surveys will be conducted—one in late May, two in June, and one in the first half of July. The survey methods include: • Surveys will be completed by a qualified biologist(s) who is able to recognize the willow flycatcher's primary song and is permitted by the USFWS to conduct call-playback surveys. Surveyors should also be familiar with other calls made by the southwestern willow flycatcher as well as the vocalizations of other riparian birds. • A desktop analysis will be conducted prior to the site survey. Investigate information regarding terrain, vegetation community distribution, and any prior records of southwestern willow flycatcher in the vicinity. • Site surveys will be conducted at least 5 days apart. For a large habitat patches, multiple surveyors or survey days may be necessary to complete one site survey. Surveys should begin at civil dawn and end by approximately 10:00 a.m., depending on temperature, wind, noise, and other environmental factors. Surveys will be conducted within, rather than from, the perimeter of sites, while limiting vegetation disturbance. Surveys must be conducted in a way to investigate all potential habitat. • Surveyors will play willow flycatcher songs from an electronic device and then look and listen for responses from territorial birds. Surveyors will stand quietly at a new location for 1 to 2 minutes, listening before playing willow flycatcher calls for 10 to 15 seconds, listening for 1 minute, then repeating this procedure every 20 to 30 meters throughout the survey site. • If any willow flycatchers are observed, their location should be recorded with GPS, any leg/color bands observed, and data sheets completed documenting behavior and habitat condition. • Actions should be avoided that would result in take. Do not harass willow flycatchers with excessive playback. Watch for potential nest predators, particularly birds, such as corvids and jays, and wait for them to leave before playing a recording.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of southwestern willow flycatcher, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should include an evaluation of the vegetation health as it pertains to the needs of southwestern willow flycatcher (e.g., nonnative vegetation outcompeting native saplings, low tree density, etc.). Also conduct photo monitoring at riparian locations within the preserve. Take photographs at each photo station in the same cardinal direction as in previous years.
Tricolored blackbird	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable habitat for tricolored blackbird, conduct comprehensive field surveys for tricolored blackbird as part of baseline surveys and effectiveness monitoring to identify whether occupied habitats exist within the preserve. Surveys should be completed by a qualified biologist during the breeding season (March–July) following survey protocol used for tricolored blackbird statewide survey (Kelsey 2008). The survey methods include: • Surveys will avoid disturbance of nesting birds, as the disturbance can cause nest failure. Colonies should be surveyed from a distance at which the birds are unaffected by the surveyor's presence. Because colonies may be located in a variety of contexts, it is up to the observer to determine how close is too close. • Surveyors will estimate colony size. For smaller colonies (approximately less than 200 birds) a precise count of the number of birds will usually be feasible. For large colonies, the number of birds will need to be estimated. • Information recorded includes sex ratio, nest substrate, colony surroundings, colony area, and behavior and colony status.
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of tricolored blackbird, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment should focus on the quality of freshwater marsh or other habitat types used by tricolored blackbird onsite, hydrologic conditions, connectivity of nesting habitat with suitable foraging habitat, and changes to fire regime. Other potential threats include unauthorized human activity and nest predation.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
Western burrowing owl	Habitat Assessment	Initial reconnaissance	If a preserve has potentially suitable habitat for western burrowing owl, a detailed habitat assessment will be completed to identify areas suitable for burrowing owl foraging and breeding using the methodology described in Appendix C of the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The habitat assessment methodology includes: • Habitat suitability should be evaluated based on the most current knowledge of burrowing owl habitat preferences, such as soil type, topography, presence/absence of ground squirrels, presence/absence of refugia, presence/absence of or protection from predators, presence/absence of burrows, vegetation (low/open vs. tall/dense), etc. Identify high priority areas (i.e., areas with an established ground squirrel population and other preferred habitat characteristics). • The habitat evaluations will include documentation (including photographs) of site conditions, an evaluation of threats and other limiting factors (such as lack of burrows or ground squirrels), and mapping of suitable habitat.

	Baseline Surveys and Effectiveness Monitoring for Population Assessment	5 years	If a preserve has potentially suitable habitat for western burrowing owl based on habitat assessment, presence/absence surveys will be completed as part of baseline surveys and effectiveness monitoring to identify if occupied habitat exist within the preserve. Surveys will follow the methodology described in Appendix D of the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). The western burrowing owl survey methodology includes: • *Number of visits and timing*. For breeding season surveys, conduct four survey visits: (1) at least one site visit between February 15 and April 15, and (2) a minimum of three survey visits, at least 3weeks apart, between April 15 and July 15, with at least one visit after June 15. Note: many burrowing owl migrants are still present in southwestern California during mid-March, therefore, exercise caution in assuming breeding occupancy early in the breeding season. For non-breeding season surveys, conduct at least four visits, spread evenly, throughout the non-breeding season. • *Survey method*. Conduct surveys in all portions of the preserve that were identified in the suitable habitat. Conduct surveys by walking straight-line transects spaced 7–20 meters apart, adjusting for vegetation height and density. At the start of each transect and at least every 100 meters, scan the entire visible project area for burrowing owls using binoculars. During walking surveys, record all potential burrows used by burrowing owls as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration. Some burrowing owls may be detected by their calls, so observers should also listen for burrowing owls while conducting the survey. • *Minimize disturbance*. Care should be taken to minimize disturbance near occupied burrows during all seasons and not to "flush" burrowing owls especially if predators are present to reduce any potential for needless energy expenditure or burrowing owl mortality. • *Weather conditions*. Poor weather may affect the surveyor's ability to detect burrowing owls; therefore, avoid conducting surveys when wind speed is >20 kilometers per hour and there is precipitation or dense fog. Surveys have greater detection probability if conducted when ambient temperatures are >20°C, winds are <12 kilometers per hour, and cloud cover is <75%. • *Time of day*. Surveys between morning twilight and 10:00 a.m. and 2 hours before sunset until evening twilight provide the highest detection probabilities.

Biological Resource	Monitoring Type	Frequency	Protocols/Methods
	Effectiveness Monitoring for Status and Threat Assessment of Known Populations	3 years	If a preserve has known occupied habitat of western burrowing owl, a habitat evaluation and threats assessment will be conducted every 3 years. A threats assessment protocol similar to the SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b) will be used. The threats assessment methodology includes: • Determine and establish sampling plots (10-meter circular area to be consistent with the habitat sampling area in the SDMMP Rare Plant Monitoring IMG Protocol). Focus sampling plots within high priority areas and in the vicinity of documented occurrences (i.e., direct observations made during that year's species survey, observations from previous years' surveys, or incidental observations made during other site visits). • To limit disturbance by the monitoring biologist, estimate the perimeter of the sampling plot rather than installing permanent markers or using a measuring tape. Threats and habitat assessments should be conducted concurrently, and can be conducted at the same time as species surveys. • Threats assessment will include documentation the following with field notes: observations of predators such as coyotes or raptors, signs of unauthorized access such as off-road vehicle use, lack of mammal burrows, potential use of rodenticide, and thick or tall vegetation. Threats assessments can be conducted concurrently with species surveys and/or habitat condition assessments. • Annual habitat assessment will include documentation of the following with field notes: presence/absence of ground squirrels, presence/absence of mammal burrows, percent cover of bare ground, and presence/absence of brush piles, scattered shrubs or structures that could be used as cover to hide from predators. Take photographs of the sampling area as described in the rare plant protocol.

Management

Adaptive management deals with reducing uncertainty and improving management effectiveness through iterative monitoring and evaluation. While management may be required for a variety of issues, only those management actions that involve some measure of uncertainty and can be adjusted in response to what is learned (i.e., there are opportunities for iterative decision making) will require an adaptive management approach. In these cases, the level of uncertainty will dictate the type of management and monitoring design. Management approaches based on levels of uncertainty are discussed below (including the "No Uncertainty" alternative). Detailed implementation tasks will be developed at the preserve-level for specific management issues.

When there is no uncertainty in the management outcome, adaptive management is not required, and management may proceed immediately. BMPs are well-established and management triggers are well-understood (Lewison and Deutschman 2014). Monitoring will be simple and relatively inexpensive and will focus on documenting the management action. Management actions that fall into this category may include (but are not limited to) general stewardship activities such as trash and debris removal, runoff control, fencing and signage installation and repair, routine (minor) weed control, illegal access and encroachment violations, seasonal restrictions and trail closures, trail maintenance, vandalism repair, erosion control, fuel modification, public outreach and education, and enforcement of preserve regulations. General preserve management guidelines will be sufficient to address most or all of these issues.

An adaptive management approach is required where there is some uncertainty in the management outcome. Information exists to support the management action, but the response may be variable. An example is the response of native species to invasive species control. While this type of management does not require a detailed experimental design, it does require data collection and analyses. Modifications to the prescribed management or alternative management actions may be implemented if outcomes are unsuccessful or if an alternative approach is identified that can achieve the specified biological objective(s) in a more efficient and/or cost-effective manner.

An adaptive management approach is also required where uncertainty is high. In this case, neither BMPs nor adequate information are available to support management outcomes, and an experimental approach is required to determine both management response and cause and effect between management action and response. This type of management requires a detailed experimental design (control, alternative treatments, replication, and randomization). This approach can be time- and cost-intensive, but offers a high return in terms of reducing uncertainty (Lewison and Deutschman 2014).

Evaluation (Feedback Loop)

The final step in the adaptive management process is evaluating or interpreting data to determine whether goals and objectives have been met and to guide future monitoring and management. This evaluation will be conducted yearly, and information will be used to refine goals, objectives, conceptual models, monitoring methods, and management actions.

Implementation of adaptive management is defined as successful if progress is made toward achieving management goals through a learning-based (adaptive) decision process. The individual PMPs for each preserve will include an adaptive management component to ensure that site-specific objectives are being met and are contributing to the overarching goals and objectives of the Subarea

Plan. Revisions to management components identified through adaptive management will be documented in the annual report and incorporated as a revised approach/method in the annual work plan as applicable for each preserve.

Data Entry and Storage. It is anticipated that a significant amount of data will be collected yearly at each preserve. The City will maintain a GIS database of monitoring results from all preserves in a format that is consistent with other state and regional monitoring databases, such as BIOS and CNDDB. The City will share the database with SDMMP. The GIS database will include species, habitat, and management-relevant data, and should allow data to be input and extracted easily. Additional databases may be required to store non-digital data (e.g., data forms, photodocumentation).

Data Analysis and Interpretation. Data analysis and interpretation are necessary to evaluate management effectiveness, improve understanding of the system, and reduce uncertainty. Data analysis can be simple or complex, depending on the management approach selected. Where uncertainty is absent or low, analyses may consist of graphics, summary statistics, or simple hypothesis testing. Where uncertainty is high, complex statistical analyses may be required. In the latter case, the Preserve Manager may need to work with outside entities to ensure that data are analyzed appropriately. Data results and interpretation will be presented in the preserve's annual report. The City will include results, analyses, and recommendations from each preserve in the Subarea Plan's annual report (see Section 8.5.2, *Annual Report*).

Evaluation. Evaluation completes the "feedback loop" or iterative learning process for adaptive management. Evaluation includes documentation and dissemination of results and recommendations, and refinements to goals, objectives, conceptual models, monitoring methods, and management actions, as necessary.

Decision-making. The accumulation of understanding and subsequent adaptation of a management strategy depends on feeding information obtained from monitoring results back into the decision-making process. The link between the technical and decision-making steps requires regular interaction and an exchange of information between the technical staff and decision-makers. This will be accomplished by an annual meeting involving the Preserve Managers, Subarea Plan Coordinator, Preserve Steward, and the Wildlife Agencies where both policy and technical expertise can be integrated into revising goals and objectives, refining models, adjusting management and/or monitoring activities, or allocating funding. Meetings should be timed such that any new information discussed assists with the planning of upcoming seasonal work (i.e., invasive species control, vegetation management, or biological surveys). Timing some meetings to coordinate with other regional conservation planning meetings is encouraged to maximize communication and cooperation in the region.

Annual Report. The Preserve Manager will prepare an annual report that summarizes monitoring and management activities on the preserve including (but not limited to) baseline surveys, general stewardship monitoring, effectiveness monitoring, and targeted monitoring. The report will document monitoring results and link results to goals and objectives. The report will identify new or ongoing management issues and threats and stressors, and provide recommendations for future monitoring, management, and research. The preserve-specific annual reports will be submitted to the Subarea Plan Coordinator and will be referenced as part of the Subarea Plan annual report. In addition, the following information should be submitted with the annual report for inclusion in the City GIS (and other) databases.

- A digital copy of monitoring data, including metadata (e.g., Excel spreadsheet).

- Spatial data (GIS shapefiles).
- Photodocumentation.
- A comprehensive annual assessment identifying and documenting the major threats to conserved habitat and Covered Species, impacts from public use, management needs, and issues requiring focused research.

Management Actions Evaluation. The Preserve Manager will evaluate management actions yearly (or at a frequency determined by the management action) to determine whether changes are warranted based on resource response and/or new information. This evaluation will address progress (positive and negative) toward goals and objectives. Proposed changes will be summarized in the preserve-specific annual report and detailed in the work plan for the upcoming year.

Monitoring Programs Evaluation. The Preserve Manager will evaluate monitoring programs yearly (or at a frequency determined by specific monitoring programs) to ensure that data are (1) collected efficiently, (2) address information needs, and (3) adequately assess resource responses to management actions. Changes in monitoring methods, protocols, or frequency will be summarized in the preserve-specific annual report and detailed in the work plan for the upcoming year.

Goals and Objectives Evaluation. The Preserve Manager, in consultation with the City, will evaluate monitoring or management results that indicate that conservation actions will not meet PMP goals and objectives. Where the cause of poor performance is understood, prescriptive actions will be implemented, including (but not limited to) adjusting success criteria based on monitoring data or other scientifically defensible sources of information, or implementing alternative management actions.

Updating Conceptual Models. Based on results from monitoring or other sources (e.g., literature reviews, species experts, science advisors, other Preserve Managers, and the Wildlife Agencies), Preserve Managers will update conceptual models, as appropriate, to reflect new information and guide future monitoring and management. Information that results in changes to underlying assumptions or hypotheses may warrant changes in monitoring and/or management. Revised conceptual models (including documentation of changes) will be included in the preserve-specific annual report.

Coordination. The Subarea Plan Coordinator and Preserve Steward will promote coordination among Preserve Managers in the Subarea Plan Area and within the San Diego region to ensure that results of monitoring and management are shared and to encourage consistency in goals, objectives, monitoring methods, and monitoring priorities. Forums for coordination will include an annual meeting the City, Preserve Managers, SDMMP, and other regional workshops.

Funding. The support required for an adaptive approach includes not only funding for monitoring and evaluation but also an investment in inclusive and robust decision-making processes. The Preserve Manager will identify in the PMP how adaptive management is funded for their preserve based on funding mechanisms. Management and monitoring objectives and budgets should be formulated on a 5-year schedule, and adjusted as necessary annually.

7.2.6 Management Actions and Adaptive Management Strategies for Covered Species

7.2.6.1 San Diego Ambrosia

If populations of San Diego ambrosia are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences of San Diego ambrosia

a. If populations of San Diego ambrosia are identified within a preserve during baseline and/or subsequent surveys, the Preserve Manager will identify and implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures may include:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while onsite, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to San Diego ambrosia occurrences.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to San Diego ambrosia based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20 percent, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to San Diego ambrosia could include, but are not limited to:

- **Conduct invasive plant management near known occurrences**. Conduct invasive plant and fuels management in the vicinity of San Diego ambrosia. Maintain less than 20 percent invasive plant cover. Preserve Manager will have maintenance conducted at least twice a year if weed cover is over 20 percent, but may adopt broader, more intensive, weed control efforts to reduce long-term maintenance needs. No change in management is needed if changes in invasive species coverage is declining or below these threshold levels.

- **Adjust vegetation management methods along the urban/wildland interface if feasible.** If a San Diego ambrosia occurrence is located within and near vegetation management zones, assess opportunities for adjusting vegetation management methods (e.g. modifying weeding activities to allow San Diego ambrosia to seed; avoiding

trimming San Diego ambrosia) that could allow San Diego ambrosia to thrive without reducing public safety.

3. Potential additional management actions not required by the Subarea Plan

a. **Evaluate opportunities to expand and enhance San Diego ambrosia within preserves.** The Preserve Manager will coordinate with the City and other regional entities, as appropriate, to determine the viability and whether the need for San Diego ambrosia enhancement is appropriate to their preserve. If a need is determined, the Preserve Manager will conduct an evaluation to determine if there are opportunities to expand and enhance San Diego ambrosia populations on their preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat and populations beyond its original state.

7.2.6.2 San Diego Barrel Cactus

If populations of San Diego barrel cactus are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences of San Diego barrel cactus

a. If populations of San Diego barrel cactus are identified within a preserve during baseline and/or subsequent surveys, the Preserve Manager will identify and implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures may include:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while onsite, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to San Diego barrel cactus occurrences.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to San Diego barrel cactus based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20 percent, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to San Diego barrel cactus could include, but are not limited to:

- **Conduct invasive plant management near known occurrences**. Conduct invasive plant and fuels management in the vicinity of San Diego barrel cactus. Maintain less than 20 percent invasive plant cover, and attempt to remove all invasive plants and grass thatch from the base of San Diego barrel cactus. Preserve Manager will have maintenance

conducted at least twice a year if weed cover is over 20 percent, but may adopt broader, more intensive, weed control efforts to reduce long-term maintenance needs. No change in management is needed if changes in invasive species coverage is declining or below these threshold levels.

- **Adjust vegetation management methods along the urban/wildland interface if feasible.** If a San Diego barrel cactus occurrence is located within and near vegetation management zones, assess opportunities for adjusting vegetation management methods (e.g. modifying weeding activities to allow San Diego barrel cactus to seed) that could allow San Diego barrel cactus to thrive without reducing public safety.

3. Potential additional management actions not required by the Subarea Plan

a. **Evaluate opportunities to expand and enhance San Diego barrel cactus within preserves.** The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance San Diego barrel cactus within the preserves. The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine the viability and whether the need for San Diego barrel cactus enhancement is appropriate to their preserve. While not a requirement, management actions could include transplanting, dethatching of nonnative grasslands, and restoration of habitat. If it is determined that San Diego barrel cactus habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine funding for restoration efforts using appropriate funding source(s). Habitat restoration and/or enhancement will be implemented using best available information on BMPs for San Diego barrel cactus. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

7.2.6.3 San Diego Button-celery

If populations of San Diego button-celery are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Conduct management and monitoring of vernal pools on preserves

a. San Diego button-celery is a vernal pool obligate species under the Subarea Plan. Management and monitoring of vernal pool plant species are addressed in the vernal pool management and monitoring section (see Section 5.5.7 and Appendix G, *Vernal Pool Conservation Standards*).

7.2.6.4 San Diego Goldenstar

If populations of San Diego goldenstar are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences of San Diego goldenstar

a. If populations of San Diego goldenstar are identified within a preserve during baseline and/or subsequent surveys, the Preserve Manager will identify and implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures may include:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while onsite, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to San Diego goldenstar occurrences.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to San Diego goldenstar based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20 percent, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to San Diego goldenstar could include, but are not limited to:

- **Conduct invasive plant management near known occurrences**. Conduct invasive nonnative plant species management in the vicinity of San Diego goldenstar. Maintain less than 20 percent invasive plant cover. Preserve Manager will have maintenance conducted at least twice a year if weed cover is over 20 percent, but may adopt broader, more intensive, weed control efforts to reduce long-term maintenance needs. No change in management is needed if changes in invasive species coverage is declining or below these threshold levels.

- **Adjust vegetation management methods along the urban/wildland interface if feasible.** If a San Diego goldenstar occurrence is located within and near vegetation management zones, assess opportunities for adjusting vegetation management methods (e.g. modifying weeding activities to allow San Diego goldenstar to seed) that could allow San Diego goldenstar to thrive without reducing public safety.

3. Potential additional management actions not required by the Subarea Plan

a. **Evaluate opportunities to expand and enhance San Diego goldenstar within preserves.** The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance San Diego goldenstar within the preserves. The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine the viability and whether the need for San Diego goldenstar enhancement is appropriate to their preserve. While not a requirement, management actions could include transplanting, dethatching of nonnative grasslands, and restoration of habitat. If it is determined that San Diego goldenstar habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine funding for restoration efforts using appropriate funding source(s). Habitat restoration and/or enhancement will be implemented using best available information on BMPs for San Diego goldenstar. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

7.2.6.5 San Diego Mesa Mint

If populations of San Diego mesa mint are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Conduct management and monitoring of vernal pools on preserves

a. San Diego mesa mint is a vernal pool obligate species under the Subarea Plan. Management and monitoring of vernal pool plant species are addressed in the vernal pool management and monitoring section (see Section 5.5.7 and Appendix G, *Vernal Pool Conservation Standards*).

7.2.6.6 San Diego Thornmint

If populations of San Diego thornmint are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences of San Diego thornmint

a. If populations of San Diego thornmint are identified within preserves, Preserve Manager will identify and implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures may include:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while onsite, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to San Diego thornmint occurrences.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to San Diego thornmint based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to San Diego thornmint could include, but are not limited to:

- **Conduct invasive nonnative plant species management near known occurrences**. Conduct invasive nonnative plant species management in the vicinity of San Diego thornmint. Maintain less than 20% invasive nonnative plant species cover. Preserve Manager will have maintenance conducted at least twice a year if weed cover is over 20%, but may adopt broader, more intensive, weed control efforts to reduce long-term

maintenance needs. No change in management is needed if changes in invasive species coverage is declining or below these threshold levels.

- **Adjust vegetation management methods along the urban/wildland interface if feasible.** If a San Diego thornmint occurrence is located within and near vegetation management zones, assess opportunities for adjusting vegetation management methods (e.g. modifying weeding activities to allow San Diego thornmint to seed) that could allow San Diego thornmint to thrive without reducing public safety.

3. Potential additional management actions not required by Subarea Plan

a. **Evaluate opportunities to expand and enhance San Diego thornmint within preserves.** The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance San Diego thornmint within the preserves. The Preserve Manager will coordinate with other regional entities as appropriate, to determine the viability and whether the need for San Diego thornmint enhancement is appropriate to their preserve. While not a requirement, management actions could include transplanting, dethatching of nonnative grasslands, and restoration of habitat. If it is determined that San Diego thornmint habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine funding for restoration efforts using appropriate funding source(s). Habitat restoration and/or enhancement will be implemented using best available information on BMPs for San Diego thornmint for seed banking, soil testing, and invasive plant control (CBI 2014). A qualified restoration biologist will determine and conduct monitoring of restored habitat.

7.2.6.7 Variegated Dudleya

If populations of variegated dudleya are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences of variegated dudleya

a. If populations of variegated dudleya are identified within a preserve during baseline and/or subsequent surveys, the Preserve Manager will identify and implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures may include:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while onsite, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to variegated dudleya occurrences.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to variegated dudleya based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20 percent, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to variegated dudleya could include, but are not limited to:

- **Conduct invasive plant management near known occurrences**. Conduct invasive nonnative plant species management in the vicinity of variegated dudleya. Maintain less than 20 percent invasive plant cover. Preserve Manager will have maintenance conducted at least twice a year if weed cover is over 20 percent, but may adopt broader, more intensive, weed control efforts to reduce long-term maintenance needs. No change in management is needed if changes in invasive species coverage is declining or below these threshold levels.
- **Adjust vegetation management methods along the urban/wildland interface if feasible.** If a variegated dudleya occurrence is located within and near vegetation management zones, assess opportunities for adjusting vegetation management methods (e.g. modifying weeding activities to allow variegated dudleya to seed) that could allow variegated dudleya to thrive without reducing public safety.

3. Potential additional management actions not required by the Subarea Plan

a. **Evaluate opportunities to expand and enhance variegated dudleya within preserves.** The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance variegated dudleya within the preserves. The Preserve Manager will coordinate with other regional entities as appropriate, to determine the viability and whether the need for variegated dudleya enhancement is applicable to the preserves (SDMMP 2017b). While not a requirement, management actions could include transplanting, dethatching of nonnative grasslands, and restoration of habitat. If it is determined that variegated dudleya habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine funding for restoration efforts using appropriate funding source(s). Habitat restoration and/or enhancement will be implemented using best available information on BMPs for variegated dudleya. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

7.2.6.8 Willowy Monardella

If populations of willowy monardella are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences of willowy monardella

a. If populations of willowy monardella are identified within a preserve during baseline and/or subsequent surveys, the Preserve Manager will identify and implement appropriate measures to protect known populations to minimize disturbance and edge effects. Appropriate measures may include:

- Protect areas of known occurrences from disturbance through fencing, signage, realignment of trails, and enforcement. Preserve Manager will inspect preserves at least quarterly, to assess for the integrity of fencing, signage, and to watch for any new

disturbances, including trespass and fire. Preserve Manager will correct access controls as possible, while onsite, and will coordinate enforcement if necessary. Preserve Manager will plan proposed trails to not be located adjacent to willowy monardella occurrences.

2. **Apply adaptive management based on monitoring results**

   a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to willowy monardella based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

   b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20 percent, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to willowy monardella could include, but are not limited to:

      - **Conduct invasive plant management near known occurrences**. Conduct invasive nonnative plant species management in the vicinity of willowy monardella. Maintain less than 20% invasive plant cover. Preserve Manager will have maintenance conducted at least twice a year if weed cover is over 20%, but may adopt broader, more intensive, weed control efforts to reduce long-term maintenance needs. No change in management is needed if changes in invasive species coverage is declining or below these threshold levels.

3. **Potential additional management actions not required by the Subarea Plan**

   a. **Evaluate opportunities to expand and enhance willowy monardella within preserves.** The Preserve Manager will conduct an evaluation of the preserves to determine if there are opportunities to expand and enhance willowy monardella within the preserves. The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine the viability and whether the need for willowy monardella enhancement is appropriate to their preserve. While not a requirement, management actions could include transplanting, planting of container stock, intensive hand-weeding around clusters of plants, and slightly less intensive weeding in the vicinity of willowy monardella. Activities could also include efforts to reduce channel downcutting. If it is determined that willowy monardella habitat expansion and/or enhancement is warranted on preserves, Preserve Manager will work to determine funding for restoration efforts using appropriate funding source(s). Habitat restoration and/or enhancement will be implemented using best available information on BMPs for willowy monardella. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

7.2.6.9 Hermes Copper Butterfly

If populations of Hermes copper butterfly are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. **Protect known occurrences of Hermes copper butterfly**

    a. If Hermes copper are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

    - On preserves with public access, prevent unauthorized entry to suitable habitat, particularly open areas of California buckwheat near spiny redberry, through fencing, signage, and enforcement.
    - Avoid constructing trails in potentially suitable habitat and do not impact mature spiny redberry. Do not construct trails in habitat known to be occupied and consider realigning trails out of and away from occupied habitat.

2. **Apply adaptive management based on monitoring results**

    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Hermes copper butterfly based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

    - Implement adaptive management strategies. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to Hermes copper could include, but are not limited to: Actively restore Hermes copper habitat if significantly impacted by fire. If occupied habitat is significantly impacted by fire, the Preserve Manager will pursue opportunities to implement habitat restoration to improve and speed habitat recovery and habitat quality. While this is not a requirement, the Preserve Manager is encouraged to take active steps to facilitate post-fire recovery of habitat back to its original state. Frequent and/or intense fires on preserves have the potential to extirpate populations. After a fire, the Preserve Manager will complete an inventory of suitable habitat that have been affected and estimate the potential for the habitat to recover to its original state through passive restoration. Host plants and nectar plants may have different responses to different burns, as spiny redberry is capable of re-sprouting from an underground burl, while nectar plants cannot. If it is determined that active restoration is warranted or beneficial, the Preserve Manager will pursue opportunities to complete restoration effort using appropriate funding source(s). Suitable habitat restoration will be implemented using current information on best approaches and strategies for habitat restoration, including planting techniques, seeding, post-planting watering regimes, herbivore protection, invasive plant control, and success criteria. If populations of Hermes copper on preserve are lost to wildfire, and if the habitat can recover to be suitable for Hermes copper, Preserve Managers are encouraged coordinate with the USFWS and regional efforts for potential active reintroduction of adult Hermes copper.

3. **Potential additional management actions not required by the Subarea Plan**

    a. **Conduct supplemental planting of host and nectar plants to expand and enhance Hermes copper habitat**. Preserve Manager will conduct an evaluation to determine if

there are opportunities to expand and enhance Hermes copper habitat on preserves. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserves are identified through monitoring efforts as high-quality Hermes copper habitat. The Preserve Manager will coordinate with the City and other to regional entities, as applicable, to determine the viability and whether the need for Hermes copper habitat enhancement is appropriate on their preserve. The evaluation will consider factors of regional Hermes copper habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that Hermes copper habitat expansion and/or enhancement is applicable on preserves, the Preserve Manager will work to determine funding for restoration efforts using appropriate source(s). Habitat enhancement may include planting of spiny redberry and California buckwheat, and invasive plant removal.

7.2.6.10 Quino Checkerspot Butterfly

If populations of Quino checkerspot butterfly are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. **Protect known occurrences and occupied habitat of Quino checkerspot butterfly**

    a. If Quino checkerspot butterfly are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

    - **Manage invasive plant species in occupied Quino checkerspot butterfly habitat**. Occupied habitat will be inspected for potential threats. If invasive plant species exceed 10% total vegetated cover, or have increased by 25% or more since the previous survey, implement invasive species control measures. No change in management is needed if changes in invasive plant species coverage is declining or below these threshold levels.
    - **Protect occupied Quino checkerspot butterfly habitat from unauthorized human activity**. If human activity (e.g., trail use) occurs in the vicinity of occupied habitat, evaluate the potential need for exclusionary fencing and signage for larvae locations, and implement where potential for human ingress exists.
    - The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the property known to support Quino checkerspot butterfly.

2. **Apply adaptive management based on monitoring results**

    a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Quino checkerspot butterfly based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

    b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if

field observations and expert judgment indicate a change in management approach is needed (USFWS 2016).

3. Potential additional management actions not required by the Subarea Plan

a. **Conduct supplemental planting of dot-seed plantain and other host plants**. Preserve Manager will conduct an evaluation to determine if there are opportunities to expand and enhance Quino checkerspot butterfly habitat on their preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserves are identified through ongoing regional monitoring efforts as core Quino checkerspot butterfly habitat (SDMMP 2017a). The Preserve Manager will coordinate with the City and other regional entities, as applicable, to determine the viability and whether the need for Quino checkerspot butterfly habitat enhancement is appropriate on their preserve. The evaluation will consider factors of regional Quino checkerspot butterfly habitat connectivity and linkages, population dynamics, and proximity to population clusters. If it is determined that Quino checkerspot butterfly habitat expansion and/or enhancement is applicable on preserves, the Preserve Manager will work to determine funding for restoration efforts using appropriate source(s). Habitat enhancement may include the addition of dot-seed plantain and other host and nectar plants in seed mixes in areas of habitat restoration within preserves and/or focused planting areas specifically for Quino checkerspot butterfly. The Preserve Manager should ensure that host plants are not placed in areas that are likely to be disturbed (e.g. avoid utility easements and roads).

7.2.6.11 Riverside Fairy Shrimp

If populations of Riverside fairy shrimp are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Conduct management and monitoring of vernal pools on preserves

a. Riverside fairy shrimp is a vernal pool obligate species under the Subarea Plan. Management and monitoring of vernal pool plant species are addressed in the vernal pool management and monitoring section (see Section 5.5.7 and Appendix G, *Vernal Pool Conservation Standards*).

7.2.6.12 San Diego Fairy Shrimp

If populations of San Diego fairy shrimp are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager protect known populations within Preserve System.

1. Conduct management and monitoring of vernal pools on preserves

a. San Diego fairy shrimp is a vernal pool obligate species under the Subarea Plan. Management and monitoring of vernal pool plant species are addressed in the vernal pool management and monitoring section (see Section 5.5.7 and Appendix G, *Vernal Pool Conservation Standards*).

7.2.6.13 Belding's Orange-throated Whiptail

If populations of Belding's orange-throated whiptail are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager protect known populations within Preserve System.

1. Protect known occurrences and occupied habitat of Belding's orange-throated whiptail

a. If Belding's orange-throated whiptail are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- Identify and address any activities along the urban-wildland interfaces that facilitate Argentine ant infestations. Argentine ant infestations can be facilitated by over-watering of landscaping which can create an artificially damp soil conditions preferred by Argentine ants. The Preserve Manager will establish a schedule for general stewardship monitoring along the urban/wildlands interface to identify any activities that facilitate Argentine ant infestations. If situations occur, the Preserve Manager will coordinate with adjacent land owners to address the situation. The frequency of urban/wildlands interface monitoring will depend upon the level of urban/wildlands interface that occurs on preserves and the type of urban development.
- Conduct activities to encourage native termite activity. As native termites are a primary prey of Belding's orange-throated whiptail, the Preserve Manager should conduct activities to encourage natural decomposition of woody material in and adjacent to riparian areas. Any necessary fuels reduction near riparian areas should focus on removal of flashy herbaceous material over sticks and other woody material. This would not necessarily apply to fuel modification zones adjacent to development.
- If new trails, staging areas, or other facilities that involve human presence are proposed on preserves, these facilities will be sited away (100-foot buffer) from areas of occupied Belding's orange-throated whiptail to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality, increase risk of trampling, or allow for unauthorized collecting.
- Implement a public awareness program that includes information for residential developments adjacent to preserves with occupied Belding's orange-throated whiptail habitat about the significance of collecting, off-road driving, and uncontrolled pets to the Belding's orange-throated whiptail.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Belding's orange-throated whiptail based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if

field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to coast horned lizard could include, but are not limited to

- Prevent net loss of suitable habitat within preserves. If any decrease in distribution of areas of suitable Belding's orange-throated whiptail habitat is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as unauthorized trail use, restoration following major wildfires that result in vegetation types changes with less open ground cover.

3. Potential additional management actions not required by the Subarea Plan

a. Evaluate opportunities to expand and enhance Belding's orange-throated whiptail habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat for Belding's orange-throated whiptail habitat beyond its original state if the preserve is located in an area identified through ongoing regional monitoring efforts as important Belding's orange-throated whiptail habitat. The Preserve Manager will coordinate with other to regional entities as appropriate, determine if the viability and whether the need for coast horned lizard habitat enhancement is appropriate to their preserve. The evaluation will consider factors of regional-scale connectivity and linkages within and between core areas to identify areas that may require management to improve connectivity for small vertebrates. If it is determined that Belding's orange-throated whiptail habitat expansion and/or enhancement is warranted on the preserve, the Preserve Manager will work to determine funding for restoration efforts from appropriate source(s). Habitat restoration will be implemented using best available information on methods to create and/or enhance Belding's orange-throated whiptail habitat (e.g. dethatching to maintain open areas). Determine and conduct monitoring of restored habitat.

7.2.6.14 Blainville's Horned Lizard

If populations of Blainville's horned lizard are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences and occupied habitat of Blainville's horned lizard

a. If Blainville's horned lizard are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- Identify and address any activities along the urban-wildland interfaces that facilitate Argentine ant infestations. Argentine ant infestations can be facilitated by over-watering of landscaping which can create an artificially damp soil conditions preferred by Argentine ants. The Preserve Manager will establish a schedule for general stewardship monitoring along the urban/wildlands interface to identify any activities that facilitate Argentine ant infestations. If situations occur, the Preserve Manager will coordinate with adjacent land owners to address the situation. The frequency of urban/wildlands interface monitoring will depend upon the level of

urban/wildlands interface that occurs on preserves and the type of urban development.

- If new trails, staging areas, or other facilities that involve human presence are proposed on preserves, these facilities will be sited away (100-foot buffer) from areas of occupied Blainville's horned lizard to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality, increase risk of trampling, or allow for unauthorized collecting.
- Implement a public awareness program that includes information for residential developments adjacent to preserves with occupied Blainville's horned lizard habitat about the significance of collecting, off-road driving, and uncontrolled pets to the Blainville's horned lizard.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to Blainville's horned lizard whiptail based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to Blainville's horned lizard could include, but are not limited to

- Prevent net loss of suitable habitat within preserves. If any decrease in distribution of areas of suitable Blainville's horned lizard habitat is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as unauthorized trail use, restoration following major wildfires that result in vegetation type changes with less open ground cover).

3. Potential additional management actions not required by the Subarea Plan

a. Evaluate opportunities to expand and enhance Blainville's horned lizard habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat for Blainville's horned lizard habitat beyond its original state if the preserve is located in an area identified through ongoing regional monitoring efforts as important Blainville's horned lizard habitat. The Preserve Manager will coordinate with other to regional entities as appropriate, determine if the viability and whether the need for Blainville's horned lizard habitat enhancement appropriate to their preserve. The evaluation will consider factors of regional-scale connectivity and linkages within and between core areas to identify areas that may require management to improve connectivity for small vertebrates. If it is determined that Blainville's horned lizard habitat expansion and/or enhancement is warranted on the preserve, the Preserve Manager will work to determine funding for restoration efforts from appropriate source(s). Habitat restoration will be implemented using best available information on methods to create and/or enhance Blainville's horned lizard habitat (e.g. dethatching to maintain open areas). Determine and conduct monitoring of restored habitat.

7.2.6.15 Southwestern Pond Turtle

If populations of southwestern pond turtle are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of southwestern pond turtle

a. If southwestern pond turtle are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- Identify threats to occupied habitat. Until SDMMP or other appropriate entities develop a species-specific threats assessment protocol, use the threats assessment protocol in SDMMP's Rare Plant Monitoring Protocol (IMG form) (SDMMP 2017b). The threats assessment should focus on the quality of aquatic habitat (invasive plant species, presence of nonnative animal species, hydrologic modifications, changes in riparian habitat cover resulting from alteration of fire regime and/or climate change, connections between aquatic habitat and nesting and overwintering upland habitat) as it pertains to the habitat needs of southwestern pond turtle. Document the level of perceived human activities in pond turtle habitat (e.g., unauthorized trail use, littering, and vandalism) as well as other threats to determine management needs
- Restrict access to occupied habitat if identified as a threat. Install exclusionary fencing to restrict access to pond turtle aquatic, upland, and breeding habitats to help prevent disturbance to all pond turtle life history stages
- Removal of nonnative aquatic and plant species if identified as a threat. Implement invasive aquatic animal and plant control to increase recruitment and basking habitat (SDMMP 2017a). The Preserve Manager will evaluate status and conditions of nonnative aquatic species detrimental to southwestern pond turtle (e.g. American bullfrogs (*Lithobates catesbeianus*), African clawed frogs (*Xenopus laevis*), sunfish (*Lepomis* spp.), largemouth bass (*Micropterus salmoides*), and crayfish (*Procambarus* spp.)) to determine if actions within their preserve property can/should be taken to protect and enhance southwestern pond turtle habitat. The Preserve Manager and/or consultant will be responsible for the preparation of a nonnative aquatic species control plan. Steps to eradicate nonnative aquatic species may need to be implemented as part of a regional effort to effectively remove/control nonnative aquatic species within a watershed or sub-watershed.
- Participate in emergency management actions following wildfire events. If preserves have known populations of southwestern pond turtle (natural or translocation) and are affected by wildfire, the Preserve Manager and/or consultant will coordinate in any regional programs for emergency rescue and temporary translocation, to protect from potential loss of individuals or extirpation from the site. SDMMP and USGS are working to establish a regional Southwestern Pond Turtle Rescue Program (SDMMP 2017a).

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to southwestern pond turtle based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to southwestern pond turtle could include, but are not limited to

- Maintain and enhance the number and quality of basking and suitable nesting sites. The Preserve Manager will enhance pond turtle habitat by increasing the number and quality of basking sites (e.g. unvegetated banks along water edge and rocks, floating platforms, or logs within water) and connections with suitable nesting upland habitat on their preserve property. If site conditions change as a result of hydrologic changes and/or changes to vegetation cover that results in a loss or reduction of 25% of basking site area below the level when preserves were acquired, the Preserve Manager will implement remedial actions to restore basking sites.

- Implement post fire management actions. The Preserve Manager will implement post fire management actions to ensure the recovery of pond turtles at occupied sites following wildfire events, including invasive plant and animal control, debris/sediment removal, erosion control or other management actions as needed for three years after fire. Monitor stream conditions and the effectiveness of management actions implemented to assist in recovery of southwestern pond turtle for three years following wildfire events.

3. Potential additional management actions not required by the Subarea Plan

a. Participate in regional efforts to expand and translocate southwestern pond turtle onto preserves. The rarity of the southwestern pond turtle combined with the impacts of water diversions, stream alterations, and habitat loss, creates the need for management considerations on a site by site basis, particularly when threatened by prolonged drought or nonnative aquatic species (Brown et al. 2015). Translocation of pond turtles in conjunction with nonnative aquatic species management has been identified as a means to restore this species to drainages from which they have been extirpated within San Diego County. USGS has successfully implemented head-starting of pond turtles and translocation of pond turtles as a strategy for restoring and enhancing pond turtle populations in San Diego County (Brown et al. 2015). Beginning in 2018, SDMMP and USGS are scheduled to prepare a management plan for southwestern pond turtles that includes a prioritization of areas for translocations (SDMMP 2017a). The Preserve Manager will coordinate with these efforts to determine if translocations of southwestern pond turtle are feasible and appropriate within their preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to participate in translocations efforts using appropriate funding source(s).

7.2.6.16 Western Spadefoot Toad

If populations of western spadefoot toad are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of western spadefoot toad

a. If western spadefoot toad are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- Minimize disturbance of upland habitats through planning new roads to avoid fragmentation of habitat and planning trails to avoid pools.
- The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserves known to support western spadefoot toad.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to western spadefoot toad based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to western spadefoot toad could include, but are not limited to

- Removal of nonnative aquatic species to protect and enhance known populations of western spadefoot. The Preserve Manager will evaluate status and conditions of nonnative aquatic species detrimental to western spadefoot toad (e.g. American bullfrogs, African clawed frogs) to determine if actions within their preserve property can/should be taken to protect and enhance western spadefoot breeding habitat. The Preserve Manager will be responsible for the preparation of a nonnative aquatic species control plan. Nonnative aquatic species removal may need to be implemented as part of a regional effort to effectively remove/control nonnative aquatic species within the preserves and surrounding watershed/ subwatershed.
- Prevent net loss of suitable breeding habitat within preserves. If any decrease in distribution of suitable breeding habitat for western spadefoot toad is detected within the preserve, determine the cause and take corrective actions (e.g., restoration following major wildfires that result in hydrologic modification and/or loss of breeding habitat). Suitable breeding sites can be created or enhanced as evidenced by the use of road rut pools (Rochester et al. 2017). Potential breeding sites should not be limited to just a few or one pool. Redundant pools should be available to provide options and for the potential variability that some may fail while others succeed.

- Reduce direct mortality of adults from use of roads and trails within preserves. During the time of year that metamorphs are dispersing from the breeding pools, ensure that they also have the means to safely cross roads and trails. If spadefoot are identified on roads/trails within preserves or on adjacent local roads, it should be determined from where they are entering the road and if the situation can be modified to reduce access to the road surface.

3. Potential additional management actions not required by the Subarea Plan

a. Evaluate opportunities to expand and enhance western spadefoot toad habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserve is located in an area which can support western spadefoot toad habitat. The Preserve Manager will conduct an evaluation of the preserve to determine if there are opportunities to expand and enhance western spadefoot breeding habitat within the preserve. Suitable breeding sites can be created or enhanced as evidenced by the use of road rut pools (Rochester et al. 2017). Potential breeding sites should not be limited to just a few or one pool. Redundant pools should be available to provide options and for the potential variability that some may fail while others succeed.

7.2.6.17 Coastal California Gnatcatcher

If populations of coastal California gnatcatcher are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of coastal California gnatcatcher

a. If coastal California gnatcatcher are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- If preserves have existing trail(s) adjacent to or within occupied coastal California gnatcatcher habitat and these trail(s) have been historically used for hiking, biking, and riding, seasonal trail closure or trail realignment is not considered necessary. However, activities beyond historic trail use level shall be scheduled outside the coastal California gnatcatcher breeding season (February 15 through August 30).
- The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of their preserve known to support coastal California gnatcatcher.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to coastal California gnatcatcher based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if

field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to coastal California gnatcatcher could include, but are not limited to

- Actively restore coastal California gnatcatcher habitat if significantly impacted by fire. After a fire, the Preserve Manager will complete an inventory of coastal sage scrub areas that have been affected and estimate the potential for the habitat to recover to its original state through passive restoration (i.e. let habitat restore through natural processes). If it is determined that active restoration (i.e. planting and/or seeding of habitat) is warranted or beneficial, the Preserve Manager will pursue opportunities to complete restoration effort using appropriate funding source(s). Coastal sage scrub restoration will be implemented using current information on best approaches and strategies, including planting techniques, post-planting watering regimes, protection from herbivory, invasive plant control, and success criteria.

3. Potential additional management actions not required by the Subarea Plan

a. Expand and enhance coastal California gnatcatcher habitat on preserves. The Preserve Manager will conduct an evaluation to determine if there are opportunities to expand and enhance coastal California gnatcatcher habitat on their preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to expand and improve habitat beyond its original state in areas that were determined very high or high value as part of regional habitat suitability modeling (Winchell and Doherty 2008). The Preserve Manager will coordinate with the City and other regional entities to determine if coastal California gnatcatcher habitat enhancement is applicable to their preserve. The evaluation will consider factors of regional coastal California gnatcatcher habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that coastal California gnatcatcher habitat expansion and/or enhancement is warranted on their preserve, the Preserve Manager will work to determine funding for restoration efforts using appropriate source(s). Coastal sage scrub expansion and enhancement will be implemented using current information on best approaches and strategies for coastal sage scrub restoration, including planting techniques, post-planting watering regimes, protection from herbivory, invasive plant control, and success criteria.

7.2.6.18 Least Bell's Vireo

If populations of least Bell's vireo are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of least Bell's vireo

a. If least Bell's vireo are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- If new trails, staging areas, or other facilities that involve human presence and noise, these facilities will be sited away (100 foot buffer) from areas of occupied least Bell's vireo habitat to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality, result in habitat fragmentation, or allow for cowbird parasitism.

- If a preserve has existing trail(s) adjoining or within occupied least Bell's vireo habitat and these trail(s) have been historically used for hiking and riding, seasonal trail closure or trail realignment are not required, but may be considered. The Preserve Manager will avoid scheduling and allowing large events (e.g. 5K runs) that could substantially change trail use activity along a trail through or with adjoining occupied least Bell's vireo habitat during the breeding season (April 1 through July 31.
- Any necessary tree removal will be conducted in a manner to avoid impacts to least Bell's vireo. Regional efforts to control pests and pathogens may include removal of infected trees in riparian areas. Current pests and pathogens affecting trees in San Diego County riparian areas include goldspotted oak borer (GSOB) and Kuroshio shot hole borer (SHB)/*Fusarium* sp. complex. Tree removal should be conducted outside of the bird breeding season to avoid potential impacts. If there is a clear and immediate need to remove infected trees during the breeding season, the Preserve Manager will have nesting-bird surveys conducted to ensure that breeding birds are not affected and will coordinate with the USFWS and CDFW to ensure that federal and state laws protecting nesting birds are not violated.
- Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserve known to support least Bell's vireo.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to least Bell's vireo based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to least Bell's vireo could include, but are not limited to

- Identify and conduct cowbird trapping. An evaluation of preserves will be completed to assess the potential of cowbird parasitism at the preserves. If it is determined that cowbird parasitism is a threat, the Preserve Manager will seek out opportunities to participate in other cowbird trapping program or initiate its own cowbird trapping program. Cowbirds traps shall be erected in areas near concentrated uses, such as staging areas and well-used trails. Trapping locations shall be accessible to vehicles with water and perching areas nearby. A reconnaissance of the areas shall be conducted to identify potential predators. Traps shall be erected and set by March 15 and will be checked daily from March 15 through June 1. Once the birds have been caught within the traps, incidental non-target birds will be collected with a net and released. Adult cowbirds shall be humanely euthanized. The data sheets and a report documenting the findings shall be submitted to the City.

- Conduct invasive plant species management near known occupied habitat. Identify situations in which invasive species control (e.g. removal of invasive riparian species that displace native riparian trees such as giant reed or tamarisk) around riparian habitat is warranted to increase habitat suitability for native plant and wildlife species as well as enhance least Bell's vireo foraging opportunities by providing the biodiversity of native plant species that supports insect prey for least Bell's vireo. The goal of the invasive species removal is to remove non-native plants that alter morphology, hydrology, and biodiversity of riparian habitat for least Bell's vireo and other native riparian species (SDMMP 2017a). The Preserve Manager may implement quantitative or semi-quantitative monitoring to evaluate invasive species control efforts.
- Prevent net loss of suitable nesting habitat within a preserve property. If any decrease in distribution of riparian habitat suitable for nesting of least Bell's vireo is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as unauthorized trail use, restoration following major wildfires that result in a loss of riparian habitat). Riparian habitat restoration will be implemented using best available information on BMPs for riparian restoration. SDMMP has outlined best approaches and strategies for least Bell's vireo habitat restoration, especially with respect to avoid cowbird parasitism, by focusing restoration on increasing density of understory vegetation to shield parental activity from searching cowbirds (SDMMP 2017a). Determine and conduct monitoring of restored habitat.

3. Potential additional management actions not required by the Subarea Plan

a. Evaluate opportunities to expand and enhance least Bell's vireo habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if their preserve property is located in an area identified through ongoing regional monitoring efforts as core least Bell's vireo habitat. The Preserve Manager will coordinate with other regional entities as appropriate, determine if the viability and whether the need for least Bell's vireo habitat enhancement is appropriate to their preserve. The evaluation will consider factors of regional least Bell's vireo habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that least Bell's vireo habitat expansion and/or enhancement is warranted on the preserve property, the Preserve Manager will work to determine funding for restoration efforts from appropriate source(s). Riparian habitat restoration will be implemented using best available information on BMPs for riparian restoration. SDMMP has outlined best approaches and strategies for least Bell's vireo habitat restoration, especially with respect to avoid cowbird parasitism, by focusing restoration on increasing density of understory vegetation to shield parental activity from searching cowbirds (SDMMP 2017a). Determine and conduct monitoring of restored habitat.

7.2.6.19 San Diego cactus wren

If populations of San Diego cactus wren are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of San Diego cactus wren

a. If San Diego cactus wren are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- If preserves have existing trail(s) adjoining or within occupied San Diego cactus wren habitat and these trail(s) have been historically used for hiking, biking and riding, seasonal trail closure or trail realignment is not considered necessary. However, activities beyond historic trail use level shall be scheduled outside the cactus wren breeding season (early March through July).
- The Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserve known to support San Diego cactus wren.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to San Diego cactus wren based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies.** Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to San Diego cactus wren could include, but are not limited to

- **Conduct invasive species management near known occupied habitat.** If invasive species exceed 20% total vegetated cover around occupied cactus patches, or have increased by 25% or more since the previous survey, implement invasive species control measures within 20-feet of the cactus patches. In addition, identify situations in which vegetation management (e.g. thinning, dethatching) around cactus patches is warranted to reduce the threats of nest predation and fire intensity, as well as enhance cactus wren foraging opportunities. The goal of the habitat thinning is to reduce the potential fire intensity around a cactus patch during a fire and reduce the opportunity for nest predation from ground species (e.g. snakes). Native shrubs within 2-feet of cactus patches should also be pruned, as these can serve as ladders for predators. The Preserve Manager may implement quantitative or semi-quantitative monitoring to evaluate the BMPs and effectiveness of these focused vegetation management and/or invasive species control efforts.
- **Prevent net loss of suitable nesting habitat in the preserves.** If any decrease in distribution of cactus scrub habitat suitable for nesting is detected within the preserve, determine the cause and take corrective actions (e.g., removal of threats from unauthorized human activity, restoration following major wildfires that result in total loss of cactus patches). If it is determined that cactus wren habitat expansion and/or enhancement is warranted on the preserve, Preserve Manager will work to determine appropriate funding for restoration efforts using appropriate source(s). Cactus scrub restoration will be implemented using best available information on BMPs for cactus scrub restoration. SDMMP has outlined best approaches and

strategies for cactus scrub restoration, including site selection, patch size, cactus salvage, large specimen collection, propagule selection, planting layout (cactus planting, co-planting), plant protection, weed control, and supplemental watering (TNC 2015). A qualified restoration biologist will conduct monitoring of restored habitat following accepted monitoring protocols. Each restoration project site will be unique and warrant site specific monitoring success criteria be developed.

- **Conduct post fire evaluation and restoration**. For at least the first 3 years following a wildfire, conduct avian point counts to determine the status of San Diego cactus wren occurrences affected by the wildfire. Use the established permanent camera stations and conduct photo-monitoring and qualitative site visits within cactus scrub patches to characterize post fire cactus scrub habitat recovery. Identify and prioritize management actions to recover San Diego cactus wren populations and important cactus scrub habitat patches. If warranted, cactus scrub restoration will be implemented using best available information on BMPs for cactus scrub restoration. SDMMP has outlined best approaches and strategies for cactus scrub restoration, including site selection, patch size, cactus salvage, large specimen collection, propagule selection, planting layout (cactus planting, co-planting), plant protection, weed control, and supplemental watering (TNC 2015). A qualified restoration biologist will conduct monitoring of restored habitat following accepted monitoring protocols. Each restoration project site will be unique and warrant site specific monitoring success criteria be developed.

3. Potential additional management actions not required by the Subarea Plan

a. Expand and enhance cactus wren habitat within the preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if suitable coastal sage scrub habitat exists (SDMMP 2017a). The Preserve Manager will coordinate with the City and other regional entities as appropriate, to determine if the viability and whether the need for San Diego cactus wren habitat enhancement is appropriate to their preserve. The evaluation will consider factors of regional cactus wren habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that cactus wren habitat expansion and/or enhancement is warranted on the preserve, Preserve Manager will work to determine appropriate funding for restoration efforts using appropriate source(s). Cactus scrub restoration will be implemented using best available information on BMPs for cactus scrub restoration. SDMMP has outlined best approaches and strategies for cactus scrub restoration, including site selection, patch size, cactus salvage, large specimen collection, propagule selection, planting layout (cactus planting, co-planting), plant protection, weed control, and supplemental watering (TNC 2015).

7.2.6.20 Southwestern Willow Flycatcher

If populations of southwestern willow flycatcher are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of southwestern willow flycatcher

a. If southwestern willow flycatcher are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of

occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- If new trails, staging areas, or other facilities that involve human presence and noise, these facilities will be sited away (100-foot buffer) from areas of occupied southwestern willow flycatcher habitat to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality, result in habitat fragmentation, or allow for cowbird parasitism.
- If a preserve has existing trail(s) adjoining or within occupied southwestern willow flycatcher habitat and these trail(s) have been historically used for hiking and riding, seasonal trail closure or trail realignment are not required, but may be considered. The Preserve Manager will avoid scheduling and allowing large events (e.g. 5K runs) that could substantially change trail use activity along a trail through or with adjoining occupied southwestern willow flycatcher habitat during the breeding season (April 1 through July 31).
- Any necessary tree removal will be conducted in a manner to avoid impacts to southwestern willow flycatcher. Regional efforts to control pests and pathogens may include removal of infected trees in riparian areas. Current pests and pathogens affecting trees in San Diego County riparian areas include goldspotted oak borer (GSOB) and Kuroshio shot hole borer (SHB)/*Fusarium* sp. complex. Tree removal should be conducted outside of the bird breeding season to avoid potential impacts. If there is a clear and immediate need to remove infected trees during the breeding season, the Preserve Manager will have nesting-bird surveys conducted to ensure that breeding birds are not affected and will coordinate with the USFWS and CDFW to ensure that federal and state laws protecting nesting birds are not violated.
- Preserve Manager will prioritize efforts to minimize edge effects, manage invasive plant species, implement fire management and control unauthorized public access in portions of the preserve known to support southwestern willow flycatcher.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to southwestern willow flycatcher based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016). Adaptive management actions specific to southwestern willow flycatcher could include, but are not limited to

- **Identify and conduct cowbird trapping.** An evaluation of preserves will be completed to assess the potential of cowbird parasitism at the preserves. If it is determined that cowbird parasitism is a threat, the Preserve Manager will seek out opportunities to participate in other cowbird trapping program or initiate its own cowbird trapping program. Cowbirds traps shall be erected in areas near concentrated uses, such as staging areas and well-used trails. Trapping locations

shall be accessible to vehicles with water and perching areas nearby. A reconnaissance of the areas shall be conducted to identify potential predators. Traps shall be erected and set by March 15 and will be checked daily from March 15 through June 1. Once the birds have been caught within the traps, incidental non-target birds will be collected with a net and released. Adult cowbirds shall be humanely euthanized. The data sheets and a report documenting the findings shall be submitted to the City.

- **Conduct invasive plant species management near known occupied habitat**. Identify situations in which invasive species control (e.g. removal of invasive riparian species that displace native riparian trees such as giant reed) around riparian habitat is warranted to increase habitat suitability for native plant and wildlife species as well as enhance southwestern willow flycatcher foraging opportunities by providing the biodiversity of native plant species that supports insect prey for southwestern willow flycatcher. The goal of the invasive species removal is to remove nonnative species that alter morphology, hydrology, and biodiversity of riparian habitat for southwestern willow flycatcher and other native riparian species (SDMMP 2017). The Preserve Manager may implement quantitative or semi-quantitative monitoring to evaluate invasive species control efforts.
- **Prevent net loss of suitable nesting habitat within preserves.** If any decrease in distribution of riparian habitat suitable for nesting of southwestern willow flycatcher is detected, determine the cause and take corrective actions (e.g., removal of threats from increased human activity such as trail use, restoration following major wildfires that result in a loss of riparian habitat). Riparian habitat restoration will be implemented using best available information on BMPs for riparian restoration. SDMMP has outlined best approaches and strategies for southwestern willow flycatcher habitat restoration, especially with respect to avoid cowbird parasitism, by focusing restoration on increasing density of understory vegetation to shield parental activity from searching cowbirds (SDMMP 2017a). Determine and conduct monitoring of restored habitat.

3. Potential additional management actions not required by the Subarea Plan

a. Evaluate opportunities to expand and enhance southwestern willow flycatcher habitat. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserve is located in an area identified through ongoing regional monitoring efforts as core southwestern willow flycatcher habitat. The Preserve Manager will coordinate with other regional entities, as appropriate, to determine if the viability and whether the need for southwestern willow flycatcher habitat enhancement is appropriate to their preserve. The evaluation will consider factors of regional southwestern willow flycatcher habitat connectivity, population dynamics, and proximity to population clusters. If it is determined that southwestern willow flycatcher habitat expansion and/or enhancement is warranted on the preserve, Preserve Manager will work to determine funding for restoration efforts from appropriate source(s). Riparian habitat restoration will be implemented using best available information on BMPs for riparian restoration. SDMMP has outlined best approaches and strategies for southwestern willow flycatcher habitat restoration, especially with respect to avoid cowbird parasitism, by focusing restoration on

increasing density of understory vegetation to shield parental activity from searching cowbirds (SDMMP 2017a). Determine and conduct monitoring of restored habitat.

7.2.6.21 Tricolored Blackbird

If populations of tricolored blackbird are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect occupied habitat of tricolored blackbird

a. If tricolored blackbird are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- If new trails, staging areas, or other facilities that involve human presence and noise, these facilities will be sited away (100-foot buffer) from areas of tricolored blackbird colony sites and/or suitable freshwater marsh habitat to the extent feasible. The goal will be to avoid the introduction of new facilities or trails that could reduce habitat quality or result in abandonment of nests.

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to tricolored blackbird based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016).

3. Potential additional management actions not required by the Subarea Plan

a. Expand and enhance tricolored blackbird habitat within the preserve. The Preserve Manager will conduct an evaluation of their preserve property to determine if there are opportunities to expand and enhance tricolored blackbird habitat within the preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state. The Preserve Manager will coordinate with other regional entities as appropriate, to determine if the viability and whether the need for tricolored blackbird habitat enhancement is appropriate to their preserve. Management actions could include habitat restoration, enhancing nesting substrates, invasive species control, avoiding the use of herbicides or mosquito abatement in suitable habitat, and maintaining hydrology (Churchwell et al. 2005, Meese 2014). If it is determined that tricolored blackbird habitat expansion and/or enhancement is warranted on the preserve, Preserve Manager will work to determine funding for restoration efforts using appropriate source(s). Habitat restoration will be implemented using best available information on BMPs for wetland habitat restoration. A qualified restoration biologist will determine and conduct monitoring of restored habitat.

7.2.6.22 Western Burrowing Owl

If populations of western burrowing owl are identified within a property that is part of the Subarea Plan Preserve System, the following management actions will be implemented by the Preserve Manager to protect known populations within Preserve System.

1. Protect known occurrences and habitat of western burrowing owl

a. If western burrowing owl are identified on preserves during surveys, the Preserve Manager will identify and implement appropriate measures to protect of occupied habitat to minimize disturbance and edge effects. Appropriate measures may include:

- Avoid disturbing occupied burrows during the breading season. Based on the existing vegetation, topography, and type and intensity of human disturbance (e.g. trail use), the Preserve Manager will establish appropriate buffer distance from occupied burrows. Recommended setback distances range from 50 meters to 500 meters based on time of year and level of disturbance (CDFW 2012).
- Avoid impacting burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls.
- Avoid direct destruction of burrows resulting from vegetation management activities (e.g. fire management, invasive plant species management, or disking to thin vegetation cover).
- Develop and implement a staff awareness program to increase the on-site worker's recognition of and commitment to burrowing owl protection.
- Place visible markers near burrows to ensure that management activities do not result collapse burrows.
- Eliminate actions that reduce burrowing owl forage and burrowing surrogates (e.g. ground squirrel). Do not fumigate, use treated bait, or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting owls, designated use areas).

2. Apply adaptive management based on monitoring results

a. **Adaptive management recommendations**. The Preserve Manager will develop adaptive management recommendations specific to western burrowing owl based on results of monitoring efforts. Adaptive management recommendations will be included in the annual report that will be reviewed by the City.

b. **Implement adaptive management strategies**. Adaptive management strategies will be implemented based on monitoring results. Adaptive management will be initiated whenever there is a significant disturbance of suitable habitat of more than 20%, or if field observations and expert judgment indicate a change in management approach is needed (USFWS 2016).

3. Potential additional management actions not required by the Subarea Plan

a. Expand and enhance western burrowing owl habitat within the preserve. San Diego Zoo Institute for Conservation Research and SDMMP prepared a Burrowing Owl Conservation and Management Plan for San Diego County (San Diego Zoo 2017) that includes recommendations for the establishment of at least two nodes and enhancement

of existing occurrences to ensure persistence on the preserves (SDMMP 2017k). The Preserve Manager will conduct an evaluation of their preserve property to determine if there are opportunities to expand and enhance western burrowing owl habitat on their preserve. While this is not a requirement, the Preserve Manager is encouraged to take active steps to improve habitat beyond its original state if the preserve is located in an area identified through ongoing regional monitoring efforts as important habitat for western burrowing owl. The Preserve Manager will coordinate with other to regional entities as appropriate, determine if the viability and whether the need for western burrowing owl habitat enhancement is appropriate on their preserve. Management actions could include translocation of burrowing owl, protecting populations from disturbance, removing invasive plants, cleaning, repairing, and fortifying burrows within the known occupied and suitable habitat, retrofitting existing artificial burrows with the most current design to maximize fledgling success, removal/closing of burrows at poorly performing sites, and addition of burrows to maximize success (SDMMP 2017k). If it is determined that western burrowing owl habitat expansion and/or enhancement is warranted on a preserve, Preserve Manager will work to determine funding using appropriate source(s). Western burrowing owl habitat expansion and/or enhancement will be implemented using best available information on approaches (Swaisgood et al. 2014). A qualified restoration biologist will determine and conduct monitoring of restored or created habitat.

7.3 Guidelines for Habitat Restoration

Restoration is the process of re-establishing or enhancing historical biological functions and values to degraded habitats. Habitat restoration could be implemented under the following situations:

- **Restoration of temporary impact areas.** To be determined during review of development projects as part of the City's review and permitting.
- **Restoration, enhancement and/or creation of habitats as mitigation of impacts on sensitive habitats**. To be determined during review of development projects as part of the City's review and permitting.
- **Restoration of habitats within the Subarea Plan Preserve System impacted by catastrophic events (e.g., fire or flood).** Implemented by the Preserve Managers in response to catastrophic events using preserve management and monitoring funding or funding associated with responses to Changed Circumstances or through the reprioritization of preserve management activities as determined by the Preserve Manager.
- **Restoration and/or enhancement of native habitats within the Subarea Plan Preserve System after removal of nonnative plant species.** Implemented by the Preserve Managers per actions required to control invasive species.
- **Additional restoration and enhancement within the Subarea Plan Preserve System to improve habitat for Covered Species**. Implemented based on the availability of additional funds (e.g., grant funding) to pursue habitat restoration and enhancement opportunities.

When restoration activities are decided upon, a Habitat Restoration Plan must first be developed and approved by the City. All restoration plans must include the following general components:

- Methods to be used

- How the restoration site will be managed and monitored in perpetuity if within the Subarea Plan Preserve System
- A 5-year monitoring program with appropriate success criteria
- Remediation measures that will be undertaken if the success criteria are not met

The City and Preserve Managers will identify areas to be targeted for restoration in the PMPs. As available funding permits, habitat restoration within the Subarea Plan Preserve System will focus on the creation of habitat for target species with the objective of increasing the overall habitat carrying capacity for the target species populations. Key habitats for restoration are coastal sage scrub, cactus scrub, vernal pools, Quino checkerspot butterfly habitat, Hermes copper butterfly habitat, and riparian areas.

Habitat-specific restoration should occur only on sites assessed as suitable for that habitat type. Once the site and size of the restoration effort is determined, a City-approved project-specific restoration plan should be prepared according to the following guidelines.

1. The restoration plan will specify plant and seed palettes that will be used in the restoration effort. A qualified restoration ecologist will develop a site-specific seed list that corresponds to site-specific restoration goals.
2. The types of erosion control that will be used and how they will be applied will be outlined in the detailed restoration plan. Erosion-control measures can include, but are not limited to, straw wattles, blown straw, crimped straw, and/or erosion-control matting. No erosion control devices will be used that contain seed from nonnative plants.
3. The restoration program will incorporate local plant species of concern wherever possible and appropriate to the site conditions. Plan ahead when adding a sensitive species to the restoration plan to be able to obtain enough seed to have a viable restoration effort.
4. No irrigation systems will be installed unless such installation is approved by the City's geotechnical consultants.
5. The following will be included in the restoration site preparation criteria:
    a. The site will be prepared by fixing any erosion that may have occurred and scarifying any compacted areas, as applicable.
    b. Weed control should begin in the winter before installation of the restoration. Treatment should continue during the winter and spring months as needed. After the weeds have been controlled, the site should be raked to remove aboveground biomass, and remain fallow until the appropriate time to begin revegetation.
    c. A qualified restoration ecologist will oversee any use of herbicide to control weeds, following the recommendations of a licensed Pest Control Advisor and will be supervised by a Qualified Applicator.
6. The restoration plan will provide details specifying how the restoration site will be monitored and maintained over time. The restoration plan will include details regarding the following maintenance actions:
    a. Maintain the restoration site for 5 years following installation.

b. Perform maintenance on an as-needed basis, as recommended by a restoration ecologist.

c. Perform the following maintenance activities to facilitate restoration success: weed control, erosion control, and access control.

d. Remove or control invasive exotic species. Weed control will require diligence by the maintenance personnel. Invasive exotic species, such as but not exclusive of, arundo, tamarisk, pampas grass, pepper trees, gum tree, castor bean, tree tobacco, and fennel, will be removed wherever they occur within the restoration area. Annual weeds such as mustard, wild radish, and annual grasses may also need to be controlled. The restoration ecologist will determine what annual weeds need to be controlled to ensure restoration success.

e. Control access to restoration sites. Access to restoration sites should be on existing dirt roads. All vehicles should remain outside the restoration areas. If off-road vehicle or human activities become a problem in the restoration area, the restoration ecologist will recommend remedial measures.

7.3.1 Species Reintroduction and Translocation

Species translocations or reintroductions are sometimes used as tools to help recover endangered species or as a last resort to salvage individuals or populations from destruction. *Translocation* (or *transplantation* for plants) involves moving animals (or plants) from a donor (source) population to a receiver site that may or may not currently support the species. These methods are sometimes used to remove (salvage) a population from an area to be developed and introduce it into a suitable preserve area where it can be managed and monitored. In general, *in situ* conservation (conservation in their naturally occurring locations) is the preferred method of conservation, and salvage translocation should only be considered as a mitigation measure if *in situ* conservation is infeasible. Furthermore, translocation of a rare or narrow endemic species may be included in a mitigation package, but does not qualify as part of the required avoidance in the requirements of the Narrow Endemic Species Standards.

Reintroduction involves translocation to a receiver site from which the species has previously been extirpated (as opposed to translocations used to bolster an existing population or to establish populations outside the species' original range). Species reintroduction must always be treated as experimental, generally as part of a comprehensive, well-planned species recovery program. Where reintroduction is appropriately used as a tool for species recovery, it should be allowed within Subarea Plan Preserve System where the species is known to have previously existed (e.g., Quino checkspot, Hermes copper) and where the population can be effectively managed and monitored.

Species translocation and/or reintroduction will be implemented only under the following conditions:

7.3.1.1 Species Translocations

Whenever feasible, development or other projects must be designed to allow onsite conservation and use translocation (transplantation) only where no feasible alternative exists and with species that have been approved for translocation. Translocation may not take the place of, but may be in addition to, any species-specific mitigation required by this Subarea Plan, and habitat-based

mitigation requirements must still be adhered to consistent with the Uniform Mitigation Ratios (Table 5-14). However, translocation may be used to supplement the above mitigation measures or as a means of enhancing recovery potential for sensitive species.

Prior to translocation, a Translocation Plan, approved by the City, will be prepared that identifies appropriate receiver site(s) for the population(s), the methods to be used, how the donor site will be selected and managed and monitored in perpetuity, success criteria that will be used to monitor the health of the translocated population, and remediation measures that will be undertaken if the success criteria are not met. Receiver sites must be inside preserve boundaries or areas that will be annexed to the Subarea Plan Preserve System; ecologically suitable; and as similar to the donor site as possible, considering soils, slopes, aspects, microclimate, and other biologically appropriate measures. As a part of the PMPs for the preserve area, translocated populations must be monitored for a minimum of five generations to document successful establishment of the new population, and then periodically thereafter as a part of routine species and habitat monitoring and management associated with the preserve. Translocations should only occur in areas that are hardlined or that will be converted to hardline-preserve areas at the time of translocation. A species translocation may be allowed as long as it:

- Will not damage the genetic integrity of neighboring species and/or populations.
- Is preceded by a thorough investigation of the cause for the absence, decline, or extirpation of a species at a particular site, with appropriate remedies identified.
- Will not adversely alter existing ecology.
- Is implemented under an adaptive management strategy.

7.3.1.2 Species Reintroductions

Species introduction or reintroduction could further enhance species conservation commitments and be used to avoid and minimize impacts on some Covered Species. Species reintroduction may be appropriate where extirpations have occurred. Where suitable habitat conditions exist but no historic record of species occurrence is known, species introduction may also be considered provided the suitable habitat is available. However, the decision to reintroduce a species depends on numerous species- and site-specific factors, and any reintroduction effort will require detailed planning and monitoring, as well as available funding for planning and implementation.

With the approval of the Wildlife Agencies and where such actions would further the recovery of Covered Species (such as the Quino checkerspot butterfly or Hermes copper), the City will allow reintroductions of extirpated species into the Subarea Plan Preserve System. Reintroductions should only occur in areas that are hardlined or that will be converted to hardline-preserve areas at the time of the reintroduction. Reintroduction efforts are appropriate if the species or proposed reintroduction site displays all or most of the following characteristics:

- High priority species (e.g., listed as federal- or state-endangered).
- Such release will further the conservation of the species.
- Species biology is known or is being researched (some research may be conducted as part of the reintroduction effort).
- The site is within the historic range of the species.

- The site is ecologically appropriate.
- Suitable donor populations/propagule sources exist.
- The site is in the Subarea Plan Preserve System, and threats to its establishment and long-term viability have been minimized.

Reintroduction may not be feasible for all species under consideration, based on biological, physical, logistical, or evolutionary factors. A complete assessment should be made before committing resources to a reintroduction effort. Key criteria include existing site conditions; presence or potential for appropriate pollinators and seed dispersal agents, possible genetic contaminants (hybrids or cultivars), soils, topography, slope, aspect, elevation, drainage, hydrologic regime, light environment, site protection status and degree of protection, access for monitoring and research, site location (e.g., known versus potential habitat), and evolutionary potential.

The goal of any reintroduction effort will be to establish self-sustaining population(s) of the species of concern. A Reintroduction Plan will be prepared for all proposed species reintroductions and must be approved by the City and Wildlife Agencies prior to implementation. The Reintroduction Plan will specify project management and implementation responsibilities and will also:

1. Specify design criteria, including a scientifically valid experimental design.
2. Indicate the appropriate time of year for reintroduction, based on species phenology and/or life history.
3. Indicate reintroduction methods, including any specialized equipment that may be needed.
4. Specify type and source of source material, and provide a schedule for procuring source materials in a timely fashion (see below).
5. Specify performance standards or success criteria by which the reintroduction will be judged.
6. Assess the success of each species yearly.
7. Design a biological monitoring program for the reintroduction site to supply data to evaluate these standards.
8. Specify the process for implementing remedial measures.
9. Establish maintenance standards to ensure reintroduction success.
10. Provide for annual reporting of the reintroduction success along with recommendations for the next year's program.

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Chapter 8
Subarea Plan Implementation

8.1 Introduction

The City of Santee (City), as Permittee, has responsibility for Subarea Plan implementation. As described in this chapter, the City will use other groups for coordination and to facilitate Subarea Plan compliance and implement various aspects of the Subarea Plan. Implementation of the conservation strategy, monitoring program, and reporting will require coordinated actions among the multiple departments of the City along with Preserve Managers and the Wildlife Agencies. This chapter describes the overall implementation structure, policies, and guidelines of the Subarea Plan, including roles and responsibilities, implementation tools, Subarea Plan funding, annual reporting requirements, and procedures for amending the Subarea Plan. In addition, this chapter addresses responses to Changed and Unforeseen Circumstances under the Subarea Plan that may occur during the Subarea Plan permit term.

8.2 Roles and Responsibilities

8.2.1 City of Santee

The City of Santee will be responsible for administration and overall implementation of the Subarea Plan. The City will fulfill the responsibilities of two positions within the Department of Development Services – Subarea Plan Coordinator and Preserve Steward – focused on program administration of the Subarea Plan and oversight of the Subarea Plan Preserve System. These two roles will be staffed with a combination of in-house staff and/or a contractor as appropriate. The City is also be responsible for managing City-owned properties within the Preserve System and for completing the review and approval of Covered Activities to ensure avoidance, minimization, and mitigation measures are implemented as outlined in the Subarea Plan.

The following summarizes the key roles that the City will fulfill for Subarea Plan implementation:

8.2.1.1 Subarea Plan Coordinator and Preserve Steward

The Subarea Plan Coordinator role is to oversee and coordinate Subarea Plan implementation and would include the following:

- Serve as the main point of contact for issues relating to the Subarea Plan.
- Serve as the liaison between City departments, private landowners, Wildlife Agencies, other public agencies, and the general public as needed or as described below.
- Conduct project development reviews to ensure compliance with Subarea Plan guidelines and standards.
- Assist City staff by providing guidance regarding Subarea Plan standards, including development adjacent to Subarea Plan Preserve System boundaries and within softline areas.

- Coordinate with local environmental groups, other interest groups, HOAs, and the public to discuss Subarea Plan issues, become aware of conservation or environmental planning activities in the area, and explore partnering opportunities.

The Preserve Steward's role would include the following:

- Be the primary point of contact and the coordinator for overseeing all preserve management and monitoring issues within the City.
- Oversee management and monitoring on all City-owned properties within the Subarea Plan Preserve System.
- Meet with the collection of Preserve Managers in the City annually to discuss coordination of city-wide management issues. Meet with Preserve Managers individually as needed to ensure implementation of individual preserve PMPs, review status of potential threats and other issues of concern, coordinate enforcement, and address adaptive management activities, funding issues, edge effects.
- Coordinate with Preserve Managers, Wildlife Agencies, and other regional monitoring entities (e.g. SDMMP) to facilitate regional monitoring efforts to help reduce costs through the sharing of resources and ensuring access of properties within Subarea Preserve System.
- Gather information from the individual Subarea Preserve Managers, City staff, and other entities as needed for Subarea Plan compliance monitoring and effectiveness monitoring.
- Update the City's biological resource database as biological data is acquired for future projects to fill information gaps on a project-by-project basis.
- With citation authority, be responsible for coordination of enforcement within the Preserve (other duties may be included if compatible, such as trail patrol within City parks).

Both the Subarea Plan Coordinator and the Preserve Steward will be responsible for coordinating on the following tasks:

- Prepare annual reports for submittal to the Wildlife Agencies; and organize an annual meeting with the Wildlife Agencies and/or annual public workshop.
- Meet regularly (at least annually) with Wildlife Agencies to discuss issues of concern, such as Subarea Plan implementation, conservation issues, land acquisition, financial integrity of the Subarea Plan, new and/or potential funding sources, issues regarding new developments, effectiveness of the Subarea Plan to fulfill its conservation goals, and the regional MSCP Biological Monitoring Program once it is established.
- Coordinate with MSCP jurisdictions and other San Diego County NCCP/HCP subregional planning jurisdictions to discuss NCCP/HCP implementation, regional monitoring, and status of Covered Species and habitats. Discussions should include consistency of monitoring protocols, data collection methods, and data management.
- Coordinate with appropriate City departments (e.g., Community Services, Fire, and the Public Works Division of the Community Services Department), Preserve Managers, local groups, and HOAs to develop public outreach program to educate the public about land stewardship, edge effects, local plants and animals, and other pertinent conservation issues.

8.2.1.2 Management and Monitoring of City-Owned Properties within Preserve System

The City will be responsible for the management and monitoring of City-owned properties within the Subarea Plan Preserve System. This will be accomplished through either:

- **Land Management Entity**. For some of the City-owned properties within the Preserve System, the City granted a conservation easement as part of mitigation for development projects and these properties are fully managed through a third-party land management entity.
- **City of Santee.** For a number of City-owned properties within the Preserve System, the City of Santee Public Works Division of the Community Services Department currently provides the land stewardship and maintenance activities. This includes maintenance of fencing, signage, and trails, and trash collection activities. As part of the Subarea Plan implementation, the City will expand the number of city-owned properties management by third-party land management entities.

Figure 8-1 shows the locations of City-owned properties within the Preserve System and Table 8-1 summarizes the status at the time of the Subarea Plan adoption. It is anticipated that over time the City may acquire or be deeded ownership of more properties within the Preserve System and will manage more of the City-owned properties through agreements with land management entities.

Table 8-1. Status of Management and Monitoring of City-Owned Properties within Preserve System

City-Owned Properties within Preserve System	Currently Managed By	Habitat Type	Acres of Natural Habitat
Mast Park Wetland Restoration Preserve	Land Management Entity (San Diego Habitat Conservancy)	Riparian	12.4
Lowes Preserve	Land Management Entity (San Diego Habitat Conservancy)	Riparian	9.4
		Subtotal:	*21.8*
Walker Preserve	City of Santee	Riparian	75.1
City Hall Open Space	City of Santee	Upland	2.6
Mast Park East (Mission Creek)	City of Santee	Riparian	36.5
City Property near Walker Preserve	City of Santee	Upland	12.5
Walker Trails Open Space Component	City of Santee	Riparian	5.5
Floodway Protected Areas	City of Santee	Riparian	20.9
Altair Open Space	City of Santee	Upland	7.7
		Subtotal:	*160.8*
		Total:	**182.6**

8.2.1.3 City Departments

City staff from multiple departments will be responsible for and assist on various aspects of Subarea Plan implementation, including:

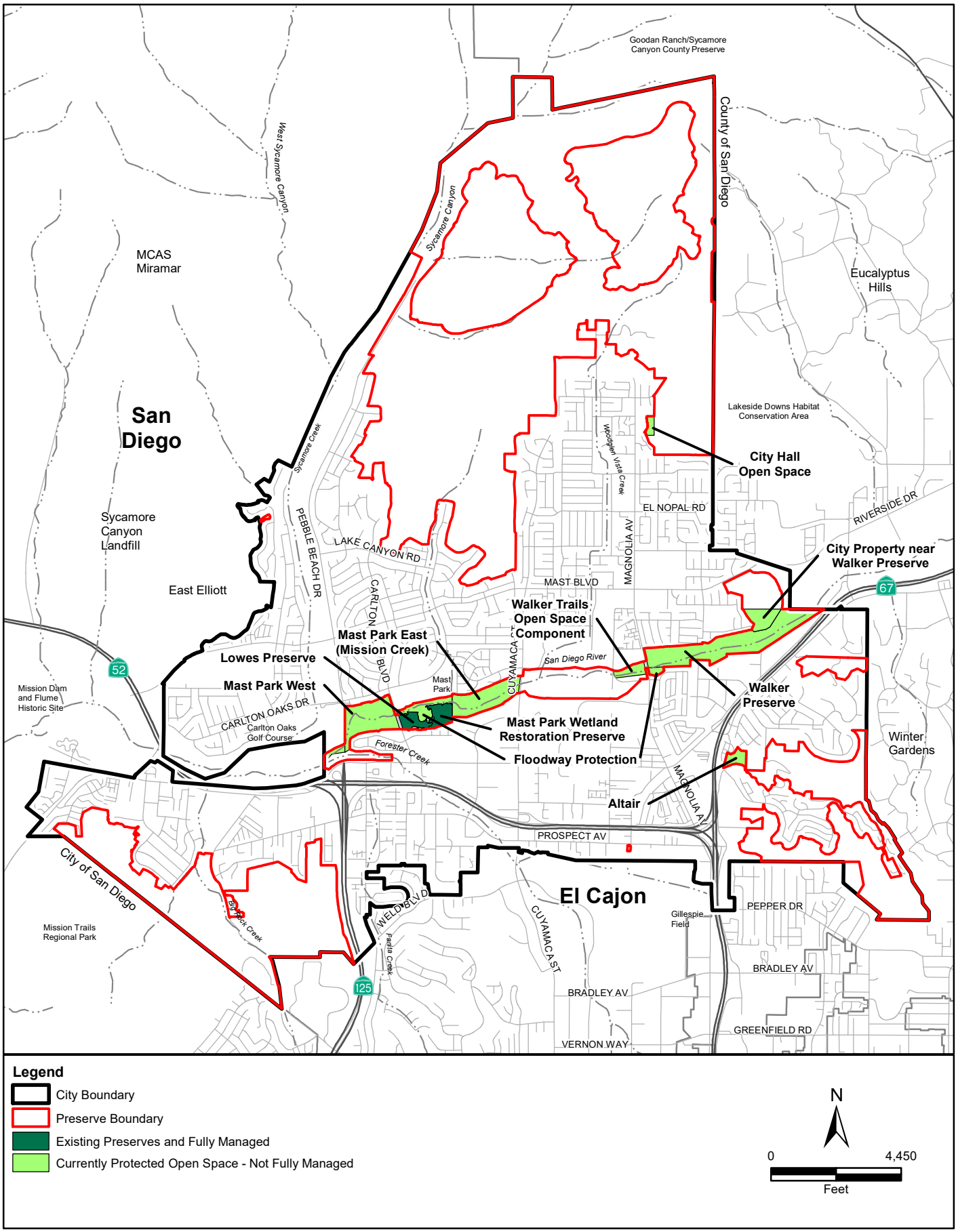

Figure 8-1
City-owned Properties within Subarea Plan Preserve System
Santee MSCP Subarea Plan

- Department of Development Services: plan review, General Plan updates, land use and zoning compliance.
- Fire Department: fuel management zone clearing, review, and enforcement.
- Community Services Department: public outreach activities.
- Sheriff's Department (City contracts with San Diego County Sheriff's Department for law enforcement): Law enforcement activities.
- City Attorney: legal review and enforcement activities.

Activities associated with Subarea Plan implementation will become part of the responsibilities of each these departments.

8.2.1.4 City Council

The City Council will provide the final decision-making authority for all substantial matters involving the City's commitments in funding, staffing, and allocation of resources. The Subarea Plan Coordinator will work with City staff to prepare items for City Council consideration following the standard procedures for the City Council. Agenda items that will typically come before the City Council include, but will not be limited to, review and approval of land development plans, agreements with third-party entities for Preserve management of City properties, and amendments to the Subarea Plan.

8.2.2 Preserve Managers

The Santee Subarea Plan Preserve System will be made up of a collection of individual properties set aside as habitat preserves. While the City will be responsible for providing oversight and coordination of the overall Preserve System (primary role of the Preserve Steward), each individual property within the Preserve System will have a land management entity (Preserve Manager) that will be responsible for the property management and addressing the stewardship of the ecological values and, where applicable, recreational uses of their property. The Preserve Managers will conduct management and monitoring based on the individual PMP prepared for each property and following the principles and procedures of adaptive management (see Section 7.2, *Preserve Management and Monitoring*). The Preserve Managers will also report periodically to the Subarea Plan Coordinator and/or Preserve Steward regarding the status of their preserve, progress of active management actions, and issues that need addressing. The Preserve Manager will participate in biannual (twice a year) meetings with other Preserve Managers within the Subarea Plan Area.

During the land entitlement process or through coordination with local conservancy groups, the City will approve the designated Preserve Managers for properties that will be added to the Subarea Plan Preserve System in the future. The City will complete due diligence when approving any organization to serve as a Preserve Manager consistent with the California Government Code sections 65965-65968.

Ultimately, it is anticipated that a large majority (approximately 90-95%) of the Subarea Plan Preserve System will be actively managed by entities other than the City. There are multiple Preserve Managers currently managing properties within the Subarea Plan Area (see Table 8-2). This list will expand as additional properties are added to the Preserve System within the hardline

and softline boundaries and/or as the management status of currently protected lands change over time.

Table 8-2. Preserve Managers Currently Operating within Santee

Preserve Manager	Accreditations / Memberships[1]	Properties Managed	Acres
Center for Natural Lands Management (CNLM)	CDFW	Rattlesnake Mountain HCA	288.5
	LTAC	Santee Hills HCA	9.8
	CCLT	East Mesa HCA	65.0
		Subtotal:	*363.3*
City of San Diego Parks and Recreation Department		Mission Trails Regional Park (portion within the City)	185.3
		Subtotal:	*185.3*
Endangered Habitats Conservancy (EHC)	LTAM	Cutri Onsite Preserve	6.8
		Calvary Chapel Offsite Mitigation	1.8
		Cheyenne EHC Preserve	114.5
		Capralis EHC Preserve	20.5
		Brown	8.6
		B. Bailey	14.5
		Gallagher	6.0
		Subtotal:	*172.7*
San Diego Habitat Conservancy	CDFW	Lowes Preserve	9.4
	LTAC	Mast Park Wetland Restoration Project	12.4
		Ryan Company Smooth Tarplant Preserve	0.7
		Caltrans Forester Creek Mitigation Site	14.9
		Subtotal:	*37.4*
Urban Corps of San Diego Cnty	CDFW	Lantern Crest	18.0
		Subtotal:	*18.0*
Mitigation Credit Services		Railroad Avenue Ambrosia CE	0.7
		Subtotal:	*0.7*

1. CDFW = CDFW Authorized to Hold and Manage Mitigation Lands (https://www.wildlife.ca.gov/Conservation/Planning/Endowments)
   LTAC = Land Trust Alliance Certification (http://www.landtrustaccreditation.org/land-trust-locator)
   LTAM = Land Trust Alliance Member (https://www.findalandtrust.org/)
   CCLT = California Council of Land Trusts (https://www.calandtrusts.org/lt-member-profile/)

There are additional areas of the Subarea Plan Preserve System that are currently protected in public ownership (County of San Diego, PDMWD) or private ownership (HOAs or open space easement privately held) that are not actively managed and currently do not have Preserve Managers identified. One of the goals of this Subarea Plan will be to coordinate with these entities over time to identify opportunities to increase the level of management and monitoring on these properties (see Section 5.4, *Conservation Measure 2-Manage and Enhance Preserve System)*.

8.2.3 Wildlife Agencies

The Wildlife Agencies will have a role in the oversight and administration of the Subarea Plan. Wildlife Agency responsibilities will include, but will not be limited to the following:

- Review avoidance and minimization measures as appropriate on Covered Activities, including but not limited to review of wildlife crossing design plans, review of monitoring buffer exceptions for nesting birds, and determination of best options for covered plant species mitigation.
- Review of habitat restoration design plans and success criteria.
- Review preserve PMPs, annual work plans, adaptive management strategies, and annual reports.
- Review Subarea Plan annual report.
- Participate in biannual (twice a year) meetings with City and Preserve Managers.
- Review and approve any proposed changes amending the Subarea Plan (clerical and administrative changes, Minor Amendments, and Major Amendments).
- Review and approve responses by City and Preserve Managers to Changed Circumstances.
- Respond to and address Unforeseen Circumstances.
- Monitor Subarea Plan implementation and permit compliance.

8.3 Implementation Tools

8.3.1 Habitat Loss and Incidental Take (HLIT) Ordinance

The City will establish a regulatory framework to enable the City to fully implement the land conservation policies of the Subarea Plan through the normal project review and approval process. To ensure consistency and thoroughness in the project review process, the City will adopt a new City ordinance to establish a Habitat Loss and Incidental Take (HLIT) Permit. The HLIT Ordinance will define the process by which individual development projects will be evaluated to ensure they are consistent with the conservation and mitigation goals and procedures of the Subarea Plan. This process will apply to all private and public projects where the City has jurisdictional land use authority and the project will result in direct or indirect impacts to biological resources. The City will adopt the HLIT Ordinance within 2 years from adoption of the Subarea Plan.

Until the HLIT Ordinance is adopted, the Director of Development Services will ensure existing City regulations are implemented in a manner to conform with the Subarea Plan and the HLIT Permit requirements contained herein. For any development project processed during this period, the City shall issue a project-specific Certificate of Inclusion to the project proponent that describes the authorized take and required avoidance and minimization measures. The take authorization allowed under the NCCPA and ESA permits will be extended to project proponent. The City is ultimately responsible for ensuring compliance by project proponents with all applicable terms and conditions of these agreements.

When the City approves a project and issues a HLIT Permit, it will address the following:

- Review biological survey report prepared for the project proponent by a qualified biologist that adequately evaluates potential impacts to biological resources, Covered Species, and Covered Species habitat.
- Determine that the proposed project is consistent with the avoidance, minimization and mitigation measures included the Conservation Strategy (see Section 5.5, *Conservation Measure 3-Avoidance, Minimization, and Mitigation*), including:
    - Avoidance and Minimization (Section 5.5.1)
    - Uniform Mitigation Standards for Vegetation Communities (Section 5.5.2)
    - Wildlife Corridor and Wildlife Crossing Structure Criteria (Section 5.5.3)
    - Fire and Fuel Management Standards (Section 5.5.4)
    - Wetland Protection Standards (Section 5.5.5)
    - Narrow Endemic Species Standards (Section 5.5.6)
    - Vernal Pool Conservation Standards (Section 5.5.7)
    - Species-Specific Conservation Standards (Section 5.5.8)
- If a proposed project is within softline areas of the Subarea Plan Preserve System, the project will be evaluated to meet general preserve design and configuration criteria including:
    - Does the project include measures to maximize the diversity of conserved habitat types, including conservation of unique habitats and habitat features?
    - Does the project provide for the creation of significant blocks of habitat to reduce edge effects by maximizing the ratio of surface area to the perimeter of conserved habitats, and/or the project maintains connectivity (wildlife corridors) between larger habitat blocks?
    - Has there been a reasonable effort made to avoid and minimize impacts to sensitive habitats and Covered Species?
    - Does the project provide for the development of the least sensitive habitat areas to avoid disruption of sensitive resources?
    - Does the project provide for the conservation of key regional populations of Covered Species, wildlife corridors, and representations of sensitive habitats and their geographic sub-associations in biologically functioning units?
    - Does the project ensure it does not jeopardize the possible or probable assembly of the Subarea Plan Preserve System?
    - Does the project ensure all proposed on-site mitigation includes provisions to reduce edge effects, protect sensitive resources on site, and provide for management in perpetuity? On-site mitigation must be placed under a conservation easement, managed consistent with Section 7.2, *Preserve Management and Monitoring*, of the Subarea Plan, and added to the Subarea Plan Preserve System.
    - Does the preserved habitat associated with the project adjoin existing or planned preserve areas?

8.3.2 General Plan, Zoning and Land Use Regulation Implementation Actions

Existing City planning documents, codes, and policies contain numerous references to open space conservation and preservation in the City. Chief among these are the General Plan, Zoning Ordinance and Town Center Specific Plan. Additional regulations and standards are also found in other ordinances addressing subdivisions, grading, and weed/brush maintenance. Implementation of the goals, objectives, policies, and regulations contained in these documents may occur through discretionary or ministerial permit review, or City capital improvement projects.

Subarea Plan implementation will require amending or supplementing existing goals, objectives, policies, and regulations of these documents. Appendix H, *General Plan, Zoning and Land Use Regulation Implementation Actions*, provides a summary of the policy and regulatory framework that the City will use to implement the Subarea Plan. This summary is coupled with a preliminary overview of planned actions to augment the existing policy framework. Upon adoption of the Subarea Plan, the City will review the final directives and identify specific policy and regulatory amendments that will maximize achievement of habitat management goals, as well as ensure regulatory document consistency.

To assure implementation of the Subarea Plan, the City must amend the General Plan and Town Center Specific Plan, as required, to incorporate the Subarea Plan by reference. Subsequently amending other municipal codes and ordinances for consistency will achieve a policy and regulatory framework that supports long-term Subarea Plan implementation. These amendments and/or supplements must be instated within 2 years of adoption of this Subarea Plan (the time line may be extended for an additional 6 months upon approval by the Wildlife Agencies).

8.3.3 Preserve Boundary Line Adjustment Procedures and Consistency Determination

Adjustments to the approved Subarea Plan Preserve System boundaries may be desirable under some circumstances that do not require Subarea Plan amendment and will be based on a biologically equivalent or superior exchange concept. For example:

- New biological information is obtained through site-specific studies;
- Unforeseen engineering or design opportunities or constraints are identified during the siting or design of projects that require modification of the Subarea Plan Preserve System boundary;
- A landowner requests that a portion of or all of his property be included within the Subarea Plan Preserve boundary; or
- Correction of mapping conflicts when there is a discrepancy between the Subarea Plan Preserve System map and one or more of the other mapping databases (e.g., vegetation, approved "hard-line areas", updated topography, etc.) or ground truthed discrepancies with the Subarea Plan Preserve System map and reality (e.g., Subarea Plan Preserve areas drawn over existing structures).

Adjustments to Subarea Plan Preserve System boundaries can be made without the need to amend the Subarea Plan if the adjustment will result in consistency determination that the adjusted

boundaries are biologically equivalent or superior preserve system. When an adjustment is necessary, the procedure for undertaking a boundary line adjustment is as follows:

1. Using information provided by the project proponent, the City will make a determination of biological equivalence of the proposed change. The City will make a biological equivalency finding if the boundary line adjustment will result in the same or higher biological value to the Subarea Plan Preserve System and no-net-loss of total conserved acreage. The biological equivalency findings include the following:
    a. The exchange maintains or improves the amount, configuration, and/or quality of conserved habitats in the Subarea Plan Preserve System;
    b. The exchange maintains or increases the conservation of Covered Species;
    c. The exchange results in similar or improved habitat connectivity, preserve configuration, wildlife movement, corridor function, preserve design, management efficiency, and/or protection of biological resources; and,
    d. The exchange does not significantly increase the likelihood that a species not covered by the Subarea Plan will meet the criteria for listing under either the ESA or CESA.
2. The City notifies the Wildlife Agencies in writing of the proposed boundary line adjustment, including a memo with documentation used for the biological equivalency determination in step 1.
3. The Wildlife Agencies review the proposed boundary adjustment and issues a concurrence or non-concurrence statement to the City within 30 days of receipt of a complete boundary line adjustment request. Non-concurrence must state the rationale in support of the non-concurrence.
4. If the City receives written non-concurrence from the Wildlife Agencies, then the City and the Wildlife Agencies will meet within 60 days to discuss and reach agreement upon the final boundary.
5. Disputes over boundary line adjustments shall be resolved in accordance with the Implementing Agreement (IA).

Most adjustments to the boundaries will be in areas immediately adjacent to identified Subarea Plan Preserve System areas or based on refinements to the hardline development projects. Any agreed upon modification of preserve boundaries shall be reported to the entity responsible for regional preserve system accounting, to adjacent jurisdictions if the modification might affect connectivity to their preserve areas, and shall be included in the Subarea Plan Annual Report.

8.4 Subarea Plan Funding

8.4.1 Funding Sources

Implementation of the Subarea Plan will rely on multiple funding sources. The following sections provide an overview of the different funding sources that are anticipated for the Subarea Plan implementation.

8.4.1.1 General Fund

The City of Santee is responsible for providing a range of municipal services that include law enforcement, fire and life safety, street maintenance, traffic circulation, planning and community development, park and landscape maintenance, code enforcement, building inspection and recreation programs. The annual budget serves as the foundation for the City's financial planning and control. The appropriated budget is prepared by fund, program, and department. Revenues by source in Fiscal year 2018-19 totaled approximately $42.3 million, with 73% of this amount derived from property taxes and sales taxes. (City of Santee 2018a).

The General Fund is the chief operating fund of the City. This Fund addresses encumbrances and appropriations, and is updated for changes in conditions. Funds would be appropriated by the City Council to cover City costs associated with Subarea Plan implementation.

Through the adoption of the Subarea Plan and IA, and appropriate revisions to the City's General Plan, Zoning, and other land use regulations (see Section 8.3.2, "General Plan, Zoning, and Land Use Regulation Implementation Actions"), the City is identifying and committing to prioritizing the Subarea Plan implementation as a core responsibility of the City. These responsibilities will be reflected in the ongoing General Fund funding.

8.4.1.2 Other City Funding Sources

Other funding sources the City may be able to use for Subarea Plan implementation include more focused funding sources including:

- **Flood Control Fund**: Another potential source of City funds that could go toward management of City-owned lands is the Zone 2 Flood Control District Fund. This fund used primarily for activities required by the Municipal Storm Water Permit issued by the San Diego Regional Water Quality Control Board. Fiscal Year 2018-19 revenues are projected to total $374,100 (City of Santee 2018a). Through the implementation of a suite of programs, the City uses funds from the Zone 2 Flood Control District Fund to prevent pollution and eliminate discharges to the storm water conveyance system and waterways to the maximum extent practicable. Program components include: development and planning review, construction site compliance, commercial and industrial business inspections, routine maintenance of the City's storm water conveyance systems, community education and outreach, regional coordination, complaint/hotline response, water quality monitoring (sampling) and residential area program implementation.
- **Existing Landscape Maintenance Districts (LMDs)**: LMDs are established pursuant to the Landscaping and Lighting Act of 1972 (the "1972 Act") (Streets and Highways Code Section 22500 and following) to create an annual funding source for landscape and/or open space maintenance. The Town Center LMD for Zone D - Mission Creek was established in 1987 and includes a component for costs related to "San Diego River Improvements, linear park, maintenance, riparian habitat, and pedestrian bridge." In Fiscal Year 2018-19, the Town Center LMD for Zone D - Mission Creek will provide $80,743 for open space maintenance (City of Santee 2018a). Funds for this LMD are collected annually through the assessments levied on properties within the LMD and collected by the County on the property tax roll. On-going maintenance has included the removal of exotic plants (e.g., ice plant, tamarisk, palms and turf), the re-planting with native trees (e.g., cottonwoods, sycamores and coast live oaks), and eradication of hyacinths and water primrose from the river channel. Funds from the LMD may only be used to

pay for those maintenance services specified in the engineer's report prepared for the LMD. Those services include maintenance of the linear park, riparian habitat and pedestrian bridge and walkway.

8.4.1.3 Developer Funded Endowments

Consistent with the City's land use powers, and subject to the constitutional restrictions on those powers, the City will ensure that the funding of management and monitoring of conserved lands within the Subarea Plan's Preserve will primarily occur through developer funded non-wasting endowments. Some of the existing conserved lands which will be included in the Subarea Plan Preserve System are already managed through developer-funded endowments.

An endowment is a restricted fund. Only the interest from the funds can be spent, not the principal that anchors the endowment. The target is to derive interest earnings and a portion of the interest earned is used to cover the annual costs and a portion is reinvested into the endowment principal to assure the endowment keeps up with inflation and maintains its buying power (i.e. non-wasting). As such, inflation and variations in the rate of return are important in the determination of the principal amount. Generally, professional money managers oversee endowment funds to achieve a sustaining rate of return, and, when held by a third-party entity, that entity shall be subject to an initial fiscal evaluation and periodic reviews by the City to ensure that the funds are available to conduct the management and monitoring activities addressed in the PMP.

It is crucial that the endowment amount be determined as accurately as possible. To this end, the Center for Natural Lands Management has developed a software program called a "Property Analysis Record" (PAR) that can be used to itemize all tasks associated with long-term preserve management tailored to a specific property. These tasks reflect the management activities described in Section 7.2, *Preserve Management and Monitoring*, including stewardship, public access enforcement, public education/outreach, biological monitoring, and reporting. A cost is assigned to each task. Costs must also include liability insurance, a contingency fund to cover remedial measures tied to vandalism, or accidents within the preserve, as well as a fund responses for "Changed Circumstances". A PAR or PAR-equivalent analysis will be conducted for each new parcel to be established as a preserve and incorporated into the Subarea Plan Preserve System.

Individual preserves within the Subarea Plan Preserve System that are currently funded through developer funded endowments are summarized in Table 8-3 and more details are included within Appendix H.

Table 8-3. Existing Preserves Included in Subarea Plan Preserve System Funded Through Endowments

Property Name	Property Owner	Land Management Entity	Endowment Holder
Mast Park Wetland Restoration Project / Preserve	City of Santee	San Diego Habitat Conservancy	Merrill Lynch
Lowes Preserve	City of Santee	San Diego Habitat Conservancy	Merrill Lynch
Caltrans Forester Creek Mitigation Site	Caltrans	San Diego Habitat Conservancy (pending)	TBD
CNLM Rattlesnake Mountain HCA	CNLM	CNLM	CNLM
Lantern Crest	Private	Urban Corps of San Diego County	San Diego Foundation
CNLM Santee Hills (Boys and Girls Club Parcel) HCA	CNLM	CNLM	CNLM
CNLM East Mesa (Hagenmaier and Gross Parcels) HCA	CNLM	CNLM	CNLM
Ryan Company Smooth Tarplant Preserve	Private	San Diego Habitat Conservancy	Merrill Lynch
Cutri Onsite Preserve	Private	Endangered Habitats Conservancy	Endangered Habitats Conservancy
Railroad Avenue Ambrosia Conservation Easement	Private	Mitigation Credit Services	
Calvary Chapel Offsite Mitigation Site	Endangered Habitats Conservancy	Endangered Habitats Conservancy	Endangered Habitats Conservancy
Weston Vernal Pool Complex	TBD	TBD	TBD

8.4.1.4 Community Facilities District (CFD)

Pursuant to the Mello-Roos Community Facilities Act of 1982 (California Government Code section 53311 and following), the City may establish a community facilities district or districts ("CFD") to finance certain limited public services, including maintenance and monitoring of open space preserves. Within a CFD, a special tax is levied on property owners within the CFD to generate a perpetual funding source for the required public service.

The CFD approach provides a viable option for project developers to pay for, in full or in part, their contribution to the management and monitoring of conserved lands within the preserve system. When the CFD is created, the project developers would, as a condition of approval, agree to annex the development area into the CFD. The funds generated through the CFD would then be used to manage and monitor the conserved lands within the preserve area.

The formation of the CFD involves the following steps:

- **Application by property owner**: The property owner will submit a formal request to the City to establish and CFD and provide funding for the initial costs incurred by the City of processing of the proposed CFD.
- **Preparation of a rate and methodology for setting the special tax**: A Rate and Method Apportionment (RMA) will be prepared by a qualified tax consultant to establish the parameters for setting the special tax on all properties within the district. The RMA will be based on a comprehensive budget (using PAR or PAR-equivalent analysis) using actual and/or estimated cost estimates for preserve management and monitoring activities. A maximum assessment or tax rate is established at the time of district formation, based upon the anticipated budget needed to fund maintenance activities.
- **Adoption by the City Council of Boundary Map and a Resolution of Formation**: After public hearing, assuming no majority protest, the City will adopt a resolution of formation forming the CFD, and will call a special election. The special election typically must take place between 90-180 days after the public hearing, but time limits may be waived by all affected property owners or registered voters. Assuming there are not 12 or more registered voters already residing within the boundaries of the proposed CFD, upon approval of the property owners at the special election, the City Council will be authorized to levy the special taxes..

Formed under California law, the City may not levy a higher rate and no district may be dissolved, except pursuant to the process prescribed by State law. The responsible legislative body (City Council) or property owners subject to assessment or taxes must define the desired changes, actively seek support to make such changes, follow a public notice and public hearing process, and hold an election wherein two- thirds of all property owners (or registered voters, depending upon who is residing within the CFD) must vote affirmatively for the proposed changes to the district.

8.4.1.5 Homeowners Association (HOA) with Contingent CFD

A potential funding approach associated with larger developments with a Homeowners Association (HOA) is to have the long-term preserve management and monitoring expenses covered from HOA fees and establish a contingent CFD to provide an assurance that funds would be available if the HOA ever decides to stop funding the preserve management and monitoring. For the Fanita Ranch project, funding for permanent management and monitoring of the open space preserve will take the form of monthly payments through the Fanita Ranch Master Homeowners Association (HOA) to the Fanita Ranch habitat management entity. The HOA will begin funding management, assuming responsibilities from the project proponent, when enough homes are sold to ensure adequate funding of management. Until that time, the project proponent will fund all management. The HOA mechanism will be ensured by a dormant CFD that would be established by the project proponent prior to the issuance of a grading permit, or soil-disturbing activities, whichever occurs first. The project proponent owns all of the property in Fanita Ranch, and would thus be in control of the CFD at the onset. It is important to note that the cost to the HOA members paying monthly dues will be a fraction of what the CFD would impose in the event the HOA vacated the responsibility to fund permanent management of the preserve, so there will be a strong incentive for the HOA to maintain the funding of the preserve management activities, including necessary long term monitoring pursuant to the requirements of the Subarea Plan.

8.4.1.6 Subarea Plan Conservation Fund

Within 2 years of adoption of the Subarea Plan and the signing of the IA, the City will determine if the development of a Subarea Plan Conservation Fund is warranted and feasible. A Subarea Plan Conservation Fund will be an 'in lieu fee' mechanism that allows developers to mitigate biological impacts by paying a fee that funds efforts by the City to acquire properties to assemble the Subarea Plan Preserve System and/or increase the level of management and monitoring of properties already acquired and part of the Preserve System. Payment of a habitat impact fee established by the City will be an option to satisfy mitigation obligations of an individual project developer. While it is anticipated that assembly of the Subarea Plan Preserve System will be possible solely through the land entitlement process, the establishment of a Subarea Plan Conservation Fund is a potential mechanism for the City to implement that would facilitate conservation actions towards those actions that are prioritized by the City.

The Subarea Plan Conservation Fund will allow development projects (generally smaller projects with less biological impacts or fewer opportunities to mitigate onsite) to mitigate offsite by paying into a fund used to acquire, maintain and/or manage the preservation of sensitive biological resources within the Subarea Plan Preserve System. Funds collected must be sufficient to provide for land acquisition and management in perpetuity, as required to off-set the development impacts at the appropriate mitigation ratios.

Payment into the Fund, where acquisition of land of equivalent or higher biological value is infeasible with regard to a specific project due to the small acreage covered, will further increase the City's ability to acquire, from private parties, high quality lands and larger quantities of land within the Subarea Plan Preserve System, thereby assuring that lands of the same or higher biological value are acquired overall. Monies from the Fund may be combined with other sources, such as grants and the City's General Fund, to increase the City's ability to acquire property and/or fund additional management and monitoring of properties within the Subarea Plan Preserve System.

Acquisition of land and/or adding of management and monitoring to currently protected lands (but not fully managed) within the Subarea Plan Preserve System will occur as sufficient funds are accumulated through coordination with the Department of Development Services.

Maintaining account and tracking information for the Fund will be the responsibility of the Subarea Plan Coordinator. The City will track the properties acquired during each calendar year and cross reference to the funds used for the acquisition and/or management of land within the Subarea Plan Preserve System and ensure that all Funds obtained as a result of development projects are used exclusively to acquire lands of the same or higher biological value within the Subarea Plan Preserve. Lands could be acquired outside of existing Subarea Plan Preserve System boundaries and then be added to the Subarea Plan Preserve with concurrences of the Wildlife Agencies.

The City will provide information to the Wildlife Agencies in the Subarea Plan Annual Report related to actions undertaken with the Subarea Plan Conservation Fund. This will include a list of properties for approved for impacts through the Subarea Plan Conservation Fund; the acreage covered by each project; the funds collected in connection with each project; the lands (including acreages) acquired and/or managed cross referenced to the project supplying the funds; and an evaluation documenting that the lands acquired and/or managed are of the same or higher biological value of the lands impacted.

8.4.1.7 Grant Funding and Other Sources

The City will pursue grant funding as an opportunity to supplement and enhance the ability of the City of implement the Subarea Plan. Since grant funding is not a secure funding source and availability of grant funding is dependent on a variables outside of the City's control, the City has developed the Subarea Plan so that it can ultimately be implemented independent of grant funding. Nevertheless, funding will be sought from a variety of grant funding sources administered by the Federal, State, and local entities, subject to availability. The City will be responsible for writing grants and managing all grants, contracts, and other funding sources during Subarea Plan implementation. For any grants received, the City must also monitor, track, and report to the granting agency according to the grant requirements

Federal and State Grant Funding

The U.S. Congress and the California legislature have determined that conserving species and their natural habitats is of national and State importance. The Federal and State governments often fulfill their responsibilities for conservation by assisting local governments to assemble, manage and monitor the habitat preserves.

For example, the USFWS Section 6 non-traditional grant program [16 U.S.C. 1535] is a source of grant funding. This program has two funding categories that complement implementation: HCP Land Acquisition, and Recovery Land Acquisition grants. California NCCP plans typically compete well for these funds due to an ecosystem approach, addressing multiple species, involving many stakeholders, and providing high levels of matching funds.

Other sources include existing California Propositions (40, 68, and 84) where land acquisition funds are available through several State agencies, including the California Wildlife Conservation Board. Funds are also available through the Land and Water Conservation Fund Program. CDFW also administers an annual NCCP Local Assistance Grant Program, subject to approval of the Budget Act each fiscal year. The City will opportunely pursue funding through the Local Assistance Program to help offset costs associated with Subarea Plan implementation.

There are a number of potential funding categories within Proposition 68 that would be appropriate for applications. A connection with the California Natural Resources Agency will be maintained in the following opportunity areas to monitor guidelines and application dates:

- Department of Fish & Wildlife for NCCP programs
- Wildlife Conservation Board for landscape-scale habitat conservation programs including and beyond NCCP programs
- Park and Recreation Department
- Department of Conservation
- Department of Water Resources: Stormwater, Urban Runoff

The City will investigate the remaining opportunities within Proposition 84 and possibilities within Proposition 117. In addition, the City will pursue Proposition 1 for stream flow enhancement.

Other Local Grant Funding

Local grant funding includes the *TransNet* Environmental Mitigation Program (EMP) administered by SANDAG. The TransNet Extension Ordinance and Expenditure Plan, approved countywide by voters in November 2004, includes an EMP which is a funding allocation category for the costs to mitigate habitat impacts for regional transportation projects.

The EMP is a unique component of the *TransNet* Extension in that it goes beyond traditional mitigation for transportation projects by including a funding allocation for habitat acquisition, management, and monitoring activities as needed to help implement the regional NCCP Programs in San Diego County.

On February 22, 2008, the SANDAG Board of Directors entered into a Memorandum of Agreement (MOA) with state and federal resource agencies on the implementation of the EMP. This MOA was amended by the Board of Directors on April 26, 2013. A provision of the MOA includes the allocation of $4 million annually to implement regional habitat management and monitoring efforts to help maintain the region's biological integrity, thus avoiding the future listing of endangered species.

A portion of the $4 million is allocated and distributed through a competitive *TransNet* EMP Land Management Grant Program to maintain the integrity of existing regional habitat preserves through enhanced land management. Eligible applicants include land managers from private nonprofit organizations, local jurisdictions, and other government agencies.

The City will submit applications to SANDAG for funds to support management and monitoring activities determined to be a priority by the Subarea Plan Coordinator and Preserve Steward.

8.4.2 Funding Analysis

This section provides planning-level estimates of the costs required to implement the Subarea Plan. The cost estimates and funding sources are discussed per the following categories:

- Subarea Plan Administration
- Land Acquisition to Complete Preserve System
- Preserve Management and Monitoring
- Citywide Preserve System Adaptive Management and Monitoring
- Changed Circumstances Funding
- Regional Monitoring

8.4.2.1 Subarea Plan Administration – Subarea Plan Coordinator and Preserve Steward

The City will fulfill its main responsibilities of Subarea Plan administration and oversight of the Subarea Plan Preserve System by staffing two positions, Subarea Plan Coordinator and Preserve Steward (see Section 8.2, *Roles and Responsibilities*). The City will determine appropriate staffing approaches as circumstances warrant, but it is anticipated that the Subarea Plan Coordinator role will be fulfilled by a City employee and the Preserve Steward role filled through a contractor that has qualified biological and preserve management expertise. For purposes of this Subarea Plan, the assumptions are that the Subarea Plan Coordinator will be completed by staff within the City

Development Services Department as part of the existing staffing levels and the Preserve Steward will be completed by an outside contractor. The City has estimated it will take additional **$100,000** per year (in FY 2019 dollars, which will be adjusted as necessary for inflation over time) to meet the staffing requirements beyond the City's current level of staffing and responsibilities. This amount is consistent with Subarea Plan Administration funding expended by the cities of Carlsbad and Chula Vista for their Subarea Plan implementation. The Subarea Plan Coordinator and Preserve Steward will be funded through the General Fund. The assurance from the City to provide ongoing funding to fulfill role of Subarea Plan Administration is included in the Implementing Agreement and is a core commitment of the City's implementation of the Subarea Plan.

8.4.2.2 Land Acquisition to Complete Preserve Assembly

The goal for this Subarea Plan is to establish a Preserve System that will total approximately 3,060 acres of natural habitat. Assembly of the Preserve System will be accomplished through a variety of means (see Section 5.3.1, *Preserve Assembly and Components*). The portions of the Preserve System that are Existing Preserves, Fully Managed (20.1%) and Currently Protected Open Space, Not Fully Managed (16.4%) have already been acquired as open space and do not require funding for land acquisition. The remaining areas of the Subarea Plan Preserve System (hardline [52.8%] and softline [10.7%] areas) will be set aside as preserves as part of the land development entitlement process. The land developers will be responsible for funding the establishment of preserves (that includes long-term management and monitoring) as a condition of project approvals.

While it will be possible to achieve the Subarea Plan goals for preserve assembly solely through the land development entitlement process, the overall conservation strategy and preserve assembly will benefit from additional acquisitions of conservation properties within the softlines areas. The softline areas will be high priority areas for land acquisitions for conservation purposes either as offsite mitigation for land developments outside of the softline areas, acquisitions by the City if adequate funds are generated through the Subarea Plan Conservation Fund, or other private/public land acquisitions for general conservation purposes. These areas will be incorporated into the Subarea Plan Preserve System once the preserve property is placed under a conservation easement and arrangements made to manage these properties in perpetuity consistent with the Subarea Plan management and monitoring requirements (see Section 7.2, *Preserve Management and Monitoring*).

8.4.2.3 Preserve Management and Monitoring Funding

As described in Section 5.3.1, *Preserve Assembly and Components*, the Subarea Plan Preserve System will consist of a collection of preserve properties managed by multiple land management entities. An estimate of the funding required for the preserve management and monitoring is summarized in Table 8-4 and step-by-step calculations presented are included in Appendix J, *Preserve Management and Monitoring Funding Analysis.* The City completed an inventory of the annual funding and funding sources for the existing preserves within the Subarea Plan Area based on annual reports submitted to the City by the Preserve Manager. Based on averages of 'per-acre' preserve management and monitoring costs for different preserve size ranges and habitat types, an estimate of the funding required for future preserve management and monitoring within the Preserve System.

Table 8-4. Preserve Management and Monitoring Funding

Preserve System Component	Acres	Funding Source(s) for Management and Monitoring	Annual Funding Amount
Existing Preserves, Fully Managed	614.0	1. Endowments and other secure sources	$ 252,834
Currently Protected, Not Fully Managed	501.0	1. General Fund and other City funding sources (City) 2. Other conservation entities (non-City) 3. Subarea Plan Conservation Fund	$ 349,866
Future Preserves – Hardlines	1,616.4	1. Developer funded endowments or CFD	$ 240,784
Future Preserves – Softlines	328.7	1. Developer funded endowments or CFD	$ 185,110
Totals:	3,060.1		$1,028,594

8.4.2.4 City-Wide Preserve System Management and Monitoring

As described in Section 5.4.2, *City Role for Overview and Coordination of Preserve System*, the City will take an active role to provide oversight and coordination of the management and monitoring activities undertaken by each the Preserve Managers operating within the Subarea Plan Preserve System. The City will take the lead to implement actions to improve and enhance management of the Subarea Plan Preserve System from a city-wide perspective. This may include activities such as control cowbirds, improvement to public access control and enforcement, restoration of habitat for Covered Species, and/or regional invasive species removal. An important component of the roles and responsibilities of the Subarea Plan Coordinator and Preserve Steward will be to pursue grant funding opportunities to implement these type of city-wide Preserve System actions. It is anticipated that grant funding sources will be the sole funding source for these type of management actions.

8.4.2.5 Changed Circumstances Funding

Changed circumstances responses will be the responsibility of the Preserve Managers for each preserve within the Subarea Plan Preserve System. Funding for changed circumstances will be derived from contingency budgets available to each Preserve Manager or through re-prioritization of current preserve management activities.

8.4.2.6 Regional Monitoring

Regional monitoring consists of monitoring vegetation communities, wildlife movement, and species population trends across the MSCP Subregional Plan Area. The City will not be responsible for conducting regional monitoring outside of the Subarea Plan Area but will contribute monitoring data collected at preserves within the Subarea Plan Preserve System in a format that can be integrated with regional monitoring databases as appropriate. Data will be submitted to an appropriate data repository. In addition, The City will stay abreast of regional monitoring issues through coordination with other management/monitoring entities, and may either participate in collecting data on its preserves for regional monitoring purposes or will provide access to preserves for other entities to collect regional biological monitoring data if needed. Funding of regional monitoring efforts will be the responsibility of the Wildlife Agencies and other regional monitoring entities.

8.5 Annual Reporting Requirements

8.5.1 Habitat Tracking and Reporting

The City will maintain an accounting of all projects or actions within the Subarea Plan area resulting in the impacts to natural habitat and/or changes to protected open space. The information will be input and managed in a spatial Geographic Information System (GIS) database, and will include the name and description of the project or action and the boundaries of the impacted and conserved portions of the property. Boundaries of fuel modification zones will be included as well. The loss of habitat will be accounted for prior to the grading permit is issued. For lands added to the Subarea Plan Preserve System, habitat gain will be accounted for with the preparation of a PMP and recordation of a conservation easement.

Using Habitrak software or similar program, the City will account, by project and cumulatively, for the amount and location of habitat acreage, by habitat type, lost and preserved within the Subarea Plan Area. Habitrak is a well-established GIS-based regional accounting and reporting system maintained by CDFW that is used for the MSCP and all other current NCCPs in the San Diego region. The data will be updated at least annually, and will be used to ensure that the City is making adequate progress towards the conservation acreage outlined in the Subarea Plan, and that habitat preservation is proceeding in rough step with development.

8.5.2 Subarea Plan Annual Report

The City shall prepare and submit a public Subarea Plan Annual Report to the Wildlife Agencies by February 15 of each year. The Wildlife Agencies will then review and provide comments on the annual report to the City. Annual reporting will focus on the key elements of the Subarea Plan and the critical assumptions used to support those elements, including both compliance and effectiveness monitoring components. The annual report will generally include:

- Information on acreage, location, and type of habitat lost/committed to development and permitted under the Subarea Plan.
- Progress on preserve assembly (e.g., acreage and location of mitigation lands set aside by specific projects including which project provided the lands, including how the land is protected (fee title, conservation easement, etc.), who holds the protection mechanism, and the entity responsible for its management) both within the Subarea Plan Preserve System.
- The rough step analysis.
- All issuances of project approvals and HLIT permits, Minor Amendments to the Subarea Plan, and boundary line adjustments to the Subarea Plan Preserve System boundaries over the course of a given reporting year.
- Subarea Plan funding - how much funding, by fund source, was available/collected for Subarea Plan implementation, broken down by the purpose of the funding (e.g., land acquisitions, program administration, management, adaptive management, monitoring, etc.), and how much is anticipated for the next year.
- Summary of preserve management – The Preserve Managers for each individual preserve with the Subarea Plan Preserve System provide annual reports to the City. The City will summarize

the status of activities, monitoring, adaptive management, public outreach, funding, and other issues concern from the Preserve Managers.

- Updates on biological information on natural communities and Covered Species using information collected by Preserve Managers and other biological monitoring activities occurring within the Subarea Plan Area.
- Identification of emergency measures to be implemented if "changed circumstances" could result in impacts to or loss of a population of conserved species.

Every year the City shall meet with the Wildlife Agencies to review and evaluate implementation of the Subarea Plan during the previous year. Progress toward achieving conservation goals and requirements will be reviewed; key conservation, management and monitoring actions implemented during the year will be summarized; and habitat management issues will be discussed along with a review of project approvals issued by the City over the course of the year. If the parties determine that the Subarea Plan is not being implemented as required (e.g., rough step requirements for Subarea Plan Preserve lands or funding for preserve management are not being met), the Wildlife Agencies and the City will take the actions specified in the implementing agreement to remedy the situation. These actions may include additional management activities, modification of the project compliance process, or redirection of implementation funds, as long as they are consistent with the provisions of the IA. To allow for public participation, the City will participate with other MSCP jurisdictions to conduct an annual public meeting to describe progress on Santee Subarea Plan implementation. The meeting will take place within three months of the Subarea Plan Annual Report being finalized.

8.6 Amending the Subarea Plan

Certain events may require amending the Subarea Plan as described below. Although Subarea Plan amendments are not anticipated on a regular basis, amendments may be necessary to accommodate changes in conservation levels or preserve design or large annexations of land. Concurrence from the Wildlife Agencies is required for a Subarea Plan amendment. The Wildlife Agencies must be notified as soon as the City confirms that a Subarea Plan amendment is warranted. CEQA and NEPA compliance will not be required for any project that triggers the Minor Amendment process. Both CEQA and NEPA compliance will be required for any project that triggers the Major Amendment process. The document(s) must address project impacts, as well as impacts on Subarea Plan implementation and any effects on permits held by the City. Examples of amendments to the Subarea Plan include:

1. Removal of lands from conservation or reconfiguration of project plans resulting in a decrease of the amount or quality of habitat conserved that could not be addressed by a boundary line adjustment.
2. An annexation of land to be developed or to be included in the Subarea Plan Preserve System into the City that is not covered by an existing NCCP/HCP or includes a major variation in design or implementation of an existing NCCP/HCP.
3. Adjustments to approved Subarea Plan Preserve System boundaries, projects, operations, or management actions become necessary when new biological information is obtained through site-specific studies, or when unforeseen design opportunities or constraints are identified during project planning operations.

4. Addition to the list of Covered Species.

Most amendments to the Subarea Plan are expected to be Minor Amendments and may be accomplished through the process described below. A process for Major Amendments is also described. Minor and/or Major Amendments to this Subarea Plan will be initiated at the request of the City, and are subject to approval by the Wildlife Agencies.

8.6.1 Clerical and Administrative Changes to the Subarea Plan

Clerical and administrative edits and updates to the Subarea Plan, such as clerical changes (typographical corrections and minor editing that do not affect conservation commitments), vegetation mapping and species occurrence updates, changes to preserve management status of lands within the Preserve System, and adaptive management changes made pursuant to monitoring results and discussions with the Wildlife Agencies, are not amendments.

Management and monitoring within the Subarea Area Preserve Area may identify new practices that can improve habitat conditions and/or Covered Species' status. Changes to management (and monitoring) practices will be proposed and discussed in the Annual Report. Because these changes would be expected to enhance habitat conditions and/or Covered Species' status, the City anticipates that they will be processed as administrative changes. Changes to the list of invasive plant species maintained by the Cal-IPC, or an equivalent organization or agency, are expected to occur over time. Changes to the list will be reported in the Annual Report.

These non-substantive changes to the Subarea Plan may be made by the City on its own initiative or in response to a written request submitted by a Wildlife Agency and will not require any amendment to the Subarea Plan, Permits, or Implementing Agreement. All proposed clerical or administrative changes shall be circulated in writing among the parties by the party proposing the change. If no party objects to the proposed clerical or administrative change within 30 days of receipt, the change will be deemed accepted. If a party objects to a proposed clerical or administrative change, the proposing party may elect to propose the change as a Minor or Major Amendment to the Plan. Each Annual Report will include a summary of all clerical and administrative changes made to the Subarea Plan during the preceding calendar year.

8.6.2 Minor Amendments to the Subarea Plan

Projects, operations, or other actions, such as fuel modification zone adjustments, which require a Minor Amendment would have habitat impacts that, with appropriate mitigation, would not affect the overall goals and implementation of the Subarea Plan. The City must process a Minor Amendment to this Subarea Plan before Take Authorization will apply to any such project, operation, or other action. Minor Amendments require the written concurrence from the Wildlife Agencies. The process for completing a minor Subarea Plan amendment is as follows:

1. The City identifies an action which requires a Minor Amendment and meets with the Wildlife Agencies to discuss the proposed development project.
2. The City shows that the activity may be implemented (with appropriate mitigation) and is consistent with Subarea Plan and its conservation standards (i.e., the amendment will not affect the overall goals of the Subarea Plan). Additionally, the City will demonstrate that the amendment will result in the same or higher biological value to the Subarea Plan Preserve System and no-net-loss of total conserved acreage.

3. The City submits the request for Minor Amendment to the Wildlife Agencies.
4. The Wildlife Agencies review the proposed Minor Amendment and issue written notice of concurrence or non-concurrence to the City within 60 days of receiving a complete minor amendment request. The notice will identify that the Agencies:
    - Have sufficient information to allow the amendment and will issue written concurrence to the City for amendment approval; or
    - Have determined additional information or data collection is necessary before they will issue a written concurrence to the City for amendment approval; and/or
    - Have determined that additional mitigation is required before they will issue a written concurrence to the City for amendment approval.
5. Where additional information or mitigation is requested, the City will provide the information or mitigation to the extent it is reasonably available or can be done at reasonable cost within 90 days. Where additional information or mitigation are requested, the Wildlife Agencies will provide a detailed explanation of what is required and why.
6. Once the additional requests are received, the Wildlife Agencies will notify the City of amendment approval or disapproval in writing within 30 days of receiving the additional requests.
7. If the City receives written non-concurrence from the Wildlife Agencies, then the City and the Wildlife Agencies will meet within 30 days to discuss and reach agreement upon the amendment.
8. If the Wildlife Agencies fail to respond to the City within 60 days of receiving a complete minor amendment request, or 30 days after receiving additional information requests (deemed adequate by the Wildlife Agencies), the amendment will be deemed accepted.

8.6.3 Major Amendments to the Subarea Plan

Major Amendments to the Subarea Plan would be unusual and would generally be required for a significant annexation of land placed into the Subarea Plan Area, change in conservation requirements, adding a new Covered Species, or undertaking of a project or operation of a scope and scale which could not be accommodated as a Minor Amendment. All Major Amendments to the Subarea Plan will require a formal amendment to the permits to receive Take Authorizations. Requests for Major Amendments must be processed by the Wildlife Agencies in conformity with all applicable laws and regulations (including NEPA, CEQA, and the CESA/ESA) in effect at the time the request for an amendment is made.

Requests by landowners for a Major Amendment must be submitted to and initially approved by the City. The City will coordinate processing the Major Amendment with the Wildlife Agencies. The process for completion of Major Amendments to the Subarea Plan includes:

1. The project proponent must meet with the City and the Wildlife Agencies to discuss the proposed development project and required biological surveys.
2. The project proponent must submit updated (within one year) biological surveys to the City and the Wildlife Agencies.

3. The project proponent must define preserve boundaries consistent with the requirements of this Subarea Plan (including Narrow Endemic, Wetland, and Vernal Pool Conservation Standards).
4. The project proponent must receive written agreement from the City and the Wildlife Agencies for establishment of new Subarea Plan Preserve boundaries that expand the Subarea Plan Preserve.
5. The project proponent must incorporate biological information and Subarea Plan Preserve boundaries agreed on by the City and Wildlife Agencies into project environmental documentation.
6. The project proponent must prepare the Major Amendment document meeting HCP/NCCP standards. The City must serve as the CEQA Lead Agency, and USFWS would serve as the Lead Agency for the NEPA document. The CEQA document must identify feasible alternatives which would maintain, to the maximum extent possible, the existing biological functions and values of the Preserve. Where those functions and values would not be maintained, the alternatives should consider ways to improve the Preserve in other meaningful ways.
7. The City will consider adoption of a Major Amendment during consideration of a project's entitlement process.
8. The Wildlife Agencies will jointly process the Major Amendment and an amendment to the Incidental Take Permit and NCCP Permit in accordance with all statutory and regulatory requirements.

8.7 Regulatory Assurances, Changed Circumstances and Unforeseen Circumstances

8.7.1 Assurances in the Implementing Agreement

Some of the key assurances in the IA are described below.

8.7.1.1 Local Land Use

The Wildlife Agencies will issue permits to the City to take species covered by the Subarea Plan. In addition, the MSCP Subregional Plan and this Subarea Plan will minimize most Wildlife Agency involvement in project-specific review and approval. Impacts to wetlands must continue to be regulated through the Clean Water Act, Fish and Game Code Section 1600 et seq., and local regulations, although coverage for endangered species afforded through implementation of this Subarea Plan will facilitate ESA consultation required between the USFWS and ACOE.

8.7.1.2 Duration of Permits

Permits will be issued for a period of 50 years and are renewable as outlined in the Implementing Agreement.

8.7.1.3 New Development

New land development that is consistent with this Subarea Plan will be allowed to take Covered Species and habitats incidental to project construction, operation, and maintenance based on approvals extended to the project through the local permitting process as long as they are consistent with this Subarea Plan.

8.7.1.4 Covered Species

The City will receive permits for the list of species identified as covered in Table 1-1, Santee Subarea Plan Covered Species. The list includes species that are conserved by the successful implementation of this Subarea Plan, as well as species that are conserved in combination with other MSCP Subarea Plans. The list includes species that are listed as threatened or endangered and species currently not listed under either the ESA or CESA. The Subarea Plan Covered Species list also includes species that are in addition to the MSCP Covered Species list approved in 1997. These are species for which the City has demonstrated in the Chapter 6, *Conservation Analysis*, that requirements for coverage have been met.

If a Covered Species that is not listed at the time the Subarea Plan is permitted becomes listed over the life of the permits, the City will not be required to provide additional land, water or other natural resources beyond the level provided for under the Subarea Plan (provided that the City is properly implementing the Subarea Plan). In the event that further impacts in the Subarea Plan Area would contribute to appreciably reducing the likelihood of the survival and recovery of the newly listed species, the City will consult with the Wildlife Agencies to determine if any additional conservation measures are necessary.

8.7.1.5 Critical Habitat

If, in the future, critical habitat is designated for a federally listed species, that determination will not cause additional land, mitigation, restrictions, management, or compensation to be required of the City if this Subarea Plan is being implemented adequately, including being compliant with the permit conditions for that species (see Appendix C). Mitigation standards for existing critical habitat (i.e. those designated prior to the Subarea Plan implementation) impacts are outlined in Section 4.2.2.

8.7.1.6 Future Listings of Non-covered Species

If a species not on the Subarea Plan Covered Species list is subsequently proposed for listing under the ESA or CESA, the City can seek coverage for the species as a Changed Circumstance by initiating a Major Amendment to the Subarea Plan (see Section 8.6.3). The Wildlife Agencies will evaluate the conservation measures that are necessary to protect the species and will determine whether existing conservation measures prescribed by the MSCP Subregional and Subarea Plans are sufficient to extend coverage. If the Subarea Plan already contains sufficient conservation measures for the species, that species shall be amended into the City's permits. If the Subarea Plan is found to not contain sufficient conservation measures for the species, the City will have to undertake a Major Amendment of the Subarea Plan to add additional conservation measures that warrant coverage.

8.7.1.7 Contributions to Conservation of Covered Species

The Subarea Plan will provide for the conservation and management of Covered Species. This is due in part to systematic conservation of key biological areas, habitat cores, and linkages, and to the

proactive habitat management actions described in this Subarea Plan. The Subarea Plan also contributes the expansion of the regional MSCP Preserve system, active management and monitoring of the Subarea Plan's Preserve in perpetuity, and the implementation of additional species-specific conservation measures.

8.7.1.8 Wildlife Agency Contribution

The USFWS and CDFW acknowledge that the MSCP Subregional Plan and Santee Subarea Plan are long-term in nature and that the Preserve will be established over a fifty (50) year period. Contributions of the USFWS and CDFW will be made at varying levels throughout the life of the program, with contributions to habitat acquisition to occur within the first thirty (30) years of the program. As of the Effective Date, USFWS and CDFW have fulfilled and exceeded their land acquisition obligations under the MSCP Subregional Plan. Additional State and federal contributions may include, but are not limited to, state and federally funded habitat acquisitions, land exchanges, personnel, and habitat restoration and enhancement. USFWS and CDFW will manage, maintain and monitor all lands they contribute to the MSCP Subregional Plan and Santee Subarea Plan, whether owned or administered by them as of the signing of the Subarea Plan's IA or later acquired, consistent with the MSCP Subregional Plan and Santee Subarea Plan.

To ensure uniformity in data gathering and analysis, the USFWS and CDFW will assume primary responsibility for coordinating a regional biological monitoring program that collects and analyzes data, and providing information and technical assistance to the Participating Local Jurisdictions and Participating Special Entities. The USFWS, CDFW and MSCP Subregional Plan Participating Local Jurisdictions will prioritize specific regional monitoring activities based on available budget and specific needs of individual species and habitats.

8.7.1.9 Regulatory Assurances under the Endangered Species Act—The No Surprises Rule

No Surprises Rule 50 CFR 17.22(b)(5)(iii)A) and 17.32(b)(5)(iii)(A) provides that once an incidental take permit has been issued pursuant to an HCP, and its terms and conditions are being fully implemented, the USFWS "will not require the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan without the consent of the Permittee." If the status of a species addressed under an HCP unexpectedly declines, the primary obligation for undertaking additional conservation measures rests with the federal government, other government agencies, or other non-federal landowners who have not yet developed HCPs. The preamble to the No Surprises Rule provides the following explanation.

> Once an HCP permit has been issued and its terms and conditions are being fully complied with, the Permittee may remain secure regarding the agreed upon cost of conservation and mitigation. If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the primary obligation for implementing additional conservation measures would be the responsibility of the Federal government, other government agencies, and other non-Federal landowners who have not yet developed an HCP (63 FR 8867).

However, in the event of Unforeseen Circumstances, USFWS may require additional measures beyond those provided under the Subarea Plan provided they are limited to modifications in conserved natural community areas or to the Preserve PMPs for the affected species or to the Subarea Plan's operating conservation program for the affected species and maintain the original

terms of the conservation plan to the maximum extent practicable. These measures may not involve additional financial commitments or resource restrictions beyond those provided under the Subarea Plan without the consent of the Permittee (50 CFR 17.22(b)(5)(iii)(B) and 17.32(b)(5)(iii)(B)).

The assurances provided by the No Surprises Rule are not absolute and are tempered by other regulatory provisions of the ESA. The Permit Revocation Rule moderates the scope of the No Surprises Rule, providing that in instances where the survival and recovery of a species covered by an HCP is threatened, USFWS may revoke the HCP permit (50 CFR 17.22(b)(8)).

8.7.2 Changed Circumstances

Changed Circumstances are defined under the federal "No Surprises" rule as those events that may affect a species or geographic area covered by the Subarea Plan that can reasonably be foreseen by the City and the Wildlife Agencies during planning and development of the Subarea Plan. Such occurrences are addressed through this Subarea Plan and are mitigated for via the ongoing monitoring and adaptive management program (see Section 7.2.5, *Adaptive Management and Monitoring of the Preserves*). If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances, as described in the Subarea Plan, the City will be expected to implement the measures specified in the Subarea Plan within the dedicated Subarea Plan Preserve System, but only those measures and no others.

The USFWS, CDFW, and the City agree that the Changed Circumstances defined by this Section of the Subarea Plan represent all Changed Circumstances to be addressed by the City. Changed Circumstances addressed by this Subarea Plan include the following:

1. **Fire**: Repetitive fire, occurring in the same location as a previous fire within three to ten years of an initial fire, and damaging up to 30 acres of habitat within the Subarea Plan Preserve System.
2. **Climate Change:** An increase in temperature of up to 2.5°C (4.5°F), measured as a 10-year running average for three baseline periods (i.e., average annual temperature, average summer temperature [June, July, and August], and average winter temperature [December, January, and February]).
3. **Flooding**: Flood events occurring within the Subarea Plan Preserve floodplains associated with the San Diego River and Sycamore Creek and their associated tributaries, less than 100-year levels, as classified by the Federal Emergency Management Agency (FEMA) and determined by the Santee Department of Public Works.
4. **Drought**: Prolonged drought of at least three years in length, as declared by the California State Department of Water Resources and/or the San Diego County Water Authority.
5. **Invasion of Exotic Species**: An increase of invasive species within the Subarea Plan Preserve that, as determined by the City's Preserve Manager(s) in consultation with the Wildlife Agencies, is of sufficient magnitude to significantly adversely affect any Covered Species.
6. **Disease**: Disease, including West Nile Virus.
7. **Listing of Non-Covered Species**.
8. **Toxic spills**.

These Changed Circumstances provisions reflect changes in circumstances that can reasonably be anticipated to occur to Covered Species or their habitats within the Subarea Plan Preserve System.

These Changed Circumstances provisions are not intended to cover the same or similar circumstances outside City jurisdiction, nor occurrences within the Subarea Plan Area outside of the Subarea Plan Preserve System where the City has no legal authority to carry out the Planned Responses, nor if they occur within the proposed hardline preserve areas of the Subarea Plan Preserve System as depicted on Figure 5-1 before the land is dedicated as a preserve within the Subarea Plan Preserve System boundaries.

Except for the future listing of non-Covered Species, each of the defined Changed Circumstances includes an assessment of risk, a description of preventative measures, and a summary of Planned Responses (specific measures to be undertaken in the case of Changed Circumstances), as provided below. Preventative measures are those measures that are or will be undertaken by the City and Preserve Managers to reduce the potential for occurrence of the Changed Circumstance, and/or that reduce the potential for damage to the Subarea Plan Preserve System resulting from a Changed Circumstance event. Planned Responses will not include any actions beyond those expressly identified in this Section, nor for any event not specifically identified as a Changed Circumstance. Planned Responses will be implemented to the extent that it is possible to do so and remain consistent with the primary goal to prevent harm to the public health, safety, and welfare. Planned Responses will be implemented primarily by the Preserve Managers using contingency funds and/or reprioritization of management tasks to offset any detrimental effects as a result of the Changed Circumstances (see Section 8.7.2.8, *Funding for Changed Circumstances*). The City will pursue grant funding sources to assist with responses to Changed Circumstances as appropriate and available.

8.7.2.1 Fire

For the purpose of defining Changed Circumstance, fire is defined as fire occurring 1) in the same location within three to ten years after a previous fire, or 2) damaging up to 30 acres within the Subarea Plan Preserve.

Risk Assessment

Because fire is a natural feature within the City's Subarea Plan area, under normal circumstances natural re-growth of habitat is expected. However, the Wildlife Agencies have indicated that certain Repetitive Fires within the same location of the Subarea Plan Preserve may adversely affect the Covered Species conserved by this Subarea Plan as a result of habitat type conversion from existing habitat(s) to invasive or non-native weeds.

The Wildlife Agencies have indicated that for the habitat types prevalent in the Subarea Plan Preserve, including coastal sage scrub, maritime succulent scrub, and riparian habitat, a re-burn within the same footprint within ten years of the original burn can adversely hamper natural re-growth and interrupt the ability of the habitat to rejuvenate. After ten years, habitat types prevalent in the Subarea Plan Preserve are expected to be fully re-established and capable of natural regeneration. A "Repetitive Fire" (a fire anticipated to occur and to create the potential for type conversion) is therefore considered a fire incident which occurs in the same location as a previous fire incident (initial fire) no more than ten years subsequent to the initial fire.

In addition, City Fire Department officials note that vegetation that has been burned requires approximately five years to grow before becoming a potentially hazardous fuel load. It is therefore not anticipated that a Repetitive Fire, if it were to occur, would occur in the same location for at least three-to-five years subsequent to an initial fire. For the purpose of defining Changed Circumstances,

the City has determined that a Repetitive Fire occurring within the first three years subsequent to an initial fire is therefore not reasonably anticipated.

In order to further estimate the potential for Repetitive Fire, a history of fire incidents throughout the City were evaluated. The fire incident history for the City records an average of 22 wildland fires per year. Because the level of fire response in urban areas is rapid and responders are highly trained, fire incidents are contained quickly but large fires incidents occur periodically. Thus, the average area of land burned in fires within the Preserve has been 14.29 acres per year, but larger fires, such as the Cedar fire in 2003 caused widespread damage (approximately 2,750 acres within the planned Subarea Plan Preserve, including the majority of Fanita Ranch and some of the North Magnolia Summit Subunit).

Because implementation of this Subarea Plan will result in large areas of undeveloped, protected habitat within City boundary, the Regional Zone Operations Group assembles key members of the City's Fire Department and neighboring jurisdiction's fire department on a regular basis to assess the potential that future repetitive fire incidents may burn areas greater than five acres before containment during the life of the permit.

Preventative Measures

Preventative measures to reduce the likelihood of, or harm from, a single fire in the Subarea Plan Preserve are included in the preserve management guidelines specified in Section 7.0 of this Subarea Plan and will be more specifically identified in the area-specific management directives for the individual preserve units. Additionally, the following measures will be implemented by the City to prevent or respond to the effects of fire on Covered Species and/or habitats:

1. *Proximity of Fire Services to the Preserve* – The Subarea Plan Preserve is primarily an urban preserve that is almost entirely surrounded by developed areas. Although the presence of urban uses may increase the potential for fire, it greatly decreases the potential for large, non-contained fires due to the proximate location of non-flammable materials such as roadways and landscaping. Additionally, urbanization causes fire department responders to be located between structures and the Subarea Plan Preserve, facilitating a rapid response at the urban-wildland interface. Rapid response leads to fewer acres burned. The average response time to fire incidents within the City is approximately seven to ten minutes.
2. *Brush Abatement Program* – In order to further reduce the risk of fire, the City implements a City-wide weed abatement and brush management program. However, no weed abatement or brush management activities may reduce the amount and/or quality of habitat within the Subarea plan Preserve unless compensatory mitigation is undertaken. The Program is funded through the General Fund and penalties collected from private-property owners.
3. *Emergency Management* – The City will amend the General Plan to address procedures that the City will implement both prior to and during any single fire in the Subarea Plan Preserve. The procedures will stipulate that the City will coordinate an emergency notification and response system that will strive to protect the Covered Species and the Subarea Plan Preserve, to the extent that it is possible to do so, and remain consistent with the primary goal of containing and extinguishing the fire to prevent harm to public health, safety, and welfare. The procedures will also provide for a triage system that includes notification of the Wildlife Agencies as soon as feasible after the onset of the fire. The procedures will also provide for restricted public access to the Subarea Plan Preserve in times of drought, when fire hazard is very high.

Planned Responses

Upon the occurrence of a Repetitive Fire Changed Circumstance as defined above, the City will notify the Wildlife Agencies within 15 days. Within 30 days of the Repetitive Fire incident, the City will assess the damage caused by the fire within the Subarea Plan Preserve. Depending upon the extent and severity of the fire damage, and as determined by the City, with concurrence of the Wildlife Agencies, the City will take the following action:

1. The City will immediately implement Best Management Practices (BMPs) to avoid soil erosion and further habitat impacts. The City will then develop and implement a program to monitor natural re-growth within the damaged areas for a period of up to two years. The monitoring program will provide for site visits on a regular basis, as determined by the City and the Wildlife Agencies, as appropriate to the scope and severity of the burn. Management of the burned area will emphasize removal of weeds and preventing infestation by invasive species. Should monitoring observations indicate an increase in invasive non-native species and/or an increased potential for type conversion, the Subarea Plan Preserve management program will be modified to eliminate the infestation and reduce the potential for such invasion and/or type conversion. Active restoration of some areas may be warranted, as well as invasive weed control.

8.7.2.2 Climate Change

Risk Assessment

Global climate change is occurring as a result of high concentrations of greenhouse gases in the earth's atmosphere (National Research Council 2010; Intergovernmental Panel on Climate Change 2007). Greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, and ozone. These gases absorb energy emitted by the earth's surface and then re-emit some of this energy back to the earth, warming its surface and influencing global and local climates. As more and more greenhouse gases are emitted into the atmosphere from human activities such as the burning of fossil fuels, the earth's energy balance is disrupted, resulting in a number of changes to the historical climate. Evidence of long-term changes in climate over the twentieth century include the following (Intergovernmental Panel on Climate Change 2007; National Research Council 2010; Global Change Research Program 2009):

- An increase of 0.74 degree Celsius (°C) (1.3 degrees Fahrenheit [°F]) in the earth's global average surface temperature;
- An increase of 0.17 meter (6.7 inches) in the global average sea level;
- A decrease in arctic sea-ice cover at a rate of approximately 4.1 percent per decade since 1979, with faster decreases of 7.4 percent per decade in summer;
- Decreases in the extent and volume of mountain glaciers and snow cover;
- A shift to higher altitudes and latitudes of cold-dependent habitats;
- Longer growing seasons; and
- More frequent weather extremes such as droughts, floods, severe storms, and heat waves.

Current global and regional trends suggest climate change is likely to have an effect on the Subarea Plan Area. Section 2.2.4, *Climate*, describes projections of future climate for the Subarea Plan Area that has been developed for the City's Sustainability Action Plan (City of Santee 2018b). Studies show that California will experience warmer temperatures, increased drought, and more extreme weather events (California Natural Resources Agency and California Energy Commission 2012) and impacts to the Subarea Plan Area will be similar. Projections of climate change in the region include warming by 4-6° F on average, and a 15-25% decrease in fall and spring precipitation with an increase in variability resulting in more frequent and intense droughts punctuated by increasingly rare yet extreme precipitation and flooding events (Jennings et al. 2018). Consequently, it is likely the climate in the Subarea Plan Area will shift to warmer, dryer, and more variable than current conditions.

A number of ecological responses to climate change may occur in the Subarea Plan Area. First, the timing of seasonal events, such as migration, flowering, and egg laying, may shift to earlier or later periods. Such shifts may affect the timing and synchrony of events that must occur together, such as butterfly emergence and host plant availability. Second, the range and distribution of species and natural communities may shift. Range is the area over which a species occurs or potentially occurs, whereas distribution refers to where a species is located within its range. This is of particular concern for narrowly distributed species that already have restricted ranges due to urban growth or altitudinal gradients. Historically, some species may shift their ranges across the landscape. Today, urban and rural development prevents the movement of many species across the landscape. Species or natural communities that occur only at high elevation or within narrow environmental gradients that are particularly vulnerable to changing climate because they most likely have nowhere to move if their habitat becomes less suitable.

Second, increases in disturbance events, such as fire or flooding, may increase the distribution of disturbance-dependent land cover types, such as grasslands, within the Subarea Plan Area. An increase in the frequency and intensity of disturbance may increase the likelihood that these events will harm or kill individual Covered Species. Events that occur with unpredictable or random frequency (called stochastic events), such as those described above, can have an inordinately negative effect on rare species.

Third, the number or density of individuals found in a particular location may change. This may be triggered in large part by changes in resource availability associated with an increase or decrease in precipitation. Such changes may benefit one species at the expense of other species.

Fourth, over a longer time period, species may change in outward appearance and behavior. Changes in climate may favor different adaptive strategies or appearances that may lead to genetic shifts (Davis and Shaw 2001). An example of this would be a shift to smaller average body size for certain mammals to use limited food sources for maintenance rather than growth.

Preventative Measures

The Subarea Plan conservation strategy, assembly of the Subarea Plan Preserve System, and monitoring and adaptive management program anticipate possible effects of climate change using a multi-scale approach that views conservation through landscape, natural-community, and species level. This approach focuses on protecting and enhancing a range of natural communities, habitat types, and environmental gradients (e.g., altitude, aspect, slope) as well as other features (e.g. connectivity) that are important as global warming changes the availability of resources and habitat types in the study area.

Implementing conservation actions that protect a variety of landscapes over a large scale provides flexibility for shifts in the range and distribution of species and natural communities due to climate change. Land acquisition actions target properties that provide connectivity and allow for movement, maintenance and restoration of habitat linkages, and minimize habitat fragmentation. As a result, some species and natural communities in the Subarea Plan Area would continue to be able to "move" in response to climate change, allowing for shifts in range and distribution.

At the natural-community level, the City and Preserve Managers will implement the Subarea Plan that includes conservation and monitoring actions to address natural community issues primarily through the preservation and management of vegetation types (i.e., land cover types). Ongoing monitoring by the City and Preserve Managers will also address changes in natural habitats to help ensure natural community persistence in the face of abundance shifts driven by climate change. Enhancement, restoration, and management actions will most likely increase the resilience of natural communities by improving habitat quality overall and controlling invasive plants and nonnative predators.

At the species level, the City developed conservation and monitoring actions to supplement and focus actions that were developed at broader scales and ensure that all of the needs of particular species are addressed. These species-specific actions will help ensure that shifts in range, distribution, and abundance that are driven by climate change are buffered by the protection and enhancement of individuals, populations, and groups of populations. Status-and-trend monitoring will serve as an early warning of the possible effects of climate change and allow the conservation strategy to adapt, thereby ensuring species persistence in the Plan Area.

In addition to the conservation actions, monitoring actions will allow for the early detection of trends that are driven by climate change over multiple scales. Landscape-level monitoring is designed to detect large-scale changes, such as changes in ecosystem processes, shifts in natural-community distribution, and the integrity of landscape linkages. Community-level monitoring will, in turn, detect changes in the composition and function of natural communities, populations of key predator or prey populations, invasive species, and other important habitat factors for covered species. Finally, species-level monitoring will measure the effects of management actions on covered species and the status and trends of covered species in the reserve system. Collectively, these monitoring actions will allow the Conservancy to detect and respond to the effects of climate change. Taken together, the conservation and monitoring actions described above will help buffer against the effects of climate change in the Plan Area.

Climate change is considered a foreseeable event and is therefore a changed circumstance. The Subarea Plan places limits on the changed circumstance, as described below.

Planned Responses

The City will use a method consistent with the California Climate Action Team for measuring temperature change within the Subarea Plan Area. The annual average temperature in the Subarea Plan Area (16.5°C [61.7°F]) has risen, on average, 0.01°C (0.02°F) per year over the past century (1909 to 2009) (California Climate Change Center 2018). This increase in average temperature has been driven by warmer winters rather than by warmer summers, with three times larger percentage increases in the average temperature in January than that in July (California Climate Change Center 2018). If modeled California climate-change trends are applied to the Subarea Plan Area, one may anticipate that the temperature may increase up to 2.5°C (4.5°F) during the permit

term. Under the Subarea Plan, the following is considered a changed circumstance for which the City and Preserve Managers will fund remedial measures:

- An increase in temperature of up to 2.5°C (4.5°F), measured as a 10-year running average for three baseline periods (i.e., average annual temperature, average summer temperature [June, July, and August], and average winter temperature [December, January, and February]).

The City's response to the changed circumstance of global climate change will vary by the character and magnitude of the physical and biological changes observed. Responses may include those listed below. All responses will occur within one year of identifying changed circumstances, unless the Wildlife Agencies concur on a case-by-case basis that specific remedial actions would require more time to initiate.

- Enhanced monitoring to detect ecological responses to climate change,
- Identification of target species that are most vulnerable to climate change and increased status-and-trend monitoring for those species,
- Alterations to the conceptual ecological models for natural communities and covered species as a tool to devise improved management action,
- Altered or more intensive management actions on target/vulnerable species to facilitate shifts in species distribution (e.g., more active population management of covered species),
- More aggressive control of invasive species that respond positively to climate change, and
- Implement other measures through the Adaptive Management Program in ways consistent with Permit obligations and with the consent of the City.

The City has established thresholds for events that are not reasonably foreseeable for determining unforeseen circumstances. Unforeseen circumstances that are not funded by the Subarea Plan include the following:

- A temperature increase greater than 2.5°C (4.5°F) for the three baseline periods (see above) will be considered an unforeseen circumstance. Temperature increases will be measured as a 10-year running average.

Limits on the variation in other parameters (e.g., precipitation) are much more difficult to determine. Given the seasonality of rainfall in the Subarea Plan Area, an increase in winter precipitation may be offset by increased evapotranspiration during the summer months (Intergovernmental Panel on Climate Change 2007). A decrease in winter precipitation would be exacerbated by increased summer temperatures, leading to increased drought. Therefore, it is not possible at this time to define limits of rainfall patterns that would qualify as unforeseen circumstances. Regardless of increases or decreases in precipitation, it is anticipated that the number of strong storm events will increase during the winter season (Jennings et al. 2018). Increased frequencies of flooding and drought are taken into account in the sections below that address these changed circumstances.

8.7.2.3 Flooding

For the purpose of defining Changed Circumstance, flooding is defined as natural rain runoff events occurring within, and causing damage to, Subarea Plan Preserve System floodplains associated with the City's three watersheds (i.e., the San Diego River, Forester Creek, and Sycamore Creek) and their associated tributaries, less than 100-year flood levels, as classified by the Federal Emergency Management Agency (FEMA). Damage to the Subarea Plan Preserve System due to a flood at greater than a 100-year level is defined as Unforeseen.

Risk Assessment

FEMA provides local jurisdictions with mapping that defines the areas that may be affected, or inundated, by flood. FEMA typically addresses the 100-year flood event and its consequences for people and structures. A 100-year flood, as defined by FEMA, produces a magnitude of inundation that has a one percent chance of occurring in any given year. A 100-year flood has a 39 percent chance of occurring in any given 50-year period, and thus is reasonably foreseeable during the life of this Subarea Plan and associated permits. However, flooding is a natural event and is not anticipated to cause damage sufficiently severe to prevent natural regeneration of existing habitats with the Subarea Plan Preserve.

Information on flooding potentials is available from several sources. FEMA maps on file with the City identify the 100-year flood zones located within the Subarea Plan Preserve. These areas primarily follow the creeks which form the watersheds named above, and are essentially confined to natural drainage channels and riparian areas, where water has historically been known to occur.

Preventative Measures

Preventative measures to reduce the likelihood of or harm from flooding in the Subarea Plan Preserve are included in preserve management guidelines specified in Section 7.0 of this Subarea Plan. City land use policies ensure that land use regulations and public improvements accommodate 100-year flood events that approximate the rate, magnitude, and duration of natural flood flows.

All development projects approved by the City will also include implementation of BMPs for stormwater and surface runoff pursuant to the standards promulgated by the California Regional Water Quality Control Board (RWQCB). For all discretionary projects approved by the City, the City will include mitigation measures or other conditions, as appropriate, to reduce the likelihood that a flood would adversely impact Covered Species and the Subarea Plan Preserve System. As a co-permittee of the RWQCB National Pollution Discharge Elimination System (NPDES) Permit, the City has adopted Standard Urban Storm Water Mitigation Plan (SUSMP). The large majority of new development projects and significant redevelopment projects must meet SUSMP requirements to reduce pollution and runoff flows. The City's SUSMP includes a list of recommended source control and structural treatment BMPs.

Planned Responses

Upon the occurrence of a Changed Circumstances Flood as defined by this Section, the City shall employ BMPs immediately to reduce and/or avoid additional impacts to the Subarea Plan Preserve. The City will then notify the Wildlife Agencies within 15 days. Within 30 days of the flood incident, the City will assess the damage caused by the flood within the affected drainage to determine, with concurrence of the Wildlife Agencies, if a monitoring plan is required. Anticipated damage would

include erosion to the main channel or bank, possibly with loss of riparian vegetation. The assessment will identify measures to minimize adverse impacts on Covered Species resulting from the flood event. Measures developed by consensus between the City and the Wildlife Agencies, which may include active restoration, will be implemented. Ongoing maintenance and operations activities may continue until new measures resulting from the assessment are developed.

Should the extent and severity of the flood damage necessitate monitoring the City will develop and implement a monitoring program for a period of up to two years to monitor natural re-growth within the damaged area. The monitoring program will provide for site visits on a regular basis, as determined by the City and the Wildlife Agencies, as appropriate to the scope and severity of the flood damage.

At any time during the monitoring program, should monitoring observations indicate that habitat regrowth is resulting in increased opportunity for invasion by non-native species and/or increased potential for type conversion, the Subarea Plan Preserve management program will be modified to reduce the potential for such invasion and/or type conversion, consistent with the Section 7.2, *Preserve Management and Monitoring* and the terms of the IA. One or more of the following management activities will be incorporated into the modified management program, as appropriate for the circumstance: (1) removal of sediment and/or debris, (2) control of non-native weeds and other invasive species through approved techniques, and/or (3) active restoration. The City shall provide funding, as outlined in Section 6.0 of this Subarea Plan, to address the additional costs of Changed Circumstances over and above the operating expenses associated with Subarea Plan Preserve management.

8.7.2.4 Prolonged Drought

For the purpose of defining Changed Circumstance, Prolonged Drought is defined as drought up to three years in length, as declared by the California State Department of Water Resources and/or the San Diego County Water Authority (SDCWA).

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 to over time. Prolonged Drought occurs slowly over many years, differing from the catastrophic events of fire and flood, which occur rapidly and afford little time for preparing for disaster response. Prolonged Drought conditions may adversely affect Covered Species and conserved vegetation communities, if the species and/or habitats are unable to adapt to the changing conditions.

The potential for prolonged drought to impact conserved habitats increases with the length of a drought. As Covered Species and their habitats begin to react to a prolonged reduction in rainfall, carry-over supplies in reservoirs are depleted and water levels in groundwater basins also decline, making imported water resources less available for non-potable uses. Both San Diego County and the City rely on imported water. However, according to the California Department of Water Resources (DWR), in their document “Droughts in California,” droughts exceeding three years are rare in northern California, the area of California that is the source of much of the State’s developed water supply and of imported water for southern California. A drought period of over three years in length, which restricts availability of water for Subarea Plan Preserve purposes, is therefore not foreseeable, and would be considered an Unforeseen Circumstance.

Preventative Measures

This Subarea Plan does not contain measures to prevent drought because drought is not preventable by human intervention.

The City is served by the Padre Dam Municipal Water District (MWD), which is a member of, and purchases imported water from, the SDCWA. In order to reduce reliance upon imported water, Padre Dam MWD extensively uses reclaimed water for landscape irrigation within the City and for recreational uses at Santee Lakes. In addition, the City requires that 90% of all landscaping in non-turf areas be drought tolerant. Turf areas are limited to 25% of total landscape area (Santee Municipal Code, Title 17, Chapter 17.30).

To prepare for potential diminished water supply, the City will assess its use of recycled and advanced treated water City-wide, and will direct recycled or advanced treated water to areas of the Subarea Plan Preserve System undergoing active restoration where water is needed, and where it is possible to do so. It is acknowledged that it may not always be feasible to use recycled or advanced treated water for active restoration areas in times of drought or diminished water supply. However, to the extent that it is able, the City will work with responsible water agencies to negotiate for adequate recycled water supplies to be available to serve restoration areas in the Subarea Plan Preserve System. Water collected through stormwater collection basins may serve as another source of water for restoration areas in the Subarea Plan Preserve System.

Planned Responses

Upon the occurrence of a Prolonged Drought Changed Circumstance as defined above, the City will then notify the Wildlife Agencies within 15 days. Within 30 days, the City and the Wildlife Agencies will assess the condition of the Subarea Plan Preserve to determine if a monitoring program is required for all or portions of the Subarea Plan Preserve. Based upon the extent and severity of the Prolonged Drought, the City will develop and implement an assessment of the condition of the Subarea Plan Preserve to determine whether Covered Species are being affected or whether there is potential for damage to the Subarea Plan Preserve. Based on the results of the assessment, the City will 1) close trails to public use that are adjacent to vegetation communities stressed from the prolonged drought, and 2) implement a program to monitor natural re-growth after the Prolonged Drought is ended within damaged areas for a period of up to two years. The monitoring program will provide for site visits on a regular basis, determined by the City and the Wildlife Agencies, as appropriate to the drought situation. Additionally, monitoring will focus on whether additional actions under the City's control can be enacted to reduce stress on Covered Species.

At any time during the monitoring program, should observations indicate that habitat regrowth is resulting in increased opportunity for invasion by exotic species and/or increased potential for type conversion, the Subarea Plan Preserve management program will be modified to reduce the potential for such invasion and/or type conversion, consistent with the Section 7.2, *Preserve Management and Monitoring* and the terms of the IA. One or both of the following management activities will be incorporated into the modified management program, as appropriate for the circumstance: (1) providing temporary irrigation to strategic areas of the Subarea Plan Preserve; and/or (2) controlling non-native weeds and other invasive species through approved techniques. The City shall provide funding, as outlined in Section 6 of this Subarea Plan, to address the additional costs of Changed Circumstances over and above the operating expenses associated with Subarea Plan Preserve management.

8.7.2.5 Invasion of Exotic Species

For the purpose of defining Changed Circumstances, invasion of exotic species is defined as an increase of invasive species within the Preserve to the extent that, as mutually determined by the City and the Wildlife Agencies, such increase has significantly, adversely affected any Covered Species. In addition, a Changed Circumstance would include growing conditions that favor the rapid growth and propogation of known invasive species. For the purpose of implementing the actions specified by this Section, plant species to be considered potentially invasive are those defined in Appendix G. Invasive animal species known to inhabitat San Diego County include, but are not limited to, bullfrogs, Argentine ants, and brown-headed cowbirds. It is expected that the Subarea Plan Preserve will be managed to ensure that the presence of non-native species are minimal and, where possible, controlled and eliminated (Chapter 7.0).

Risk Assessment

Although invasive, exotic, or pest species of plants and/or animals may currently be present within the Preserve, 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 affect on one or more of the Covered Species within the conserved habitat. Opportunities for increases in invasive species could occur as urban development expands in areas surrounding conserved habitat. The occurrence of a catastrophic event, including Changed Circumstances defined in this Section, may precipitate sudden increases of invasive species. Planned responses to these changed circumstances include measures to reduce the opportunity for invasion by exotic species.

Preventative Measures

Establishment of the Preserve and management actions that will be undertaken as part of the implementation of this Subarea Plan will reduce the probability of sudden increases in invasive species. The Preserve management guidelines in Section 7.0 of this Subarea Plan contain measures specifically designed to prevent invasive species from threatening conserved habitat. These measures include restrictions on the use of invasive plant species in landscape palettes, visitor/resident invasive species education, fencing around development areas, training and use of volunteers in removing invasive plant species, and inspecting container plants to limit invasive ants. Through implementation of Subarea Plan Preserve management activities associated with this Subarea Plan, invasive species will, under normal circumstances, be discovered prior to becoming a threat to Covered Species. When invasive species are discovered, the Preserve management program is designed to be tailored to eliminate, reduce, and/or manage such species.

Planned Responses

If, as determined by the City in consultation with the Wildlife Agencies, an increase in invasive species has occurred within the Preserve at a magnitude sufficient to present a significant adverse affect to any Covered Species, the City will notify the Wildlife Agencies within 15 days of discovering the threat. If the influx of invasive species involves a species included on the CalIPPC "List A", within 30 days of such notice to the Wildlife Agencies, the City will assess and implement changes to the adaptive management program that are necessary to control the invasive species. If the influx of invasive species involves a species listed on the CalIPPC "Red Alert" list (Appendix G), the City will also notify other relevant agencies as recommended by CalIPPC. Within 30 days of obtaining responses from the agencies contacted, the recommendations of the agencies will be used by the

City with concurrence of the Wildlife Agencies to determine appropriate modifications to be made to the adaptive management program.

Modification of the adaptive management program to address an invasive species Changed Circumstance will include implementation of a monitoring program of up to two years, as determined by the City. The monitoring program will provide for site visits on a regular basis, determined by the City and the Wildlife Agencies, as appropriate to the type, scope and location of the exotic species infestation. The City shall provide funding, as outlined in Section 6of this Subarea Plan, to address the additional costs of Changed Circumstances over and above the operating expenses associated with Subarea Plan Preserve management.

8.7.2.6 Disease - West Nile Virus

West Nile Virus (WNV) is a mosquito-borne disease that infects both wild and domesticated bird species, livestock, humans, and various other species. The disease can be fatal to humans. WNV was first detected in the United States in the State of New York in 1999. The illness has spread from East to West across the United States by birds and mosquitoes. WNV was first detected in California in Imperial County on August 20, 2003. In 2003, the virus has since been discovered in dead birds collected from Los Angeles County, Riverside County, Imperial County, Orange County, and San Diego County. WNV was positively identified in one horse and five dead birds in San Diego County in 2003. In 2007, four WNV-positive American crows were found within the City. In the County, 118 WNV-positive birds, one sentinel chicken, five mosquito pools, four horses, and 16 human illnesses were found in 2007.

WNV is a region-wide issue, not restricted to the City. It is addressed here as a Changed Circumstance because the City is aware that there are infected birds throughout the region. It is not possible at this time to define with any precision a threshold between Changed Circumstances due to WNV and Unforeseen Circumstances. The following discussion is offered to describe what we currently understand about the disease and efforts to respond to it.

Risk Assessment

Thus far, WNV has not killed large numbers of wild birds, but the overall extent of the infection in wildlife is not well understood. There is the potential for the disease to become a significant mortality factor to certain bird species (e.g., American crows, western scrub jay, sharp-shinned hawk, and Cooper's hawk). However, because the disease is a threat to human health, current prevention activities (as outlined below) are likely to reduce the threat to both humans and wildlife. Because public health officials use bird deaths to gauge the effectiveness of their WNV prevention programs, any significant increase in bird deaths is likely to produce public concern, leading to intensified efforts to halt spread of the disease.

Preventive Measures

Mosquito control is probably the single most important and effective element in inhibiting the spread of WNV to all species. In San Diego County, mosquito abatement is carried out by the Vector Control Program of the County Department of Environmental Health. Concern about WNV and other mosquito-borne diseases has led Vector Control to expand its efforts to control mosquito populations. These activities have included aerial spraying/application of mosquito larvicide (Bacillus sphaericus (Bs) and Bacillus thuringiensis israelensis (Bti)) of large bodies of fresh water, spot spraying or hand broadcasting of Bascillus (Bs and Bti) of smaller waterbodies, distribution of

fish that eat mosquito larvae to property owners with ponds, and public education to encourage abatement of miscellaneous sources of standing water. These preventive measures have been largely effective as evidenced by the relatively low avian death rate from the disease.

A secondary preventive measure is the heightened public awareness of the fact that the disease can be fatal to birds. County Vector Control and other agencies have carried out an extensive educational campaign to inform the public that dead birds should be reported to them. Tests are performed on dead birds to determine whether the bird was infected with WNV. Although this level of monitoring of bird deaths is far from complete, it provides the best information available about the extent and virulence of the disease in wild bird populations.

Planned Responses

Any indications of an increase in human or animal mortality due to WNV would be treated as a very serious public health concern and would receive a high level of response. The City will notify the Wildlife Agencies within 15 days of discovering a threat. Within 30 days of such notice to the Wildlife Agencies, the City will work with the County Department of Environmental Health to assess and implement changes to the adaptive management program that are necessary to control WNV. Mosquito abatement activities by County Vector Control would be intensified, as well as public information activities directed toward elimination of standing water and reporting of dead birds. Any response to WNV other than application of Bacillus (Bs and Bti) larvicide would require the City to consult with and receive approval from the Wildlife Agencies prior to such application to ensure that species covered by the Subarea Plan would not be adversely affected beyond what is currently analyzed.

Because of the potential risk to human health, normal budgetary limitations would not be allowed to constrain efforts to halt the disease. These activities will benefit bird species and well as people, so it would not be necessary to have programs directed solely toward addressing the disease in wildlife. In addition, planned responses to the disease are carried out on a regional basis. The City would not be alone in attempting to respond to a major outbreak.

8.7.2.7 Future Listings of Non-Covered Species

The City recognizes, as noted in the USFWS discussion of its "Habitat Conservation Plan Assurances ('No Surprise') Rule," (63 F.R. 8859; February 23, 1998), that the future listing of a species whose conservation was not provided for in the Subarea Plan to a level sufficient to include the species as a Covered Species can be viewed as a Changed Circumstance. In the event that a species, which is not a Covered Species pursuant to this Subarea Plan and associated take permit, is listed by either the USFWS or CDFW subsequent to the issuance of a take permit pursuant to the Subarea Plan, such listing will be considered a Changed Circumstance.

In the event a non-Covered Species is newly listed, the City and Wildlife Agencies will jointly identify measures that the City will follow to avoid take, jeopardy and/or adverse modification of any designated Critical Habitat within the Subarea, until and unless the City's permit is amended to include coverage for the newly-listed species or the Wildlife Agencies notify the City that such measures are no longer required to avoid take of the species, jeopardy of the species or adverse modification of designated Critical Habitat of the newly-listed species. Among other measures, the City will require that prior to the City's issuance of any permit for land development, clearing and/or grubbing, applicants must obtain take permits for any listed, non-Covered Species through appropriate federal and/or State permit processes.

8.7.2.8 Toxic spills

Changed Circumstances due to toxic spills is defined as the unintentional spillage of toxic/hazardous materials within the Subarea Plan Preserve System that have an immediate or long-term (spreading) effect of greater than one-quarter acre but less than 10 acres. Toxic/hazardous materials are defined as those items identified by the County of San Diego Department of Environmental Health.

Risk Assessment

Accidental spills and discharges of non-toxic and toxic substances are anticipated to occur in the Subarea Plan Preserve due to the extensive urban-wildland interface in the Plan Area. Affected areas by toxic spills of up to 10 acres are considered Changed Circumstances under this Plan. The Preserve is situated within urban areas that could be associated with toxic spills.

Preventative Measures

The City will continue to maintain its lands in a manner that prevents toxic spills in the Subarea Plan Preserve. The City maintains all rights to prosecute and seek remediation from responsible parties for toxic spills. The City will monitor and manage the use of toxic substances used in Covered Activities under this Subarea Plan and will adhere to all legal standards regarding the use, storage, and transportation of these substances.

Planned Responses

If any toxic spills occur in the Subarea Plan Preserve, the City will determine the extent of damage to the Preserve and identify and implement an appropriate remediation response. In addition, consultation with the County Department of Environmental Health, hazardous materials teams, or other emergency response personnel (such as the RWQCB, Department of Toxic Substance Control [DTSC], or other appropriate regulatory authority) will occur to determine the appropriate agencies and hazardous materials relief alternatives available for providing remediation.

Should a toxic spill occur within the Preserve, the City shall notify the Wildlife Agencies within 48 hours of this Changed Circumstance. The City shall assess the damage caused by the toxic spill, and take the following actions:

1. Implement emergency containment actions immediately as needed to prevent further spread of the contaminant, and consult with the proper authorities to assist in the emergency containment (e.g., City of San Diego Hazardous Incident Response Team, or County Department of Environmental Health). The City has a contract with the San Diego Unified Disaster Council and the San Diego City fire department performs spill containment services.
2. Assess the damage caused by the toxic spill and prepare a damage assessment report within 48 hours of the damage assessment;
3. Work with the County Department of Environmental Health to determine the type of toxic spill, area impacted, and develop a work plan to remediate the area within 30 days of the spill;
4. Implement response consistent with the procedures outlined in the work plan and in coordination with the County Department of Environmental Health; and
5. Monitor response of species/habitats to the action(s) taken.

8.7.3 Unforeseen Circumstances

Unforeseen Circumstances (defined in 50 C.F.R. Section 17.3) means 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 the USFWS (or CDFW) at the time of the conservation plan's negotiation and development and that result in a substantial and adverse change in the status of the Covered Species.

The Wildlife Agencies bear the burden of demonstrating that Unforeseen Circumstances exist, using the best available scientific and commercial data available and considering certain specific factors. In its evaluation the Wildlife Agencies will consider, but not be limited to, the following factors, which will then be the basis for evaluating what could be affected:

- The size of the current range of the affected Covered Species.
- The percentage of the range of the affected Covered Species that has been adversely affected by Covered Activities under the Subarea Plan.
- The percentage of the range of the affected Covered Species that has been conserved by the Subarea Plan.
- The ecological significance of that portion of the range of the affected Covered Species affected by the Subarea Plan.
- The level of knowledge about the affected Covered Species and the degree of specificity of the Covered Species. Conservation program under the Subarea Plan.
- Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected Covered Species in the wild.

Unforeseen circumstances include future unanticipated conditions, which are either not defined as Changed Circumstances or which exceed the definitions developed for Changed Circumstances particularly in terms or severity or extent (e.g., flood or fire affecting species continued existence). Unforeseen circumstances include, but are not limited to, the following definitions:

- **Fire**: A fire that occurs 1) less than three years after a previous fire or 2) covers more than 30 acres of the Preserve.
- **Climate Change**. A temperature increase greater than 2.5°C (4.5°F) for the three baseline periods will be considered an unforeseen circumstance. Temperature increases will be measured as a 10-year running average.
- **Flooding**: A flood that is higher than 100-year flood levels.
- **Drought**: Three or more years of prolonged drought.
- **Invasive Species or Disease**: The introduction and rapid spread of an invasive species, previously unknown in the Subarea Plan Study Area.
- **Toxic Spills**: the unintentional spillage of toxic/hazardous materials within the Subarea Plan Preserve that have an immediate or long-term (spreading) effect of greater than 10 acres.

8.7.4 Limits on Additional Conservation Measures

Pursuant to the "No Surprises" rule and provided that the City is properly implementing the Subarea Plan, if the USFWS makes a finding that Unforeseen Circumstances have occurred and assuming the Subarea Plan is being properly implemented, the USFWS will not require the commitment of additional land, financial compensation, or additional restrictions on the use of land, water, or other natural resources, even upon a finding of unforeseen circumstances, unless the City consents. Upon a finding of Unforeseen Circumstances, the Wildlife Agencies are limited to modifications within conserved habitat areas or reprioritization of conservation actions in the Subarea Plan's conservation program. Additional conservation and mitigation measures will not involve the commitment of additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources.

8.7.4.1 Notification

If either one of the Wildlife Agencies or the City becomes aware of the existence of a potential Unforeseen Circumstance, they shall immediately notify the others of the existence of a potential Unforeseen Circumstance. Except where there is substantial threat of imminent, significant adverse impacts to a Covered Species, USFWS will provide the City and CDFW thirty (30) calendar days notice of a written finding of Unforeseen Circumstances, during which time the Wildlife Agencies will meet with the City to discuss the proposed finding, provide the City and any affected third party participants an opportunity to submit information to rebut the proposed finding, and consider any proposed changes to the conservation strategies for the Subarea Plan Preserve and the Subarea Plan's operating conservation program. During the time necessary to determine the nature and extent of any additional or modified mitigation, the City will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected Covered Species in the wild.

8.7.4.2 Effects of Unforeseen Circumstances or Jeopardy on Take Authorization

Notwithstanding the limits on conservation measures identified above under Section 5.3.4.1, the Incidental Take Permit may be revoked by the USFWS pursuant to 50 C.F.R. sections 17.22(b)(8) and 17.32(b)(8) where as a result of an Unforeseen Circumstance or any other cause, continuation of the federal permit would be inconsistent with the criterion set forth in 16 U.S.C. 1539(a)(2)(B) (i.e., would appreciably reduce the likelihood of the survival and recovery of the species in the wild), and the inconsistency has not been remedied in a timely fashion. As recognized in the "No Surprises" rule at 50 C.F.R. sections 17.22(b)(6) and 17.32(b)(6), the USFWS, any Federal, State or local agency, or a private entity may take additional actions at their own expense to protect or conserve a species covered under the Subarea Plan. Pursuant to the "No Surprises" rule, the City and the Wildlife Agencies agree that the following Subarea Plan components are not subject to modification as a result of Unforeseen Circumstances in a manner that would result in an additional commitment of land, water or financial compensation, or additional restrictions on the use of land, water or other natural resources available for development or use under the Subarea Plan on the part of the City, or third party participants covered under the City's permit, without the City's consent:

1. Any in-kind mitigation ratios, including the Uniform Mitigation Ratios;
2. The boundaries of the 100% Conservation Areas;
3. The boundaries of the 75% Conservation Areas;

4. Preserve management funding, as described in Section 8.4 of this Subarea Plan; or
5. Any other change not provided for under the Section 7.2, *Preserve Management and Monitoring*, as defined in the IA that would significantly increase the Subarea Plan's costs or significantly affect the interests in land of the City or any of the Third Party Participants covered under the Subarea Plan.

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Chapter 9
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Wildlife Agencies Review

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Chapter 10
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Appendix A
Implementing Agreement

A draft Implementing Agreement was prepared for the previous version of the Subarea Plan. The Implementing Agreement will be updated to match the current version of the Subarea Plan after input has been received on the Wildlife Review Draft.

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Appendix B
MSCP Subregional Plan Tables

This appendix includes copies of tables with the MSCP Subregional Plan that summarize the target for conservation for the Santee Subarea. This includes:

- Table 3-1 – Vegetation Community Acres Within Multi-Habitat Planning Area (MHPA)
- Table 3-2 – Portions of Core and Linkage Areas Targeted for Conservation in Multi-Habitat Planning Area (MHPA)

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Table 3-1 (Continued)

VEGETATION COMMUNITY ACRES WITHIN MULTI-HABITAT PLANNING AREA BY SUBAREA

Vegetation Communities	Total MSCP Study Area (acres)	Total MHPA (acres)	MHPA Conserved[1] (acres)	% of MSCP Veg. Comm. Conserved
SANTEE				
Coastal Sage Scrub	2,785	1,152	1,121	40
Chaparral	822	549	544	66
Coastal Sage/Chaparral	49	20	20	41
Grassland	660	181	178	27
Freshwater Marsh	5	2	2	40
Riparian Forest	17	3	3	18
Oak Riparian Forest	41	38	38	93
Riparian Scrub	124	80	80	65
Oak Woodland	6	2	2	33
Eucalyptus Woodland	3	0	0	0
Open Water	68	58	58	85
Disturbed Wetlands	26	0	0	0
Natural Flood Channel	39	21	21	54
Subtotal Habitat	*4,645*	*2,107*	*2,067*	*44*
Disturbed	512	30	0	0
Agriculture	11	0	0	0
Subtotal Vacant Land	*5,169*	*2,136*	*2,067*	*40*
Developed	5,117	0	0	0
TOTAL	10,286	2,136	2,067	20

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Table 3-2

PORTIONS OF CORE AND LINKAGE AREAS TARGETED FOR CONSERVATION IN MULTI-HABITAT PLANNING AREA

Core #	Core Name	Habitat Acres	Study Area	Subareas											
				CV	CD	DM	EC	IB	NC	PO	SD	SN	CO	WD	MI
1.	Tijuana Estuary/ River Valley	Total	3,051	0	0	0	0	1,089	0	0	1,962	0	0	0	-
		MHPA	2,925	0	0	0	0	1,088	0	0	1,837	0	0	0	-
		(%)	(96)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(94)	(0)	(0)	(0)	(-)
2.	S. San Diego Bay/ Silver Strand	Total	2,316	416	463	0	0	11	183	0	883	0	0	0	359
		MHPA	1,644	302	350	0	0	0	175	0	817	0	0	0	-
		(%)	(71)	(73)	(76)	(0)	(0)	(0)	(96)	(0)	(93)	(0)	(0)	(0)	(-)
3.	Pt. Loma	Total	709	0	0	0	0	0	0	0	117	0	0	0	592
		MHPA	92	0	0	0	0	0	0	0	92	0	0	0	-
		(%)	(13)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(79)	(0)	(0)	(0)	(-)
4.	Otay Lakes/Mesa/ River Valley	Total	17,158	2,025	0	0	0	0	0	0	4,002	0	11,104	26	-
		MHPA	12,587	1,231	0	0	0	0	0	0	3,058	0	8,298	0	-
		(%)	(73)	(61)	(0)	(0)	(0)	(0)	(0)	(0)	(76)	(0)	(75)	(0)	(-)
5.	Otay Mtn/Marron Valley	Total	28,221	0	0	0	0	0	0	0	2,521	0	25,700	0	-
		MHPA	26,396	0	0	0	0	0	0	0	2,302	0	24,094	0	-
		(%)	(94)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(91)	(0)	(94)	(0)	(-)
6.	Jamul Mtn	Total	8,285	0	0	0	0	0	0	0	178	0	8,107	0	-
		MHPA	7,028	0	0	0	0	0	0	0	161	0	6,867	0	-
		(%)	(85)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(90)	(0)	(85)	(0)	(-)
7.	Sweetwater/San Miguel Mtn	Total	12,963	689	0	0	0	0	0	0	116	0	10,306	1,852	-
		MHPA	10,116	178	0	0	0	0	0	0	105	0	8,167	1,665	-
		(%)	(78)	(26)	(0)	(0)	(0)	(0)	(0)	(0)	(91)	(0)	(79)	(90)	(-)
8.	McGinty Mtn/ Sequan Peak/ Dehesa	Total	15,909	0	0	0	0	0	0	0	0	0	15,907	2	-
		MHPA	10,456	0	0	0	0	0	0	0	0	0	10,456	0	-
		(%)	(66)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(66)	(0)	(-)
9.	Lake Jennings/ Wildcat Cyn/El Cajon Mtn	Total	9,830	0	0	0	0	0	0	0	24	0	8,895	911	-
		MHPA	8,228	0	0	0	0	0	0	0	21	0	7,453	754	-
		(%)	(84)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(88)	(0)	(84)	(83)	(-)
10.	Mission Trails/Kearny Mesa/E. Elliott/ Santee	Total	17,629	0	0	0	0	0	0	0	8,258	3,181	2,487	26	3,677
		MHPA	10,499	0	0	0	0	0	0	0	6,625	1,753	2,114	8	-
		(%)	(60)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(80)	(55)	(85)	(31)	(-)
11.	Poway/San Vicente	Total	27,948	0	0	0	0	0	0	11,381	4,759	0	11,808	0	-
		MHPA	21,079	0	0	0	0	0	0	8,620	4,191	0	8,267	0	-
		(%)	(75)	(0)	(0)	(0)	(0)	(0)	(0)	(76)	(88)	(0)	(70)	(0)	(-)

Table 3-2 (Continued)

PORTIONS OF CORE AND LINKAGE AREAS TARGETED FOR CONSERVATION IN MULTI-HABITAT PLANNING AREA

Core #	Core Name	Habitat Acres	Study Area	Subareas											
				CV	CD	DM	EC	IB	NC	PO	SD	SN	CO	WD	MI
12.	Hodges Reservoir/ San Pasqual	Total	25,965	0	0	0	0	0	0	5	13,534	0	12,426	0	-
		MHPA	18,739	0	0	0	0	0	0	4	10,589	0	8,146	0	-
		(%)	(72)	(0)	(0)	(0)	(0)	(0)	(0)	(80)	(78)	(0)	(66)	(0)	(-)
13.	San Dieguito Lagoon	Total	1,278	0	0	199	0	0	0	0	1,078	0	1	0	-
		MHPA	880	0	0	129	0	0	0	0	751	0	0	0	-
		(%)	(69)	(0)	(0)	(65)	(0)	(0)	(0)	(0)	(70)	(0)	(0)	(0)	(-)
14.	Los Peñasquitos Lagoon/Cyn/Del Mar Mesa	Total	9,154	0	0	<1	0	0	0	0	9,154	0	0	0	-
		MHPA	6,236	0	0	0	0	0	0	0	6,236	0	0	0	-
		(%)	(68)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(68)	(0)	(0)	(0)	(-)
15.	Vernal Pools, Kearny Mesa	Total	8,289	0	0	0	0	0	0	0	1,965	0	5	0	6,320
		MHPA	1,085	0	0	0	0	0	0	0	1,085	0	0	0	-
		(%)	(13)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(55)	(0)	(0)	(0)	(-)
16.	Vernal Pools, Otay Mesa	Total	885	0	0	0	0	0	0	0	885	0	0	0	-
		MHPA	425	0	0	0	0	0	0	0	425	0	0	0	-
		(%)	(48)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(48)	(0)	(0)	(0)	(-)
Subtotal Cores		Total	189,590	3,130	463	199	0	1,100	183	11,386	49,436	3,181	106,746	2,817	10,948
		MHPA	138,415	1,711	350	129	0	1,088	175	8,624	38,295	1,753	83,862	2,427	(-)
		(%)	(73)	(55)	(76)	(65)	(0)	(99)	(96)	(76)	(77)	(55)	(79)	(86)	(-)
Linkages		Total	13,166	185	0	0	28	0	48	1	2,104	0	10,646	23	131
		MHPA	9,876	98	0	0	13	0	41	1	1,626	0	8,084	13	-
		(%)	(75)	(53)	(0)	(0)	(46)	(0)	(85)	(100)	(77)	(0)	(76)	(57)	(-)
TOTAL IN CORES AND LINKAGES		Total	202,757	3,315	463	199	28	1,100	231	11,387	51,540	3,181	117,392	2,840	11,079
		MHPA	148,290	1,809	350	129	13	1,088	216	8,625	39,921	1,753	91,946	2,440	(-)
		(%)	(73)	(55)	(76)	(65)	(46)	(99)	(94)	(76)	(77)	(55)	(78)	(86)	(-)

Note: Numbers may not sum to total as shown, due to rounding. Acreages exclude Disturbed, Agriculture, and Developed. These numbers represent habitat acres targeted for conservation (from Table 3-1) that also occur in the biological core and linkage areas. Percent (in parentheses) represents the portion of the core and linkage areas targeted for conservation in the MHPA.

CV = Chula Vista, CD = Coronado, DM = Del Mar, EC = El Cajon, IB = Imperial Beach, NC = National City, PO = Poway, SD = San Diego, SN = Santee, CO = County, WD = Water Districts, MI = Military. (Military acreages are not included in the MHPA.)

Source: 1996 MSCP GIS database.

Appendix C
1991 NCCPA and Relevant Sections of 2003 NCCPA

In 1991, California's NCCPA (California Fish and Game Code, Section 2800 et seq.) was enacted to implement broad-based planning that balances appropriate development and growth with conservation of wildlife and habitat. The 1991 NCCPA was repealed and replaced with a substantially revised and expanded NCCPA in 2002. While the revised NCCPA established new standards and guidance on many facets of the program, including scientific information, public participation, biological goals, interim project review, and approval criteria, amendments to the NCCPA enacted effective January 1, 2003 (Section 2830[b][2] expressly provide that Subarea Plans for the San Diego MSCP will be solely governed in accordance with the NCCPA as it read on December 31, 2001. Copies of the 1991 NCCPA and Section 2830 of the 2003 NCCPA are included in this appendix.

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CHAPTER 765

An act to add Chapter 10 (commencing with Section 2800) to Division 3 of the Fish and Game Code, relating to fish and game, and making an appropriation therefor.

[Approved by Governor October 9, 1991. Filed with Secretary of State October 10, 1991.]

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) The continuing population growth in California will result in increasing demands for dwindling natural resources and result in the continuing decline of the state's wildlife.

(b) There is a need for broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth.

(c) Natural community conservation planning is an effective tool in protecting California's natural diversity while reducing conflicts between protection of the state's wildlife heritage and reasonable use of natural resources for economic development.

(d) Natural community conservation planning promotes coordination and cooperation among public agencies, landowners, and other private interests, provides a mechanism by which landowners and development proponents can effectively participate in the resource conservation planning process, provides a regional planning focus which can effectively address cumulative impact concerns, minimizes wildlife habitat fragmentation, promotes multispecies management and conservation, provides one option for identifying and ensuring appropriate mitigation for impacts on fish and wildlife, and promotes the conservation of broad based natural communities and species diversity.

(e) Natural community conservation planning can provide for efficient use and protection of natural and economic resources while promoting greater sensitivity to important elements of the state's critical natural diversity.

(f) Natural community conservation planning is an effective planning process which can facilitate early coordination to protect the interest of the state, the federal government, and local public agencies, landowners, and other private parties.

(g) Natural community conservation planning is a mechanism that can provide an early planning framework for proposed development projects within the planning area in order to avoid, minimize, and compensate for project impacts to wildlife.

(h) Natural community conservation planning is consistent with and will support the fish and wildlife management activities of the Department of Fish and Game in its role as the trustee for fish and

wildlife within the state.

(i) The purpose of natural community conservation planning is to sustain and restore those species and their habitat identified by the Department of Fish and Game which are necessary to maintain the continued viability of those biological communities impacted by growth and development.

SEC. 2. Chapter 10 (commencing with Section 2800) is added to Division 3 of the Fish and Game Code, to read:

CHAPTER 10. NATURAL COMMUNITY CONSERVATION PLANNING

2800. This chapter shall be known and may be cited as the Natural Community Conservation Planning Act.

2805. The definitions in this section govern the construction of this chapter.

(a) "Natural community conservation plan" means the plan prepared pursuant to an agreement entered into in accordance with subdivision (a) of Section 2810. The plan identifies and provides for the regional or areawide protection and perpetuation of natural wildlife diversity, while allowing compatible and appropriate development and growth.

(b) "Wildlife" has the same meaning as defined in Section 711.2.

(c) "Person" has the same meaning as defined in Section 711.2.

2810. The department may enter into agreements with any person for the purpose of preparing and implementing a natural community conservation plan to provide comprehensive management and conservation of multiple wildlife species, including, but not limited to, those species listed pursuant to Article 2 (commencing with Section 2070) of Chapter 1.5. The agreement shall include cost reimbursement provisions pursuant to Section 2840.

2820. Natural community conservation planning may be undertaken by local, state, and federal agencies independently or in cooperation with other persons. The plan shall be consistent with the agreement entered into pursuant to Section 2810 and shall be approved by the department for implementation upon meeting the standards established by the department for natural community conservation.

2825. (a) The department may prepare nonregulatory guidelines for the development and implementation of natural community conservation plans. The guidelines are exempt from Chapter 3.5 (commencing with Section 11340) of Division 3 of Title 2 of the Government Code. The guidelines may include, but are not limited to, all of the following:

(1) Defining the scope of a conservation planning area.

(2) Determining conservation standards, guidelines, and objectives for the planning area.

(3) Appointing one or more advisory committees to review and make recommendations regarding the preparation and

implementation of natural community conservation plans.

(4) Coordinating with local, state, and federal agencies.

(5) Incorporating public input.

(6) Ensuring compatibility with the federal Endangered Species Act (16 U.S.C. Sec. 1531 et seq.).

(7) Obtaining approval of the natural community conservation plan by the department.

(8) Provisions for implementation of the plan.

(9) Monitoring and reporting on plan implementation.

(10) Amending the plan consistent with the initial intent of the plan.

(b) Nothing in this chapter exempts projects proposed in a natural community conservation planning area from the requirements of the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).

(c) Natural community conservation plans, as appropriate, shall be implemented pursuant to Section 2081.

(d) To the extent practicable, implementation of natural community conservation plans shall use the services of either the California Conservation Corps or local community conservation corps.

2830. Upon recommendation of the department, the commission may authorize, pursuant to Section 2084, the taking of any candidate species whose conservation, protection, restoration, and enhancement is provided for in a department approved natural community conservation plan consistent with paragraph (6) of subdivision (a) of Section 2825.

2835. The department may permit the taking, as provided in this code, of any identified species whose conservation and management is provided for in a department approved natural communities conservation plan.

2840. (a) The department shall be compensated for the actual costs incurred in participating in the preparation and implementation of natural community conservation plans. These costs may include consultation with other parties to agreements authorized by Section 2810, providing and compiling wildlife and wildlife habitat data, reviewing and approving the final plan, monitoring implementation of the plan, and other activities necessary to the preparation and implementation of a plan.

(b) The department shall be compensated for those expenses identified in subdivision (a) according to a schedule in the agreement authorized by Section 2810.

SEC. 3. This act does not apply to any agreement for the preparation of a habitat conservation plan or natural community conservation plan approved by the Director of Fish and Game at the time of enactment of this act.

NCCP Act 2003, Section 2830

2823. The department shall suspend or revoke any permit, in whole or in part, issued for the take of a species subject to Section 2835 if the continued take of the species would result in jeopardizing the continued existence of the species.

2825. The department may adopt regulations for the development and implementation of natural community conservation plans consistent with this chapter.

2826. Nothing in this chapter exempts a project proposed in a natural community conservation planning area from Division 13 (commencing with Section 21000) of the Public Resources Code or otherwise alters or affects the applicability of that division.

2827. To the extent practicable, implementation of natural community conservation plans shall use the services of either the California Conservation Corps or local community conservation corps.

2828. Nothing in this chapter prohibits a local government from exercising any power or authority granted to it pursuant to state law to acquire land or water to implement a plan.

2829. (a) The department may be compensated for the actual costs incurred in participating in the preparation and implementation of natural community conservation plans. These costs may include consultation with other parties to agreements authorized by Section 2810, providing and compiling wildlife and wildlife habitat data, reviewing and approving the final plan, monitoring implementation of the plan, and other activities necessary to the preparation and implementation of a plan.

(b) The department may be compensated for those expenses identified in subdivision (a) according to a schedule in the agreement authorized by Section 2810.

2830. Nothing in this chapter prohibits the taking or the incidental take of any identified species if the taking is authorized by the department pursuant to any of the following:

(a) A natural community conservation plan or amended plan approved by the department prior to January 1, 2002. Any permits, plans, implementation agreements, and amendments to those permits, plans, or implementation agreements described in this section are deemed to be in full force and effect as of the date approved or entered into by the parties insofar as they authorize the take of identified species

pursuant to an approved natural community conservation plan and shall be governed solely by former Chapter 10 (commencing with Section 2800) as it read on December 31, 2001.

(b) Any natural community conservation plan, or subarea plan, approved, or amended on or after January 1, 2002, for which a planning or enrollment agreement meets any of the following criteria, which shall be solely governed in accordance with former Chapter 10 (commencing with Section 2800) as it read on December 31, 2001:

(1) The natural community conservation plan was entered into between the department and plan participants prior to January 1, 2001, and is carried out pursuant to Rule 4(d) for the California Gnatcatcher (Federal Register Volume 58, December 10, 1993), including the southern subregion of Orange County.

(2) The natural community conservation plan was prepared pursuant to the planning agreement for the San Diego Multiple Species Conservation Plan.

(3) The natural community conservation plan was prepared pursuant to the planning agreement for the San Diego Multiple Habitat Conservation Plan.

(c) Any programmatic natural community conservation plan approved by the department on or before January 1, 2002.

(d) Any natural community conservation plan developed pursuant to a planning or enrollment agreement executed on or before January 1, 2001, and for which the department finds that the plan has been developed using a public participation and scientific analysis process substantially in conformance with the intent of paragraph (5) of subdivision (b) of Section 2810 and Section 2815.

(e) Any natural community conservation plan developed pursuant to a planning agreement executed on or before January 1, 2002, and which the department finds is in substantial compliance with Section 2820.

(f) (1) Any natural community conservation plan or subarea plan initiated on or before January 1, 2000, or amendments thereto, by Sweetwater Authority, Helix Water District, Padre Dam Municipal Water District, Santa Fe Irrigation District, or the San Diego County Water Authority, which the department determines is consistent with the approved San Diego Multiple Habitat Conservation Program or the San Diego Multiple Species Conservation Program, is exempt from Section 2810, and paragraph (1) of subdivision (a) of Section 2820, except as provided in paragraph (2), if the department finds that the plan has been developed and is otherwise in conformance with this chapter.

(2) The public water agencies identified in this subdivision and the department shall include independent scientific input as described in subparagraphs (A) to (D), inclusive, of paragraph (5) of subdivision (b) of Section 2810 into the proposed plans in a manner that focuses on the covered species that are proposed for take authorization and that are not otherwise covered in the San Diego Multiple Species Conservation Program or the San Diego Multiple Habitat Conservation Program.

The scientific input required by this paragraph shall be based on the best and most current scientific data generally available, and shall assure that documentation for coverage of all species is equal or greater than the San Diego Multiple Habitat Conservation Program.

Appendix D
Protected Open Space Inventory

1.1 Introduction

Currently protected open space within the City of Santee will form the foundation of the Santee MSCP Subarea Plan Preserve System. This appendix provides an inventory of currently protected lands.

1.2 Levels of Conservation and Management

The currently protected open space properties within the City of Santee are shown in Figure B-1. The properties have been organized based on generalized ownership (City of Santee, other public/semi-public, and private) and level of management. Properties listed as **fully managed** fulfill each of the following:

- Managed for protection of wildlife.
- Irrevocable land protection (conservation easement, restricted covenant, or equivalent land protection mechanism).
- Approved habitat management plan.
- Conducts management and monitoring including, but not limited to, general stewardship, control of public access, monitoring of wildlife species, management of sensitive biological resources, and control of invasive species.
- Secure funding for long-term management and monitoring.
- Provides annual reports to the City and Wildlife Agencies.

Properties listed a **currently protected, not fully managed** are protected from land development but do not meet one or more of the criteria listed above. A description of the each individual property of currently protected lands in Santee is included below.

[NOTE: The City has organized binders/folders with hard copy and electronic files of the management plans, conservation easements (or other legal protection mechanism), annual reports, and other relevant documents. This information will be used to complete this inventory after comments are received on the Wildlife Agency Review Draft.]

1.3 Existing Preserves, Fully Managed

1.3.1 City-owned

Mast Park Wetland Restoration Project / Preserve

Name: Mast Park Wetland Restoration Project / Preserve	
Map ID:	18
Total Acres:	12.7
Status:	Existing Preserve, Fully Managed
Ownership:	City of Santee
Land Management Entity:	San Diego Habitat Conservancy
Land Protection Mechanism:	Restricted Covenant (pending)
Notes:	
Management Plan:	Yes
Notes:	. Copy of HMP available at City.
Funding Source:	Yes
Notes:	Endowment
Annual Reports:	Yes
Notes:	Restoration annual reports are available at the City for
Management and Monitoring	
General Stewardship:	Yes
Notes:	
Public Access:	None
Notes:	.
Invasive Species Control:	Yes
Notes:	Nonnative grasses, fountain grass, Sahara mustard, pepper trees.
Species Monitoring	Yes
Biological Resources	
Vegetation Communities:	
Acres	Type
Covered Species:	
Species X:	
Species Y:	
Species Z:	
Other Biological Factors:	
Connectivity:	Part of stepping stone linkage for coastal California gnatcatcher dispersal.

Appendix E
Vegetation Community Descriptions

1.1 Introduction

The following are descriptions of the vegetation community classifications used the Subarea Plan.

1.2 Vegetation Descriptions

Agriculture

This vegetation community includes both intensive agriculture (e.g., dairies, nurseries, and chicken ranches) and extensive agriculture (e.g., field/pasture, row crops).

Chaparral

Chaparral is widely distributed throughout California on dry slopes and ridges at low and medium elevations where it occupies thin, rocky, or heavy soils. It is typically composed of broad-leaved, sclerophyllous shrubs, although species composition varies considerably with location. The plants of this community have developed the ability to survive recurrent fires by producing seeds that require a fire-related cue to stimulate germination and/or by stump sprouting after being burned. Species of the following genera are characteristic in chaparral associations: *Adenostoma*, *Arctostaphylos*, *Ceanothus*, *Cercocarpus*, *Heteromeles*, shrubby *Quercus*, and *Rhamnus.*

Two distinct chaparral associations occur within the Subarea Plan Study Area: chamise chaparral, and southern mixed chaparral. Chamise chaparral is characterized by nearly monotypic stands of chamise (*Adenostoma fasciculatum*) to 1-3 m (3-9 ft.) in height. Additional shrub species, such as mission manzanita (*Xylococcus bicolor*) and our Lord's candle (*Yucca whipplei*), may be present, but contribute little to the overall cover. The herbaceous component of this association is largely lacking. Chamise chaparral occurs on xeric slopes and ridges, and is found on shallower, drier soils or at somewhat lower elevations than southern mixed chaparral.

Southern mixed chaparral tends to occur on steeper, more mesic north-facing slopes than chamise chaparral. This vegetation community type is characterized by relatively high species diversity. Typical species include chamise, Eastwood manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa*), scrub oak (*Quercus dumosa*), holly-leaf cherry (*Prunus ilicifolia*), toyon (*Heteromeles arbutifolia*), and winter currant (*Ribes indecorum*). The understory component is generally better-developed in this association than in chamise chaparral, and may include species such as mariposa-lily (*Calochortus* spp.), soap plant (*Chlorogalum* spp.), and bedstraw (*Galium* spp.), among others.

Coastal Sage - Chaparral Scrub

This mixed community includes both drought-deciduous sage scrub species and woody chaparral species, and is apparently a post-fire successional community. Total vegetative cover includes

roughly equal amounts of both scrub and chaparral species. Characteristic dominant species include chamise, California sagebrush, ceanothus (*Ceanothus* spp.), black sage, and poison-oak.

Diegan Coastal Sage Scrub

Diegan Coastal Sage Scrub (Coastal Sage Scrub) is comprised of low, soft-woody subshrubs to about 1 meter (3 feet) high, many of which are drought-deciduous. Dominant plant species include California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum* ssp. *fasciculatum*), laurel sumac (*Malosma laurina*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Other, less frequent, constituents of this community include spiny redberry (*Rhamnus crocea*), deerweed (*Lotus scoparius*), and broom baccharis.

The shrub layer in this community ranges from a continuous canopy and little understory to a more open canopy with widely-spaced shrubs and a well-developed understory. Native understory species present in this association frequently includes species such as purple needlegrass (*Nassela pulchra*), foothill needlegrass (*Nassela lepida*), slender tarweed (*Hemizonia fasciculata*), common yarrow (*Achillea mellifolium*), golden yarrow (*Eriopyllum confertiflorum*), and California poppy (*Eschilozia californica*)

Disturbed Habitat

Disturbed habitat is any land on which the native vegetation has been significantly altered by agriculture, construction, or other authorized land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of a plant association. Such habitat is typically found in vacant lots, roadsides, construction staging areas or abandoned fields, and is dominated by non-native annual species and perennial broadleaf species. Plant species typical of this association include Russian-thistle (*Salsola tragus*), sweet fennel (*Foeniculum vulgare*), horseweed (*Conyza* spp.), mustards, lamb's quarters (*Chenopodium album*), fountain grass (*Pennisetum setaceum*), and castor bean (*Ricinus communis*), among others. Non-native trees, such as eucalyptus, pepper-trees (*Schinus molle*, and *S. terebinthifolius*), Russian olive (*Olea europea*), and other ornamentals can also occur in this association.

Disturbed Wetlands

Disturbed wetlands are a wetland community dominated by both perennial and annual herbs and forbs. This community is characterized by a high percentage of non-native riparian species, such as perennial pepperweed (*Lepidium latifolium*), salt cedar (*Tamarisk ramosissima*), and poison hemlock (*Conium maculatum*). This habitat is seasonally to permanently moist and often occurs in shallow swales or floodplain terraces. In addition to non-native pepperweed, salt cedar, and poison hemlock, the disturbed wetland vegetation community on the project site also contained limited amounts of native herbaceous riparian species such as yerba mansa (*Anemopsis californica*), salt heliotrope (*Heliotropum curassavicum*), and salt grass (*Distichlis spicata*).

Freshwater Marsh

Freshwater marsh is dominated by perennial, emergent monocots to 1.3 to 2 m (4.3 to 6.6 ft.) tall. Uniform stands of bulrushes (*Scirpus* spp.) or cattails (*Typha* spp.) often characterize this habitat.

Freshwater marsh occurs in wetlands that are permanently flooded by standing fresh water. Examples of this habitat occur around several of the larger bodies of open water in the County, such as Sweetwater Reservoir, as well as around many of the smaller lakes, ponds, creeks, and reservoirs in the study region.

Live Oak Woodland

Live oak woodland typically has one dominant tree coast live oak (*Quercus agrifolia*) and reaches 10-25 m in height. Coast live oak typically occurs on north-facing slopes or in shaded ravines, and intergrades with coastal sage scrub or chaparral on drier sites. The shrub layer is typically poorly-developed but may include toyon (*Heteromeles arbutifolia*), currant (*Ribes* spp.), laurel sumac (*Malosma laurina*), and desert elderberry (*Sambucus mexicana)*. The herbaceous component is continuous and often dominated by non-native, weedy species.

Native Grassland

Native grassland is characterized by a relatively low (>10 percent) to dense herbaceous cover of the perennial, tussock-forming species, valley needlegrass grassland (*Stipa pulchra*). Native and introduced annuals occur between the needlegrass, often actually exceeding the bunchgrass in cover. This association generally occurs on fine-textured clay soils that are moist or wet in winter, but very dry in summer. Shrubs are infrequent, probably due to the unstable clay soils. The degree of habitat quality in native grasslands varies greatly, depending on the history of grazing, cultivation, or other disturbance factors. In addition to valley needlegrass (*Stipa pulchra*), indicator species include blue-eyed grass (*Sisyrinchium bellum*), mariposa lily, and clarkia (*Clarkia* spp.), among others.

Non - Native Grassland

Grasslands includes non-native grasslands and generally occurs on fine-textured loam or clay soils which are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. It is characterized by a dense to sparse cover of annual grasses, often with native and non-native annual forbs. This habitat is a disturbance-related community most often found in old fields or openings in native scrub habitats. Typical grasses include wild oat, soft chess (*Bromus mollis*), red brome, ripgutgrass (*Bromus diandrus*), and foxtail fescue (*Vulpia megalura*). Characteristic forbs include red-stem filaree (*Erodium cicutarium*), mustard (*Brassica* spp.), tarweed (*Hemizonia* spp.), California goldfields (*Lasthenia chrysostoma*), and owl's clover (*Orthocarpus purpurascens*).

Non-Vegetated Channel/Floodway

Non-Vegetated Channel/Floodways are unvegetated or sparsely vegetated drainages. The lack of significant vegetative cover in such areas can be attributed to either natural processes, such as flooding, or to human activities, such as vegetation clearing, sand mining, or stream channelization.

Non-native Trees

Non-native trees include non-native vegetation, eucalyptus woodland, and tamarisk scrub. Eucalyptus woodland is typically characterized by dense monotypic stands of eucalyptus trees (*Eucalyptus* spp.). Tamarisk scrub is a vegetation community comprised of monotypic or nearly monotypic stands of salt cedar (*Tamarisk ramossisima*).

Open Water

Open water includes reservoirs, lakes, ponds, and relatively large sloughs, channels, and rivers or streambeds that contain water throughout the year.

Ruderal habitat

Ruderal habitat occurs on land that has been permanently altered by human activity. This category includes the following: graded, disturbed lands; land with significant topsoil disturbance (from authorized and/or legal activities); land subject to repeated clearing for fuel management; and land that does not support native vegetation (excluding non-native grasslands). Ruderal habitat typically has lower biological value for most species, and therefore would have low potential to serve as raptor foraging habitat unless small mammal species (e.g., gophers, ground squirrels (*Spermophilus* sp.)) are present. Ruderal areas can consist of bare ground, or when vegetated, are dominated by at least 50 percent cover of weedy indicator species (not including grass species), such as Russian thistle (*Salsola* sp.), crown daisy (*Chrysanthemum coronarium*), horseweed (*Conzya* sp.), horehound (*Marrubium vulgare*), and sow-thistle (*Sonchus* sp.). Non-native grasses may be present, but do not comprise more than 50 percent of the vegetative cover. Examples of ruderal areas include recently graded firebreaks, graded construction pads, construction staging areas, off-road vehicle trails, and old home sites.

Southern Riparian Forest

Southern riparian forest includes southern cottonwood-willow riparian forest, southern arroyo willow riparian forest, and southern coast live oak riparian forest. Southern cottonwood-willow riparian forest is an open or closed canopy forest that is generally greater than 6 m (20 ft) high and occupies relatively broad drainages and floodplains supporting perennially wet streams. This community is dominated by mature individuals of winter deciduous trees, including Fremont's cottonwood (*Populus fremontii* var. *fremontii*) and several species of willows (*Salix gooddingii*, *S. lasiandra*, *S. lasiolepis*), and often has a dense understory of shrubby willows, mulefat (*Baccharis glutinosa*), and mugwort (*Artemisia douglasiana*). The dominant species require moist, bare mineral soil for germination and establishment. Southern arroyo willow riparian forest consists of dense, low, closed-canopy broadleafed riparian forests dominated by arroyo willow (*Salix lasiolepis*).

Southern coast live oak riparian forest is characterized by an open to locally dense evergreen sclerophyllous community dominated by coast live oak. This community type appears to be richer in herbs and poorer in understory shrubs than other riparian communities. Southern coast live oak riparian forest is associated with bottomlands and outer floodplains along larger streams, and occurs on fine-grained, rich alluvium. Structurally, this habitat generally consists of western sycamores, cottonwoods, and willows at the channel margins, bordered by coast live oak at slightly higher elevations. Young willows and cottonwoods, mulefat, San Diego sagewort (*Artemisia palmeri*), and western ragweed (*Ambrosia psilostachya)* dominate the understory. Vegetation within

the channel may include sedges, yerba mansa, and scattered patches of cattails. Shrub species in the outer edges of this association may include toyon, California wild rose (*Rosa californica)*, desert elderberry (*Sambucus mexicana*), and poison-oak, while typical herbaceous understory species include Douglas mugwort (*Artemisia douglasiana*) and eucrypta (*Eucrypta chrysanthemifolia*), among others.

Southern Riparian Scrub

Southern Riparian Scrub includes mule fat scrub and southern willow scrub. Mule Fat Scrub is an early seral vegetation community dominated by Mule fat (*Baccharis salicioflia*). This tall, herbaceous riparian scrub community occurs along intermittent stream channels with fairly course substrate and moderate depth to the water table. This community is maintained by frequent flooding, which keeps it from transitioning into sycamore or cottonwood dominated riparian woodland or forest. Other species often found in this association include broom baccharis (*Baccharis sarothroides*) and coyote bush (*Baccharis pilularis*). Understory vegetation is usually composed of non-native, weedy species or is lacking altogether. Southern Willow Scrub is a dense, broad-leafed, winter-deciduous association dominated by several species of willow (*Salix gooddingii*, *S. exigua*, *S. laevigata*, *S*. *lasiolepis, S*. *lucida* ssp. *lasiandra*), with scattered emergent Fremont cottonwood (*Populus fremontii*) and California sycamore (*Platanus racemosa*). This vegetation community is found on loose, sandy, or fine gravelly alluvium deposited near stream channels during floods.

Southern Sycamore-alder Riparian Woodland

Southern Sycamore-alder Riparian Woodland is a tall, open, broad-leafed, winter-deciduous streamside woodland dominated by California sycamore (*Platanus racemosa*) (and often also white alder (*Alnus rhombifolia*)). These stands seldom form closed canopy forests, and even may appear as trees scattered in a shrubby thicket of sclerophyllous and deciduous species. The understory component is comprised primarily of forbs and non-native grasses, with shrub species accounting for only a small portion of the cover. Lianas include California blackberry (*Rubus ursinus*) and poison oak (*Toxicodendron diversilobum*). This association occurs in very rocky streambeds subject to seasonally high-intensity flooding. *Alnus* increases in abundance on more perennial streams, while *Platanus* favors more intermittent hydrographs. Often it may appear as a stand of scattered trees within a matrix of willows, mulefat, and other shrubby species.

Urban/Developed

Developed areas support no native vegetation and may be additionally characterized by the presence of man-made structures such as buildings or roads.

Vernal Pools

Vernal pools may include road ruts and natural pools. In San Diego County, natural vernal pools are usually either San Diego mesa hardpan vernal pools or San Diego mesa claypan vernal pools. A number of federally- and/or state-listed plants and animals are restricted to these pool systems, including San Diego mesa mint (*Pogogyne abramsii*), Otay Mesa mint (*Pogogyne nudiuscula*), San

Diego button celery (*Eryngium aristulatum* ssp. *parishii*), Riverside fairy shrimp (*Streptocephalus woottoni*), and San Diego fairy shrimp (*Branchinecta sandiegoensis*).

San Diego Mesa Hardpan Vernal Pool. This is a very low-growing plant community of herbaceous perennials and annuals that are adapted to seasonal ponding on hardpan iron and silica rich substrates relatively impervious to the downward flow of water. As a result, the rainfall in these coastal basins slowly evaporates over an extended period, allowing a unique assemblage of plants to grow during the interim. San Diego Mesa hardpan vernal pools are primarily found interspersed among open chaparral and sage scrub on the coastal marine terrace deposits of the northern portions of the City of San Diego.

San Diego Mesa Claypan Vernal Pool. These pools are similar to hardpan vernal pools except they have basins sealed by a thick veneer of clay. These pools occur on marine terraces on the coastal plain and have finer textured soils than the hardpan pools. They are often associated with mima mound topography. Claypan pools are often found in open fields and grasslands.

Alkali Vernal Pool. Named after their saline-alkali soils, alkali vernal pools form over a large area in the inland valleys. There is an alkali vernal pool at the Salt Creek vernal pool complex in southwestern Riverside County (RCIP 2003). The size and configuration of alkali vernal pools varies based on annual rainfall and seasonal flood conditions.

Road Rut. Ponded road ruts often form in areas where vernal pool complexes have been previously disturbed. Such ponding may occur in areas with repetitive compaction of the soils, such as access roads and adjacent to facility structures. Ponded road ruts are generally sparsely vegetated or unvegetated and are often distinguished from vernal pools by the absence of vernal pool indicator plant species (such as *Psilocarphus brevissimus*, *Downingia cuspidata*, *Eleocharis macrostachys*, and *Callitriche* spp.). However, ponded road ruts have the potential to support sensitive vernal pool wildlife species, including fairy shrimp species and western spadefoot toad.

Appendix F
Science Advisor Reports

This appendix will contain the following sub-appendices:

Appendix F.1, *Revised Final Independent Scientific Advisory Report for the Conservation Strategy for Quino Checkerspot Butterfly in the City of Santee*.

Appendix F.2, *Revised Final Independent Scientific Advisory Report for the Conservation Strategy for Hermes Copper Butterfly in the City of Santee*.

Appendix F.3, *Draft Final Western Spadefoot (Spea hammondii): Independent Scientific Advisor Report for the City of Santee Multiple Species Conservation Plan (MSCP) Subarea Plan*.

These reports are available from the City of Santee.

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Appendix G
Vernal Pool Conservation Standards

1.1 Introduction

The Vernal Pool Conservation Standards for the Santee MSCP Subarea Plan provides a framework to protect, enhance, and manage vernal pool resources within the City, while streamlining the environmental permitting process for impacts to covered species associated with vernal pools. These standards has been developed in a manner to closely follow definitions and requirements included in the City of San Diego Vernal Pool Habitat Conservation Plan (VPHCP) (City of San Diego 2017).

1.2 Background

Vernal pools are 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. The features occur most often on level ground and are often associated with hillocks known as mima mounds; however, sometimes these wetlands can occur on former landslide areas and are then referred to as "slump" pools. Vernal pools are primarily associated with clay soil series, and the basins are sealed either by subsurface layers of impervious hardpan, or clay that expands to seal the basin when saturated (Greenwood and Abbot 1980).

These ecosystems are defined by seasonal hydrologic extremes: desiccated pool basins during the dry months followed by variable lengths of saturation and inundation during the rainy season. In southern California, the interannual variation in precipitation augments the inconsistent moisture conditions. This drastic change between vegetated wetland and dry basin defines a vernal pool and separates them from other wetland ecosystems (Zedler 1987).

The unique habitat created by vernal pools is known to support sensitive species. Table G-1 includes a list of species covered under the Santee Subarea Plan that are considered 'vernal pool species'. The City of Santee has developed the vernal pool policy to define the long-term conservation, management, and monitoring requirements of these species and avoid costly delays and uncertainty associated with project-by-project approach toward vernal pool conservation. Implementation of the vernal pool policy provides the basis for take authorization for the vernal pool species.

Table G-1. Santee Subarea Plan Vernal Pool Species

Type	Common Name	Scientific Name
Plants	San Diego button-celery	*Eryngium aristulatum* var. *parishii*
	San Diego mesa mint	*Pogogyne abramsii*
Wildlife	Riverside fairy shrimp	*Streptocephalus woottoni*
	San Diego fairy shrimp	*Branchinecta sandiegonensis*
	Western spadefoot toad	*Spea hammondii*

1.2.1 Vernal Pool Definitions

For the purposes of the Santee MSCP Subarea Plan, the following definitions and categorization of vernal pools will be used:

- **Natural vernal pools** – The Santee Subarea Plan considers a seasonally flooded depression to be a natural vernal pool if ponding is a result of natural conditions and topography (i.e. ponding is not based on anthropogenic disturbance such as a dirt road) and includes one or more of the vernal pool covered species (see Table G-1) or vernal pool indicator plant species (USACE 1997), which are listed in Exhibit A. In addition, if a natural vernal pool does not have covered or indicator species but is part of a larger vernal pool complex and located adjacent other natural vernal pools with covered and/or indicator vernal pool species, it will be considered a natural vernal pool.

- **Man-made vernal pools with indicator plant species** – If a seasonally flooded depression is formed as a result of anthropogenic disturbance (e.g. road ruts) and includes vernal pool indicator plant species, it will be treated as a vernal pool.

- **Man-made pools with covered wildlife species** - If a seasonally flooded depression formed through anthropogenic disturbance (e.g. road ruts) does not include indicator plant species, but includes covered vernal pool wildlife species (i.e. San Diego fairy shrimp, Riverside fairy shrimp, and/or western spadefoot toad), the Santee Subarea Plan vernal pool policy addresses how these man-made seasonal depressions will be managed and mitigated for.

- **Vernal pool complex** – For convenience of reference, groups of vernal pools are sometimes referred to as vernal pool complexes that may include two to several hundred individual vernal pools (Keeler-Wolf et al. 1998). Vernal pool complexes are defined as a series of similarly situated pools that have a similar influence on the physical, chemical and biological integrity of downstream waters and are similarly situated on the landscape (USACE/EPA 2015). They may have hydrologic (surface or subsurface) or ecological connection between pools, from processes including overflow, animal vectors, or wind dispersal. They often have soils, topography, and landscape positions that are similar. The uses of complexes area a helpful tool for planning and management, but it is recognized that a complex can be subjective.

1.2.2 Vernal Pool Field Survey Protocols

If a project site has potentially suitable habitat for vernal pools or for man-made pools that could support covered species, field surveys will be completed following the current protocols described in the USFWS "Survey Guidelines for the Listed Large Branchiopods" (USFWS 2015), or any subsequent revisions. A key details from the Survey Guidelines include:

- A complete survey for fairy shrimp (listed large branchiopods) consists of one wet season survey and one dry season survey.

- Wet season surveys involve checking pools after inundation occurs and inspecting for presence of fairy shrimp.

- Appropriate habitat is considered inundated when it holds greater than 3 cm of standing water 24 hours after a rain event.
- All potential habitat must be sampled at 7-day intervals after initial inundation. Sampling will be reinitiated within 7 days of an individual habitat drying and re-inundating during the same wet season.
- Each wet season survey visit includes using a dip net to sample representative portions of the bottom, edges, and vertical water column for presence of fairy shrimp. Specific sampling tips are provided in the Survey Guidelines.
- Surveyor must possess a recovery permit from the USFWS to sample for fairy shrimp and a scientific collecting permit to handle western spadefoot toad. Notification must be provided to the USFWS following the Survey Guidelines, including pre-survey notification, notification within 24-hours of new observations of listed fairy shrimp, and a post-survey report (90-Day Report).
- Additional wet season surveys may be required if a survey season is considered unreliable; this could result from moderate to extreme drought, or if no branchiopods are found and subsequent dry season survey detects fairy shrimp cysts.
- During wet season sampling, pools will be inspected for presence of covered species and vernal pool indicator plant species (USACE 1997), for use in determining habitat quality and species distribution.
- Fairy shrimp produce distinctive resting eggs called “cysts”, which persist in the soil until appropriate environmental conditions trigger hatching. Dry season fairy shrimp surveys are designed to collect, isolate, and identify these cysts. Dry season fairy shrimp surveys include collection of soil substrate when pools are dry, to avoid damaging or destroying cysts (which would preclude identification). Soil substrate samples are collected from designated locations within each pool, with increasing numbers of samples from larger pools. Soil samples will then be processed and analyzed by a specialist who holds a recovery permit specifically for conducting processing, isolation, and identification of fairy shrimp cysts. The procedure involves hydrating the soil sample, washing aliquots through specific sieves and collecting a particular fraction, and examining the washed-and-sieved fraction through a stereo dissecting microscope to locate and identify cysts.

1.3 Avoidance and Protection of Vernal Pools

The Santee Subarea Plan includes measures to avoid and minimize the impact of the taking of covered species and sensitive habitats. Direct and indirect impacts from covered activities shall be designed to avoid and minimize vernal pool habitats if feasible. The following avoidance, minimization, and protection are described in the following sections.

1.3.1 Avoidance of Vernal Pools

Covered activities will be designed and implemented to avoid impacts to natural vernal pools to the maximum extent practicable. Impacts to man-made vernal pools or pools with covered wildlife species should also be avoided, if feasible.

1.3.2 Protection of Vernal Pools

If existing vernal pools are protected through onsite habitat protection, the Santee Subarea Plan will add lands to the Subarea Plan Preserve System that will include the vernal pools, as well as associated watershed, habitat buffers, and adjacent uplands to meet the tenets of appropriate and functional reserve design. The project proponent shall ensure the long-term management of the on-site areas shall occur in perpetuity. Preserve areas designed to protect vernal pools will be included in the overall Subarea Plan Preserve System, following the Subarea Plan preserve requirements including:

- Preparation of a Preserve Management Plan (PMP) – Each project proponent shall implement a perpetual management, maintenance, and monitoring plan (PMP) for their respective biological conservation easement areas. The PMP, which shall be approved by the City, and funding source must be established prior to, or concurrent with, impacts. The plan should include, but not be limited to, monitoring schedule, measures to prevent human and exotic species encroachment, funding mechanism, and contingency measures should problems occur. In addition, the PMP shall include the name of the land management entity (Preserve Manager), qualifications, business address, and contact information.

- Long-term protection - Open space preserves will be protected in perpetuity through covenant of easement dedication to the City, or a deed restriction or other conservation mechanism consistent with California Civil Code Section 815, et seq. and/or Government Code Section 65870 and acceptable to the City.

- Long-term monitoring and management – Open space preserves will be managed based on the guidelines and requirements set forth in the Subarea Plan that define general stewardship and species monitoring. Vernal pool resources within open space preserves will be monitored and managed following the guidance set forth in Section 1.5 of this appendix.

- Funding for monitoring and management – The project proponent shall also establish a nonwasting endowment or similar secure funding method in an amount approved by the City based on a Property Analysis Record (PAR; Center for Natural Lands Management ©1998), or similar cost estimation method, to secure the ongoing funding for the perpetual long-term management, maintenance, and monitoring of the biological conservation easement area by an approved Preserve Manager. See Section 8.3, *Plan Funding*, of the Subarea Plan.

1.3.3 Protection Vernal Pools Watersheds

The complex hydrology of vernal pools is supported by both surface flows within a pool's topographic watershed (i.e., the surface area in which water drains into a vernal pool) and subsurface flows that may extend beyond the surface watershed. Surface and subsurface lateral flows between vernal pools and the surrounding uplands influence the onset and level of inundation, and the seasonal drying of vernal pools (Hanes and Stromberg 1998). Therefore, modifications to the uplands surrounding a vernal pool can negatively affect the pool's hydrology, even if such modifications occur outside the pool's surface watershed. For example, grading cuts near pools can accelerate the flow of water out of the subsoil (Bauder 1987).

Modifications to the hydrology of vernal pools can alter the distribution of vernal pool flora and fauna that are influenced by the length and frequency of water inundation (Bauder 1987, 2000). For instance, exotic plant species can become more prevalent in disturbed vernal pools when the periods of water inundation are reduced, while freshwater marsh species can expand into disturbed vernal pools when the periods of inundation are increased. Changes in duration of inundation may also alter fairy shrimp distribution as the San Diego fairy shrimp require a shorter inundation period to complete their reproductive cycle than Riverside fairy shrimp (Eng et al. 1990, Hathaway and Simovich 1996, Eriksen and Belk 1999). As such, Riverside fairy shrimp are limited to deeper vernal pools and/or those that have a longer period of inundation. Decreasing the inundation period may also prevent fairy shrimp, spadefoot toads and Pacific tree frogs from completing their life cycles, while increasing inundation may provide suitable habitat for non-native predators such as bullfrogs (*Lithobates catesbeianus*), African clawed frogs (*Xenopus laevis*), and fish.

Without complete protection of entire vernal pool watersheds, or precise hydrological monitoring and accurate modeling on a pool complex-scale, long-term indirect effects resulting from existing alterations to sub-watershed hydrology are unknown. Therefore, the Subarea Plan will provide for the protection and conservation of vernal pool watersheds. For all projects, a site specific assessment of the hardpan or claypan conditions for the entire vernal pool watershed (see below for definition) and a 100-foot buffer will be conducted to ensure the hydrologic conditions of the watershed are not disturbed by project construction.

Because of the potential indirect impacts and important ecological and hydrological processes discussed above, vernal pool preserves should be designed on a case-by-case basis to minimize the edge-to-area ratio (USFWS 1998) and to include: known and potential upland habitat for amphibians and pollinators of vernal pools plants; sufficient connection between vernal pools to maximize use by herbivores and their predators, as well as avian species; and the surface watershed and sufficient area to preserve subsurface flows. A minimum 100-foot wide habitat buffer will be preserved around vernal pools and their watersheds to limit the more immediate indirect edge effects caused by surrounding development. However, the area preserved to maintain the larger ecological and hydrological processes may extend beyond the surface watershed of vernal pools and the habitat buffer. Preserves designed to limit indirect impacts and protect ecological and hydrological processes will help ensure the long-term viability of the vernal pool ecosystem. If encroachment into the 100-foot watershed buffer is unavoidable, the project applicant must develop and implement a City approved enhancement and long-term management plan to off-set any indirect impacts created by encroachment into the watershed buffer. Such a plan should identify funding to implement the plan in perpetuity. However, in no case shall the biological buffer zone be less than 50 feet to the watershed without specific concurrence of the City and Wildlife Agencies.

1.3.4 General Avoidance and Minimization to Protect Vernal Pool Resources

The following general avoidance and minimization measures will be followed during construction for covered projects:

1. Any development adjacent to open space preserves with vernal pools shall be constructed to slope away from the extant pools to be avoided, to ensure that runoff from the project does not flow into the pools.

2. Covered projects shall require temporary fencing (with silt barriers) of the limits of project impacts (including construction staging areas and access routes) to prevent additional vernal pool impacts and prevent the spread of silt from the construction zone into adjacent vernal pools. Fencing shall be installed in a manner that does not impact habitats to be avoided. Final construction plans shall delineate the fenced limits of impact and all areas of vernal pools to be impacted or avoided, and will include requirements to take photographs of the fences immediately after installation. If work inadvertently occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied to the satisfaction of the City. Temporary construction fencing shall be removed upon project completion.

3. Impacts from fugitive dust that may occur during construction grading shall be avoided and minimized through watering and other appropriate measures.

4. A qualified monitoring biologist that has been approved by the City shall be on-site during project construction activities to ensure compliance with all mitigation measures identified in the CEQA environmental document. The biologist shall be knowledgeable of vernal pool species biology and ecology. The biologist shall perform the following duties:

    a. Oversee installation of and inspect the fencing and erosion control measures within or upslope of vernal pool restoration and/or preservation areas a minimum of once per week and daily during all rain events to ensure that any breaks in the fence or erosion control measures are repaired immediately.

    b. Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust.

    c. Train all contractors and construction personnel on the biological resources associated with the project and ensure that training is implemented by construction personnel. At a minimum, training shall include (1) the purpose for resource protection; (2) a description of the vernal pool species and their habitat(s); (3) the conservation measures that must be implemented during project construction to conserve the vernal pool species, including strictly limiting activities, and vehicles, equipment, and construction materials to the fenced project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (4) environmentally responsible construction practices as outlined in measures 5, 6 and 7; (5) the protocol to resolve conflicts that may arise at any time during the construction process; and (6) the general provisions of the project's mitigation monitoring and reporting program (MMRP), the need to adhere to the provisions of FESA, and the penalties associated with violating FESA.

    d. Halt work, if necessary, and confer with the City to ensure the proper implementation of species and habitat protection measures. The biologist shall report any violation to the City within 24 hours of its occurrence.

    e. Submit regular (e.g., weekly) letter reports to the City during project construction and a final report following completion of construction. The final report shall include as-built construction drawings with an overlay of habitat that was impacted and avoided, photographs of habitat areas that were avoided, and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved.

5. The following conditions shall be implemented during project construction:

    a. Employees shall strictly limit their activities, vehicles, equipment, and construction materials to the fenced project footprint.

    b. The project site shall be kept as clean of debris as possible. All food-related trash items shall be enclosed in sealed containers and regularly removed from the site.

    c. Disposal or temporary placement of excess fill, brush, or other debris shall be limited to areas within the fenced project footprint.

6. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities shall occur in designated areas 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 the vernal pools or their watersheds, and shall be shown on the construction plans. Fueling of equipment shall take place within existing paved areas greater than 100 feet from the vernal pools or their watersheds. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. A spill kit for each piece of construction equipment shall be on-site and must be used in the event of a spill. "No-fueling zones" shall be designated on construction plans.

7. Grading 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 a rain 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. To prevent erosion and siltation from storm water runoff due to unexpected rains, best management practices (i.e., silt fences) shall be implemented as needed during grading.

    d. If rain occurs during grading, work shall stop and resume only after soils are dry, as described above.

    e. Grading shall be done in a manner to prevent runoff from entering preserved vernal pools.

    f. If necessary, water spraying shall be conducted at a level sufficient to control fugitive dust but not to cause runoff into vernal pools.

    g. 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).

8. Prior to project construction, topsoil shall be salvaged from the impacted vernal pools or road ruts with fairy shrimp on-site consistent with the requirements of the approved restoration plan (e.g., free of versatile fairy shrimp [*Branchinecta lindahli*]). Vernal pool soil (inoculum) shall be

collected when dry to avoid damaging or destroying fairy shrimp cysts and plant seeds. 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 off-site 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 the City and Wildlife Agencies. The collected soils shall be spread out and raked into the bottoms of the restored pools. Topsoil and plant materials salvaged from the upland habitat areas to be impacted shall be transplanted to, and/or used as a seed/cutting source for, the upland habitat restoration/creation areas to the maximum extent practicable as approved by the City.

9. Permanent protective fencing along any interface with developed areas and/or use other measures approved by the City to deter human and pet entrance into on- or off-site habitat shall be installed. Fencing shall be shown on the development plans and should have no gates (except to allow access for maintenance and monitoring of the biological conservation easement areas) and be designed to prevent intrusion by pets. Signage for the biological conservation easement area shall be posted and maintained at conspicuous locations. The requirement for fencing and/or other preventative measures shall be included in the project's mitigation program.

1.4 Compensatory Mitigation of Unavoidable Impacts to Vernal Pools

If a proposed project includes unavoidable impacts to vernal pools, the following measures will be implemented as mitigation to offset impacts:

- Mitigation ratios will be based on size and type of vernal pools based on the following:

Vernal Pool Type	Mitigation Ratio
Natural vernal pools	4:1
Man-made vernal pools with indicator plant species	3:1
Man-made pools with covered wildlife species	2:1

- Vernal pool mitigation must meet a 'no net loss' criterion that includes at least 1:1 creation ("restoration") of new vernal pool habitat. Additional mitigation credits can be achieved through preservation and/or enhancement of existing vernal pools that are not impacted.

- All vernal pools and their watersheds within a project boundary that are not impacted must be included in a Preserve and included in the vernal pool long-term management and monitoring plan.

- If an existing vernal pool is significantly disturbed, enhancement of the existing pool can be implemented to provide up to a 1:1 mitigation credit. Enhancement actions may include weeding, improvements to watersheds, and upland restoration. A determination of

enhancement effort achieve mitigation credits will be determined on a case-by-case basis in coordination with the City and Wildlife Agencies.

- Mitigation will result in a net gain in the overall function and values of the vernal pool resources that were impacted. Examples of increased function and value include, but are not limited to, an increase in the availability of habitat for native fauna, an increase in native flora diversity, a decrease in invasive species, an increase in ground water recharge, water quality improvements and sedimentation deposition rates. Success criteria using the best currently available information for the particular mitigation habitat shall be required as part of the restoration or enhancement plan.

- Mitigation for projects impacting vernal pools shall include salvage of soil including inoculum, seeds, and sensitive species, when appropriate (i.e., high quality and no presence of versatile fairy shrimp), from vernal pools to be impacted, introduction of salvaged material into restored vernal pool habitat where appropriate (e.g., same vernal pool series), and maintenance of salvaged material pending successful restoration of the vernal pools. Use of salvaged materials shall be determined on a project specific basis during the project-level review phase. Salvaged material shall not be introduced to existing vernal pools containing the same species outside the vernal pool series unless approved by the City and Wildlife Agencies. The mitigation sites shall include preservation of the appropriate area of watershed and a buffer based on functions and values and a hydraulic analysis that evaluates surface and/or subsurface flow; however, if such an analysis is not conducted, there shall be a default of a minimum 100-foot buffer from the watershed.

- Project-specific vernal pool restoration, enhancement, and preservation plans that are required as part of compensatory mitigation under the Santee Subarea Plan. The restoration/enhancement/preservation plan and perpetual management and monitoring plan shall be provided to the Wildlife Agencies for technical review and approval. Upon receipt of the plans, the Wildlife Agencies shall have 30 working days in which to review and provide written comments to the City. Subsequent reviews and comments shall be completed within 15 working days. Failure to respond within the specified timelines shall result in approval of the draft plans unless an extension is agreed to by all parties.

1.5 Vernal Pool Restoration/Enhancement/Preservation Plan

General conditions specific to vernal pool restoration/enhancement/preservation and perpetual management and monitoring plans are as follows:

1. The project proponent shall submit a vernal pool restoration/enhancement/preservation plan to the City for approval as part of the development review process and the plan shall be included as an attachment to the project's CEQA document. The plan must be approved and implemented prior to or concurrent with project impacts. In addition, the restoration plan shall include the following information and conditions:

    a. Implementation of the enhancement/restoration shall be conducted under the direction of a qualified biologist (vernal pool restoration specialist) with at least 3 years of vernal pool restoration experience, to be approved by the City.

b. To avoid impacts to any extant vernal pools, all conservation measures required at the project construction site to avoid and minimize impacts to adjacent vernal pools and their watersheds shall also be implemented at the restoration site and thus specified in the restoration plan.

c. Vernal pools to be preserved and enhanced, as deemed appropriate by the City, will be monitored to achieve the same success criteria or better as the restored pools and surrounding uplands. Enhancement activities will include addition of vernal pool plant species and addition of appropriate upland habitat (e.g., coastal sage scrub, native grassland and/or chaparral) compared to the surrounding uplands. All plant material used for enhancement will be collected from local sources (i.e., as close to the site as reasonably feasible). This establishment can be accomplished by redistributing topsoil containing seeds, spores, bulbs, eggs, and other propagules from affected pools and adjacent vernal pool and upland habitats; by the translocation of propagules of individual species from off-site habitats; and by the use of commercially available native plant species and/or any vernal pool inoculum or plant material from an off-site source approved by the City. Topsoil and plant materials from the native habitats to be affected on-site will be applied to the watersheds of the enhanced and restored pools to the maximum extent practicable. Nonnative invasive weed control shall be implemented within the enhancement areas to protect and enhance habitat remaining on-site.

d. All restoration/enhancement/preservation activities shall commence the first summer-fall season prior to, or concurrently with, the initiation of project impacts.

e. For each restored or enhanced vernal pool, a record shall be kept of the exact activities that occur, which will include a discussion and a table. The discussion and table shall also include the initial and planned conditions of the pools (i.e., basin size, average depth, ponding duration), existing native and nonnative cover and presence of listed species.

f. All final specifications and topographic-based grading, planting, and watering plans shall have 0.5-foot contours for the vernal pools, watersheds, and surrounding uplands (including adjacent mima mounds) at the restoration sites. The basis for this fine-scale resolution is the micro-depth (i.e., several inches) of the vernal pools that shall be restored. The grading plans shall also show the watersheds of extant vernal pools, and overflow pathways that hydrologically connect the restored pools in a way that mimics natural vernal pool complex topography/hydrology.

g. A hydraulic analysis (i.e., surface and/or subsurface flow, where applicable) that shows each vernal pool proposed for restoration and its watershed, and hydrologic connection between the pools is required. The restored pools and their watersheds shall not impact the watersheds of any extant pools except where needed to establish hydrologic connections.

h. As a last resort and after approval by the City, additional inoculum from donor vernal pools as close to the project site as possible may be used to supplement the inoculum collected at the project impact site. If inoculum is used for restoration and enhancement, the plan shall identify any proposed donor pools and include documentation that they are free of versatile fairy shrimp (*Branchinecta lindahli*). No more than 10% of the basin

area of any donor pool shall be used for collection of inoculum. Collection of inoculum from donor pools shall be coordinated with the Wildlife Agencies.

i. Inoculum and seeds/plants shall not be installed until the City have approved habitat restoration site grading. All planting shall be installed in a way that mimics natural plant distribution, and not in rows. Inoculum shall not be introduced into the restored or enhanced pools until after they have been demonstrated to retain water for the appropriate amount of time to support the targeted vernal pool species (i.e., at least 21 to 28 days for San Diego fairy shrimp or 30 to 60 days for Riverside fairy shrimp). If versatile fairy shrimp are detected in the restored or enhanced pools, inoculum shall not be introduced until appropriate measures to address versatile fairy shrimp are approved by the City. Inoculum shall be spread evenly over the surface, no more than 0.25 inch deep. If any ponding water is present at the time of soil inoculation, the soil shall only be placed on the wet soil adjacent to the ponded areas. Inoculum shall be placed into the bottoms of the restored/enhanced pools in a manner that preserves, to the maximum extent possible, the orientation of the fairy shrimp cysts and plant seeds within the surface layer of soil (e.g., collected inoculum shall be shallowly distributed within the pond so that cysts have the potential to be brought into solution upon inundation).

j. Plant palettes (species, size, and number/acre) and seed mix (species and pounds/acre) shall be included in the restoration/enhancement plan. The plant palette shall include native species specifically associated with the on-site habitat type(s) and should be from a local source. The source and proof of local origin of all plant material and seed shall be provided.

k. Native plants and animals shall be established within the restored/enhanced pools, their watersheds, and surrounding uplands. This can be accomplished by redistributing topsoil containing seeds, spores, bulbs, eggs, and other propagules from affected pools and adjacent vernal pool and upland habitats; by the translocation of propagules of individual species; and by the use of commercially available native plant species. Any vernal pool inoculum or plant material from an off-site source must be approved by the City. Topsoil and plant materials from the native habitats to be affected on-site shall be applied to the watersheds of the enhanced and restored pools to the maximum extent practicable. Exotic weed control shall be implemented within the restoration/enhancement areas to protect and enhance habitat remaining on-site.

l. In the event that natural rain is inadequate to support plant establishment, artificial watering of the restored/enhanced pools and their watersheds may be done upon approval by the City in order to establish plants but not hydrate shrimp. Any artificial watering shall be done in a manner that prevents ponding in the pools. Any water to be used shall be identified and documented to be free of contaminants that could harm the pools.

m. All weeding within and immediately adjacent to the enhanced/restored pools shall be performed by hand. All workers conducting weed removal activities shall be educated to distinguish between native and nonnative species so that local native plants are not inadvertently killed by weed removal activities.

n. All herbicide and pesticide use shall be under the direction of a licensed pest control advisor and shall be applied by a licensed applicator, under the supervision of a vernal pool restoration specialist. Glyphosate-based herbicides, such as RoundUp or Aquamaster, shall be applied on all areas that have been dethatched. Herbicide shall only be applied when wind speed is less than 5 miles per hour, and spray nozzles shall be of a design to maximize the size of droplets, to reduce the potential for drift of herbicide to non-target plants. A 10-foot buffer shall be maintained between concentrations of any sensitive plant species. Application of herbicide shall not occur if rain is projected within 24 hours of the scheduled application. When vernal pools are ponding or close to saturation, only hand herbicide application (i.e., saturated glove technique) shall be used in and around the edges of pools by specially trained herbicide applicators under the direct supervision of the vernal pool restoration specialist. When vernal pools are not ponding or close to saturation, herbicide may be sprayed but applicators must stay at least 3 feet from the edge of the pools.

o. A final implementation schedule shall be included that indicates when all vernal pool impacts, as well as vernal pool restoration/enhancement grading and planting, shall begin and end. A temporal loss of vernal pools shall be avoided by initiating the restoration work prior to or concurrent with impacts. This will minimize the length of time inoculum is kept in storage and ensure that there is appropriate habitat to translocate it to.

p. A minimum of 5 years of monitoring shall be conducted to ensure that success criteria are achieved. Success criteria for vernal pool and upland habitat restoration/enhancement areas shall include quantitative hydrological, vegetation transects, fairy shrimp protocol surveys, or other measurements as approved by the City (e.g., viable cyst, hatched fairy shrimp, and gravid female measurements), floral and faunal inventories, and photographic documentation. To minimize impacts to the vernal pool's soil surface during restoration, enhancement, and monitoring, cobbles shall be oriented within the vernal pools to serve as stepping stones. Reference data shall be established from a vernal pool reference or control site located in the vicinity of the Santee. The vernal pool control sites shall be approved by the City.

q. Restoration success for fairy shrimp shall be determined by measuring the ponding of water, and density of viable cysts, hatched fairy shrimp, and gravid females, within the restored pools. Water measurements shall be taken in the restored pools to determine the depth, duration, and quality (e.g., pH, temperature, total dissolved solids, and salinity) of ponding. Dry samples shall be taken in the restored and reference pools to determine the density of viable cysts in the soils. Dry sampling shall occur in the first year of the restoration monitoring program to establish a baseline, and the last year to identify changes to viable cyst density. Wet samples shall also be taken in the restored and reference pools to determine the density of hatched fairy shrimp and gravid females. The pools shall pond during an average rainfall year at an appropriate depth and quality to support fairy shrimp. The hatched fairy shrimp and gravid female density of the restored pools shall not differ significantly ($p < 0.05$) from reference pools for, at least, three wet seasons before a determination of success can be made. The average viable cyst density of the restored pools shall not differ significantly ($p < 0.05$) from reference pools at the end of the monitoring period before a determination of success can be made. Vernal pools selected as reference or control pools for evaluating

restoration success shall be identified and described in the restoration plan. Alternate methods of determining success may be used upon approval by the City.

r. To ensure that the construction and operation of the project do not adversely affect the vernal pools on-site, post-construction monitoring shall be conducted throughout the rainy season of an adequate rainfall year (i.e., at least 55% of average rainfall) to verify that avoidance measures were successful and determine whether the project is changing the hydrology of, or causing erosion and sediment delivery to, these vernal pools (based on pre-construction conditions). Monitoring shall occur for 3 years following project construction. In the event that sufficient rainfall to demonstrate adequate ponding does not occur during the 3 years following project construction, monitoring shall continue in 1-year increments, to a maximum of 5 years. A monitoring report shall be submitted to the City by September 1 following each monitoring season. The monitoring program shall be described in the final vernal pool restoration/ enhancement plan. If monitoring detects impacts to the adjacent vernal pools from construction and/or operation of the proposed project (e.g., from changes in hydrology) within the monitoring period, remediation shall be required.

s. Monitoring and success criteria for vernal pool and upland restoration/enhancement areas shall include native species richness and cover criteria for all 5 years of monitoring. Success criteria for weed cover shall be as follows: 0% cover for perennial weed species categorized as High or Moderate in the Cal- IPC Invasive Plant Inventory, and cover of all other weed species is no more than 5% and 10% coverage in the pools basins and watersheds, respectively, for all 5 years of the monitoring period. Container plant survival success criteria shall be 80% of the initial plantings for the first 5 years. At the first and second anniversaries of plant installation, all dead plants shall be replaced unless their function has been replaced by natural recruitment. The method used for monitoring shall be described and a map of proposed sampling locations shall be included. Qualitative monitoring shall be conducted throughout each year, and shall include documentation at photo points. Quantitative botanical monitoring shall be conducted annually in April/May, and shall include transect and/or quadrat sampling.

t. Verification that restoration/enhancement of vernal pools is complete shall require written sign-off by the City. If a performance criterion is not met for any of the restored/enhanced vernal pools or upland habitat in any year, or if the final success criteria are not met, the project proponent shall prepare an analysis of the cause(s) of failure and, if deemed necessary by the City, propose remedial actions for approval. If any of the restored/enhanced vernal pools or upland habitat has not met a performance criterion during the initial 5-year period, the project proponent's maintenance and monitoring obligations shall continue until the City deem the restoration/enhancement successful. Contingency measures may be required by the City.
Restoration/enhancement shall not be deemed successful until success criteria are achieved. If contingency measures are required, restoration/enhancement shall not be deemed successful until at least 2 years after any required contingency measures are implemented, as determined by the City.

u. Annual reports shall be submitted to the City and Wildlife Agencies by October 1 of each year that assess both the attainment of yearly success criteria and progress toward the

final success criteria. The reports shall also summarize the project's compliance with all applicable mitigation measures and permit conditions.

2. In the event that a new occurrence of a covered species is identified (i.e., previously undocumented) within an area to be impacted by a covered project or covered activity, mitigation shall be required in the form of salvage and restoration for the impact to the new occurrence. Mitigation shall occur consistent with Conditions 1 above.

1.6 Long-Term Management and Monitoring of Vernal Pool Habitats

The management and monitoring approach for vernal pools within protected open space will be completed in a manner consistent with the methodologies established in the City of San Diego VPHCP (City of San Diego 2017). To assess the status and need for management actions, the following standards will be implemented and monitored:

- Annually identify threats (invasive species, trampling, OHV activity, etc.) to all pools monitored, as well as to overall watershed integrity, and implement actions to prevent or reduce those threats.
- Prevent an average decline of at least one cover class of any covered plant species over 3 years for years having at least 55% average rainfall.
- Prevent a 20% decline in the density of the covered shrimp species over 3 years (average within complex).
- At complexes with 10% or greater average total nonnative species cover, prevent an increase in one cover class for nonnative cover over 3 consecutive years, regardless of rainfall.
- Maintain vernal pool watershed and hydrological network (i.e., inlet and outlet features) and water storage (maximum depth within +/-10% of baseline) functions.

The Santee Subarea Plan will use a tiered three-level approach for adaptive monitoring and management of vernal pool complexes within conserved lands. The levels are linked to the standards listed above. Levels of monitoring and maintenance are assigned at the complex level based on evaluation of the existing habitat conditions and population status of the covered species within a complex. The objectives of complex-wide management and monitoring at each level are as follows:

- Level 1 – maintain existing habitat conditions and vernal pool covered species populations within conserved complexes. This level is considered stewardship.
- Level 2 – stabilize vernal pool covered species population status by enhancing habitat conditions to a level that can support existing populations within conserved lands.
- Level 3 – restore habitat conditions to a level that can increase vernal pool covered species populations within conserved lands.

The monitoring and management actions required at each level are determined by achievement of the Santee Subarea Plan vernal pool standards. Management levels are implemented complex-wide

and apply to particular population conditions within the complex. Monitoring within a complex will occur to determine changes in the status of the complex condition. Specific triggers linked to the vernal pool standards have been identified and described below. These triggers will determine an increase or decrease the management and monitoring level and thus the effort required. The overall goal will be achieved if all habitat and species-specific objectives are accomplished and vernal pools managed under the Santee Subarea Plan are maintained at a Level 1 condition in perpetuity.

1.6.1 Monitoring Approach

The tiered three-level monitoring approach requires both qualitative and quantitative monitoring at vernal pool complexes that will be managed under Santee Subarea Plan. Monitoring shall be performed on specific complexes within conserved lands as determined by the City of Santee. Monitoring would be responsibility of the Preserve Manager and conducted by qualified biologist that all will follow a standard monitoring protocol. Monitoring would be coordinated with regional efforts conducted by other entities (e.g., USFWS, San Diego Management and Monitoring Program).

Table G-2 provides an overview of the Santee Subarea Plan vernal pool monitoring methods and sample size for each level of monitoring (qualitative and quantitative). More detail is provided below on the monitoring methods associated with each of the three monitoring levels. The decision to move to a different monitoring level is based on triggers directly tied to the standards.

Table G-2. Monitoring Methods, Frequency, and Sample Size

Survey Type	Frequency and Timing	Monitoring Method	Sample Size (based on Monitoring and Management Level)
Qualitative			
Threat assessment, pool inundation verification, and verification of fairy shrimp viability and reproduction	Three visits annually during wet season	Visual assessment.	All basins in complex (all Levels)
Quantitative			
Baseline hydrologic survey	One time (within 5 years of acquisition of conserved lands)	Measure maximum pool depth, pool inlet and outlet, and geomorphic setting of complex.	All basins in complex (all Levels)

Survey Type	Frequency and Timing	Monitoring Method	Sample Size (based on Monitoring and Management Level)
Covered plant surveys	Annually, spring	Collection of cover class data of each covered plant species and each nonnative plant species. Nonnative species shall be aggregated into one cover class estimate for comparison to the triggers. Individual nonnative species and problematic invasive exotics shall be listed on the monitoring form to direct management actions for nonnatives.	**Level 1:** 10% of occupied pools in each complex OR if complex has <10 pools for each covered species, survey at least one pool for each covered species known to occur **Level 2 and 3**: All pools in complex with covered plant species
Fairy shrimp density surveys	As-needed based on qualitative observations (see above)	Dry season sampling with genetic identification of cysts.	**Level 1:** Only conduct if a notable change to hydrology or other vernal pool functions is observed, that would trigger a Level 2 or 3 management response **Level 2:** Up to 10 pools or 10% of pools with covered shrimp species, whichever is greater **Level 3:** Up to 10 pools or 20% of pools with covered shrimp species, whichever is greater
Topographic disturbance assessment	As needed, if topographic and/or hydrologic disturbance is observed during qualitative monitoring	Maximum basin depth shall be measured and inlet and outlet locations shall be recorded for comparison against baseline hydrologic data. If basin reconstruction is required to address topographic disturbance, then monitoring shall be performed to determine if restored hydrological function is achieved (measured by maximum pool depth and inlet/outlet location).	Topographically and/or hydrologically disturbed basins (all Levels)

Qualitative Monitoring

Qualitative monitoring corresponds to documenting observations during annual site visits, as well as incidental observations during management activities (e.g., weed control). Annual qualitative monitoring shall be conducted at vernal pools managed under the Santee Subarea Plan, regardless of the designated monitoring level. General site assessment information shall be collected, including current or potential threats (such as invasive plants, dumping, OHV activity, and trampling), and

recommendations for management shall be generated. Each complex shall be assessed for the following conditions and threats:

- Fencing and Signage: The conditions of fencing or other site protection measures shall be checked to verify that the site is secured and that appropriate signage is in place.
- Edge Effects: Each complex shall be inspected for edge effects from landscaping (irrigation runoff, invasive species, herbicide application, etc.), water drainage (water quality, increased ponding, etc.), dust production, dumping, and other issues within the complex or on adjacent properties.
- Fire and Fire Suppression: Evidence of fire or disturbance from fire suppression shall be evaluated for impacts to the site (loss of native habitat, weed invasion, erosion, etc.).
- Trespass: Each complex shall be inspected for signs of trespass or illegal OHV activity.
- Topographic Disturbance: Each complex shall be evaluated for topographic disturbance or altered hydrology from vehicle damage, illegal trespass, or other landscape-damaging impacts. The qualitative assessment of topographic disturbance shall evaluate the following:
    - Pool integrity and hydrologic function
    - Shape and size of the disturbance and the overall pool
    - Depth and duration of ponding
    - Need for hand work or mechanical equipment for repairs
    - Need for watershed analysis and/or microtopographic plans
- Invasive Species: A general assessment of nonnative plant and animal invasion shall be made during each qualitative survey for the vernal pool and upland areas. Observations of invasive plant species and invasive wildlife presence shall be noted.
- Inundation: A visual check for pool inundation shall be performed; inundation of at least 1.5 inches in depth shall be noted.
- Other: Any additional observed disturbances that could affect habitat quality shall be noted.

In addition, the overall disturbance category of the complex shall be identified, based on the disturbance categories defined in the HGM Manual (Bauder et al. 2009). The categories range from minimal/no disturbance to severe disturbance.

Qualitative surveys shall also evaluate the presence of fairy shrimp (visual survey) and verification of fairy shrimp viability and reproduction (i.e., observation of gravid females).

Visits should occur in the winter and spring seasons (generally February through May). Qualitative monitoring can be conducted in conjunction with the quantitative monitoring.

In addition to an annual threat assessment, each vernal pool complex shall be visited up to three times a year during the wet season to check for pool inundation. These visits shall be timed, when feasible, to occur following a large rain event when inundation of the pools is expected.

Quantitative Monitoring

Quantitative monitoring involves activities such as mapping and estimation of species cover, population size/density, and presence/absence at each complex. Quantitative monitoring requirements vary based on the three levels of monitoring, with higher levels collecting more data with greater precision to inform management actions. More data collection requires greater effort and cost. The sample size for covered plant and shrimp species monitoring will depend on the assigned monitoring level (see Table G-2).

Annual quantitative monitoring shall be conducted for vernal pools managed under the Santee Subarea Plan. Surveys should be timed to coincide with the appropriate ecological conditions for the target species at a specific complex. For the covered plant species, timing should coincide with the optimal flowering time later in the season when detection and identification of both early and late vernal pool plant species are possible. For the covered shrimp species, cyst collection visits should occur during the dry season.

Monitoring for floral and faunal components shall be conducted from the pool margins so that trampling of vernal pool resources and the inadvertent transferring of vernal pool propagules (plant seeds and shrimp cyst) are minimized.

Covered Shrimp Species Monitoring

Wet season sampling and/or dry season sampling of cysts with genetic identification to species shall be used to monitor the covered shrimp species.

An estimate of density for each covered shrimp species can be calculated as the number of cysts per volume of soil. The change in density can be tracked over time as an indicator of the population size of the pool. If the average cyst density is stable or increases across the occupied pools in a complex, it can be inferred that the population is stable or increasing at that complex. To verify that shrimp cysts are viable and that reproduction is occurring, a visual assessment during the wet season is required to observe hatched cysts and gravid females. These wet season verifications should be timed to occur in conjunction with inundation surveys performed as part of qualitative monitoring.

Sampling for shrimp cyst density and identification shall be done in accordance with the USFWS protocol, as modified by Andrew Bohonak, PhD, at San Diego State University (USFWS 1996; Bohonak and Simovich 2011), using the following guidelines:

- Samples shall be collected within 1.0 meter from each pool's lowest point where shrimp cyst densities are the highest.
- Set up two perpendicular transects so that they intersect in each pool's deepest spot, and one transect should pass over the pool's second deepest point.
- Five core samples (2 inches in diameter and 2 inches deep) shall be collected per pool as follows: one in the pool center, and one radiating out 1.0 meter in each of the four transect line directions, for a total of five samples per pool. The five samples shall be combined to determine the average density in the pool.
- The core samples shall be taken when each pool's sediments are completely dry at the surface and subsurface.

- Core samples should be processed in the laboratory using standard washing protocol and cysts shall be removed from the damp soil by trained personnel and inspected under a dissecting microscope.

If the average cyst density decreases across the occupied pools in a complex, it can be inferred that the covered shrimp population is decreasing at that complex. A reduction in shrimp population is likely the result of an indirect impact, such as change in pool inundation resulting from an impact to watershed hydrology or nonnative plant invasion. Thus, a decrease in a shrimp population would trigger additional monitoring, for instance to detect topographical or hydrological disturbance (Table G-3).

If topographic or hydrologic disturbance is observed in a vernal pool, then maximum basin depth shall be measured, and inlet and outlet locations shall be recorded for comparison against baseline hydrologic data. If topographic reconstruction is required, then monitoring shall be performed (Level 2 or 3) to determine if restored hydrological function achieves the Santee Subarea Plan vernal pool standard "E".

Covered Plant Species Monitoring

Monitoring shall include cover estimates within the pool basins containing covered plant species, using a modification of cover classes taken from the California Native Plant Society's (CNPS) plant cover methodology, following the McEachern et al. (2006) MSCP rare plant monitoring protocol. With the modified CNPS methodology that will be used under the VPHCP, some cover classes have been combined (the cover classes <1%, 1–5% and 5–10% are combined into one cover class <10%, and cover classes of 50–75% and 75%+ are combined to one cover class of 50%+) because the resolution of the cover classes below 10% and above 50% are not necessary to inform management decisions (e.g., need for weed control or remedial seeding). Therefore, estimated absolute percent cover of each covered plant species in a pool is grouped in the following classes to track changes in cover over time to inform management decisions: <10%, 10–25%, 25–50%, 50%+. Use of this modified class system allows for valuable data collection without the time required for other types of vegetation assessments (transects, plot-frames, etc.). In addition to the covered plant species, other native and nonnative vegetative cover can be estimated with this modified CNPS class system.

At Monitoring Level 1, quantitative monitoring shall be performed on all vernal pool up to 10 pools and a subset of the vernal pools beyond 10 pools containing covered plant species at each applicable complex. Using the CNPS cover class system described above, 10% of the vernal pools with covered plant species shall be assessed quantitatively. If a complex has less than 10 pools for a particular covered species, survey shall take place for at least one pool where that covered species is known to occur. Only the covered species shall be assessed in each pool. Pools in a given complex with more than one covered species shall be preferentially chosen to reduce the total number of pools required for sampling. These intentionally chosen pools are considered sentinel pools. If all covered plant species in a complex do not co-occur in the same pools, the remaining needed pools shall be chosen randomly in each complex to meet the 10% criterion. The sentinel pools and the randomly chosen pools shall then be sampled every year to provide greater precision in changes observed in cover class estimates. While not random, the use of sentinel pools with multiple covered plant species, as well as the use of permanent sampling, shall increase the efficiency and precision of monitoring at Level 1.

At Levels 2 and 3, monitoring shall be conducted in all vernal pools occupied by covered plant species. At Levels 2 and 3, the covered plant species are declining (Level 2) or extirpated (Level 3)

from a complex. Therefore, more intensive monitoring of occupied, or previously occupied, pools is necessary to determine the cause of the population decline and to determine where management actions should be focused.

1.6.2 Management Approach

The tiered monitoring program described above will be used to evaluate site conditions for each complex managed under the Santee Subarea Plan to determine the appropriate management level.

Rainfall amounts will determine whether the vernal pool flora and fauna are adequately expressed to determine covered species population status. The benchmark for annual survey assessments comparable to the Santee Subarea Plan standards shall be 55% of the average rainfall for the City of San Diego, as recorded at Gillespie Field weather station. According to the HGM approach, approximately 55% of normal rainfall should be considered the minimum to express the full ecological parameters required for vernal pools in southern California (Bauder et al. 2009). For the Santee Subarea Plan, the minimum rainfall required for adequate assessments is 55% of average rainfall for the appropriate region for the period of July through June. The 55% of average rainfall years do not need to be sequential. Quantitative monitoring shall be conducted annually, regardless of rainfall; however, only those years with 55% average rainfall will be compared to the Santee Subarea Plan vernal pool standards.

Management Action Triggers

The required management level (Level 1, 2, or 3) for each complex managed under the Santee Subaera Plan is determined by evaluating monitoring results against the Santee Subarea Plan vernal pool standards. The triggers to move between management levels are outlined in Table G-3.

Table G-3. Quantitative Management Triggers

Management Trigger	Monitored Vernal Pool Resource	Monitoring Observation Compared to VPMMP Standards
A- (Level 1 to Level 2)	Covered Plant Species	An average decline of one cover class for any covered plant species present in the pools assessed over 3 years with adequate rainfall, **OR** An average increase of one cover class in combined nonnative cover in the vernal pools over 3 years, regardless of rainfall. This trigger only applies to complexes with at least 10% total nonnative cover.
	Covered Shrimp Species	A 20% decline in species density in the covered shrimp species present in the pools assessed over 3 years.
	Hydrologic Function	A change in the vernal pool hydrological network (i.e., inlet and outlet features) and water storage function such that the maximum depth of ponding is changed (increased or decreased) by more than +/-10% but less than +/-20% from the baseline recorded for the basin.

Management Trigger	Monitored Vernal Pool Resource	Monitoring Observation Compared to VPMMP Standards
A+ (Level 2 to Level 1)	Covered Plant Species	An average increase of one cover class for ALL target covered plant species present in the pools assessed over 3 years with adequate rainfall, **OR** An average decrease of one cover class in combined nonnative cover in the vernal pools over 3 years, regardless of rainfall.
	Covered Shrimp Species	A 20% increase in species density in the covered shrimp species present in the pools assessed over 3 years.
	Hydrologic Function	Through active restoration and enhancement (i.e., topographic recontouring), a reestablishment of the baseline vernal pool hydrological network and water storage function to within +/-10% of the baseline recorded for the basin.
B+ (Level 2 to Level 3)	Covered Plant Species	An average decline of two cover classes for any covered plant species present in the pools assessed over 3 years with adequate rainfall, **OR** An average increase of two cover classes in combined nonnative cover in the vernal pools over 3 years, regardless of rainfall. This trigger only applies to complexes with at least 10% total nonnative cover.
	Covered Shrimp Species	A 40% decline in species density in the covered shrimp species present in the pools assessed over 3 years. Additionally, if a complex has remained at Level 2 for 3 years with at least 55% of average rainfall, the complex would be elevated to Level 3 monitoring and management.
	Hydrologic Function	A change in the vernal pool hydrological network (i.e., inlet and outlet features) and water storage function such that the maximum depth of ponding is changed (increased or decreased) by +/-20% or more from the baseline recorded for the basin.
C- (Level 1 to Level 3)	Covered Plant Species	An average decline of two cover classes for any covered plant species present in the pools assessed over 3 years with adequate rainfall, **OR** An average increase of two cover classes in combined nonnative cover in the vernal pools over 3 years, regardless of rainfall. This trigger only applies to complexes with at least 10% total nonnative cover.
	Covered Shrimp Species	A 40% decline in species density in the covered shrimp species present in the pools assessed over 3 years. Additionally, if a complex has remained at Level 2 for 3 years with at least 55% of average rainfall, the complex would be elevated to Level 3 monitoring and management.
	Hydrologic Function	A change in the vernal pool hydrological network (i.e., inlet and outlet features) and water storage function such that the maximum depth of ponding is changed (increased or decreased) by +/-20% or more from the baseline recorded for the basin.

Management Trigger	Monitored Vernal Pool Resource	Monitoring Observation Compared to VPMMP Standards
C+ (Level 3 to Level 1)	Covered Plant Species	An average increase of two cover classes for ALL target covered plant species present in the pools assessed over 3 years with adequate rainfall, **OR** An average decrease of one cover class in combined nonnative cover in the vernal pools over 3 years, regardless of rainfall.
	Covered Shrimp Species	A 40% increase in species density in the covered shrimp species present in the pools assessed over 3 years with at least 55% of average rainfall.
	Hydrologic Function	Through active restoration and enhancement (i.e., topographic recontouring), a reestablishment of the baseline vernal pool hydrological network and water storage function to within +/-10% of the baseline recorded for the basin.

Management Actions

Management levels will be assigned to each complex under the Santee Subarea Plan based on a review by the Preserve Manager of available quantitative and qualitative data to site-specific management needs, and will be reviewed and approved by the City of Santee.

Level 1 is considered the stewardship-level requirement for monitoring and management. A complex will remain at Level 1 in perpetuity unless the Management Triggers to move to Level 2 or Level 3 are met. Because of seasonal climate variability and resulting effects on the expression of both invasive species (weed germination, flowering, and seed-set; dispersal of invasive animals; etc.) and covered species (plant germination, flowering, and seed- set; shrimp hatching, development, and reproduction; etc.), management activities shall be applied for a minimum of 3 years for Level 2 and 5 years for Level 3. If, after 3 or 5 years of implementation of Management Level 2 or Level 3, respectively, the complex is not achieving the Santee Subarea Plan vernal pool standards to elevate to the next management level, then the respective management level will continue to be implemented until the standards are achieved.

The following describes the overall desired activity for each management level. General management activities that will be required at each Management Level are described in Table G-4.

Management Level 1

The objective of Level 1 is to maintain existing habitat conditions and existing covered species population status. Level 1 complexes are deemed functioning at an acceptable to optimal condition. The required management actions are expected to result in maintenance of those conditions. In general, the management can be characterized as stewardship where little maintenance is needed to achieve the habitat and species-level objectives. It is assumed that routine access patrol and enforcement will occur at all Level 1 sites. Access patrol visits shall occur annually, at a minimum, at each site, or more frequently (e.g., monthly, weekly) as deemed appropriate by the City.

Management Level 2

The objective of Level 2 is to stabilize habitat conditions and covered species populations. Level 2 complexes are deemed functioning at an unacceptable condition and are perceived as declining in habitat quality and/or covered species persistence. In general, the management can be characterized as enhancement where maintenance is needed to achieve the habitat and species-level objectives. Management Level 2 includes all activities listed for Management Level 1, plus the additional activities listed in Table G-4. The required management actions are expected to result in an improvement in those conditions to Level 1.

Management Level 3

The objective of Level 3 is to restore habitat conditions and covered species populations. Level 3 complexes are deemed highly degraded and need restoration to meet the habitat and species objectives of the Santee Subarea Plan. Management Level 3 includes all activities listed for Management Level 1, plus the additional activities discussed in Table G-4. The required management actions are expected to result in an improvement in those conditions to Level 1.

Where required, project-specific vernal pool restoration plans for Level 2 or 3 sites will be consistent with the general requirements outlined in the Santee Subarea Plan vernal pool policy, as applicable. A vernal pool restoration/enhancement plan will be prepared for approval by the City and Wildlife Agencies.

Table G-4. Management Actions by Level

Level	Management Action	Management Requirement
Level 1	Trash and Debris Removal	All complexes will be kept free of trash and debris through annual or as-needed removal.
	Fencing and Signage Maintenance	Every complex will be protected with site-appropriate fencing, vehicle barriers, and/or other access controls. Any complex without adequate protection will be fenced or protected by other types of access barriers. Status of access restrictions will be documented as part of the qualitative monitoring. If problems are identified, recommendations for repair or replacement will be made and implemented (e.g., replacement of locks, gates, signs, or fence repairs).
	Edge Effects Maintenance	Recommendations for addressing edge effects that are noted during qualitative monitoring will be implemented. This may include changes in irrigation designs or schedules, modification of landscape species, erosion-control measures, dust-suppression measures, and other adaptive efforts. If problems are being caused by adjacent land use and management, the City or other land manager will contact adjacent property owners/managers to address the issues.
	Fire and Fire Suppression Damage Repair	If a complex is affected by fire, there are general expectations for recovery and invasion by weeds. Following a fire, quantitative data should be carefully evaluated to identify short- and long-term impacts. Any damage resulting from fire suppression (fencing damage, vehicle damage, contamination from fire suppressant chemicals, etc.) will be addressed immediately.

Level	Management Action	Management Requirement
	Trespass Damage Repair	During qualitative assessment, any signs of trespass will be assessed for damage. Unauthorized trails will be closed and signage installed, where appropriate. Damage that alters hydrology will be assessed and measures will be implemented to resolve the problem.
	Topographic Disturbance Repair	Qualitative assessment of topographic and/or hydrologic disturbance will include recommendations for repair measures, as appropriate. If damage occurs during the wet season, it may be necessary to postpone repair measures until the site is dry. Minor topographic damage (e.g., footprints, small tire ruts) will be repaired with hand tools.
	Covered Vernal Pool Weed Control	Covered Vernal Pool Weed Control Level 1 (two visits per spring) will be performed in vernal pools occupied by covered species to maintain acceptable nonnative cover levels.
	General Weed Control	The purpose of General Weed Control Level 1 (two visits per spring) is to target invasive nonnative species identified during qualitative monitoring in non-covered species vernal pools and/or associated upland watersheds. The primary goals are to prevent spread of invasive nonnative species into covered species pools and eradicate problematic invasive species upon detection.
Level 2	Trash and Debris Removal	Same as Level 1.
	Fencing and Signage Maintenance	Same as Level 1.
	Edge Effects Maintenance	Same as Level 1.
	Fire and Fire Suppression Damage Repair	Same as Level 1.
	Trespass Damage Repair	Same as Level 1.
	Topographic Reconstruction	Moderate topographic disturbance that affects pool integrity, ponding potential (depth and duration), or overall size will require microtopographic repair involving mechanized equipment and hand work. Where necessary, ponding characteristics, flow patterns, and other hydrological functions will be reestablished to within ±10% of the baseline conditions (as determined during the baseline hydrogeological surveys). These involve measuring maximum basin depth and inlet and outlet locations using a laser transit. Baseline hydrologic data will be used to guide management decisions to repair observed topographic and/or hydrologic disturbance and restore hydrologic function. A more detailed plan may be necessary for grading if equipment is used.

Level	Management Action	Management Requirement
	Dethatching	Dethatching is recommended prior to other types of weed control. Although some complexes may require weed control without dethatching, this will be evaluated on a complex-by-complex basis. For example, dethatching is not needed to treat invasive forbs at a complex with limited thatch. For most complexes, dethatching will be applied to the basins and in a 20-foot (on average) watershed buffer around each basin. The actual buffer for each vernal pool will be determined on a site-specific basis, based on weed conditions. Thatch and nonnative seed control is important for both the pool and the upland watershed, as the watershed can be a major source of weed seed and nonnative thatch input.
	Covered Vernal Pool Weed Control	Covered Vernal Pool Weed Control Level 2 (two visits per spring) will be conducted in vernal pools with covered species plus an average 20-foot watershed buffer. An average 20-foot buffer around a pool is approximately equivalent to a 5:1 watershed-to-vernal pool area ratio (based on the average size of vernal pools managed under the Santee Subarea Plan that have covered species). Management of the upland watershed habitat at this ratio is considered appropriate when the site needs stabilization of habitat and covered species populations. The actual buffer for each vernal pool will be determined on a site-specific basis, based on weed conditions. Weed control includes all aspects of invasive plant control such as hand weeding, mechanical weeding, and herbicide use.
	General Weed Control	Same as Level 1 except three visits per spring.
	Seed Collection, Bulking, and Redistribution	At Management Level 2, the seed bank is assumed intact but may be declining for certain covered species. Seed collection, bulking, and redistribution may be implemented for declining covered plant species to enhance existing covered species seed banks.
	Shrimp Cyst Collection and Reinoculation	If quantitative monitoring indicates a decline in density of one or both covered fairy shrimp species, additional monitoring will be necessary to determine the cause of population decline (e.g., hydrological disturbance resulting from edge effects). Once the cause is addressed, shrimp cyst soil may be collected from other occupied pools in the same complex for reinoculation into impacted pools. Shrimp cyst soil will only be collected from pools that do not contain versatile fairy shrimp. Cyst collection from off-site sources may be considered if the potential cyst bank on-site is gone or too limited for collection.
Level 3	Trash and Debris Removal	Same as Level 1.
	Fencing and Signage Maintenance	Same as Level 1.
	Edge Effects Maintenance	Same as Level 1.
	Fire and Fire Suppression Damage Repair	Same as Level 1.
	Trespass Damage Repair	Same as Level 1.

Level	Management Action	Management Requirement
	Pool Restoration	Existing pools will be restored where needed to increase the population of covered species in a complex. Restored pools will not impact the watersheds of extant pools except as appropriate to establish hydrological connections between restored and extant pools (see topographic reconstruction below).
	Topographic Reconstruction	Extensive topographic disturbance that affects pool integrity, ponding potential (depth and duration), or overall size will require microtopographic repair involving mechanized equipment and hand work. Where necessary, ponding characteristics, flow patterns, and other hydrological functions will be reestablished using hand tools and/or equipment, as appropriate. Hydrological function must be reestablished to within +/-20% of the baseline conditions to elevate from Management Level 3 to Management Level 2, and within +/-10% of the baseline conditions to elevate to Management Level 1. A more detailed plan may be necessary for grading if equipment is used.
	Dethatching	Same as Level 2, except assume an average 35-foot watershed buffer around each pool.
	Covered Vernal Pool Weed Control	Covered Vernal Pool Weed Control Level 3 (four visits per spring) will be conducted on the vernal pools with covered species plus a 35-foot watershed buffer. An average 35-foot buffer around a pool is approximately equivalent to a 10:1 watershed-to-vernal pool area ratio (based on the average size of vernal pools managed under the Santee Subarea Plan that have covered species). Management of the upland watershed habitat at this ratio is considered appropriate when the site needs stabilization of habitat and covered species populations. The actual buffer for each vernal pool will be determined on a site-specific basis, based on weed conditions. Weed control includes all aspects of invasive plant control such as hand weeding, mechanical weeding, and herbicide use.
	General Weed Control	The purpose of General Weed Control Level 3 (four visits per spring) is to target invasive nonnative species identified during qualitative monitoring in non-covered species vernal pools and/or associated upland watersheds. The primary goals are to prevent spread of invasive nonnative species into covered species pools and eradicate problematic invasive species upon detection.
	Seed Reintroduction	At Management Level 3, certain covered species may be absent from the seed bank. Seed will be collected from off-site genetically appropriate populations, bulked in a greenhouse, and redistributed to restore covered species seed banks.
	Shrimp Cyst Collection and Reinoculation	Same as Level 2.
	Container Plant Production/Installation	Under Management Level 3, container plant production will be conducted for the annual covered plant if timing is appropriate.

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Exhibit A – List of Indicator Species for Vernal Pools

Based on:

U. S. Army Corps of Engineers (USACE). 1997. Indicator Species for Vernal Pools. U.S. Army Corps of Engineers, Los Angeles District. Regulatory Branch. November.

FLORAL LIST

Apiaceae

- *Eryngium aristulatum* var*. parishii Eryngium armatum*
- *Eryngium vaseyi*
- *Eryngium pendletonensis* sp*. nova (Pendleton)*
- *Eryngium* sp*. nova (San Quintin)*

Asteraceae

- *Belnnospermum nanum*
- *Hemizonia perennis*
- *Lasthenia glabrata* ssp*. coulteri*
- *Psilocarphus brevissiums*
- *Psilocarphus oregonus*
- *Psilocarphus tenellus*

Boraginaceae

- *Plagiobothrys acanthocarpus*
- *Plagiobothrys bracteatus*
- *Plagiobothrys stipitatus*
- *Plagiobothrys undulatus*
- *Plagiobothrys leptocladus*

Brassicaceae

- *Sibara virginica*
- *Lepidium latipes*

Callitrichaceae

- *Callitriche heterophylla*

- *Callitriche marginata*
- *Callitriche verna*
- *Campanulaceae*
- *Downingia bella*
- *Downingia cuspidata*
- *Downingia concolor* var. *brevior*

Crassulaceae

- *Crassula aquatica*

Elatinaceae

- *Bergia texana*
- *Elatine californica*
- *Elatine chilensis*

Hydrophyllaceae

- *Nama stenocarpum*

Isoetaceae

- *Isoetes howellii*
- *Isoetes orcuttii*

Juncaginaceae

- *Lilaea scilloides*

Lamiaceae

- *Pogogyne abramsii*
- *Pogogyne nudiuscula*
- *Pogogyne douglasii*
- *Pogogyne serpylloides*

Limnanthaceae

- *Limnanthes gracilis* ssp. *Parishii*

Malvaceae

- *Malvella leprosa*
- *Marsileaceae*

- *Marsilea vestita*
- *Pilularia americana*

Onagraceae

- *Epilobium pygmaeum*

Plantaginaceae

- *Plantago bigelovii*

Poaceae

- *Alopecurus saccatus*
- *Deschampsia danthonioides*
- *Orcuttia californica*
- *Phalaris caroliniana*
- *Phalaris lemmonii*
- *Phalaris paradoxa*
- *Hordeum intercedens*

Polemoniaceae

- *Navarretia fossalis*
- *Navarretia prostrata*

Primulaceae

- *Centunculus minimus*

Ranunculaceae

- *Myosurus minimus*
- *Myosurus minimus* var. *apus*
- *Myosurus minimus* var. *filiformis*

Scrophulariaceae

- *Mimulus latidens*

Solanaceae

- *Petunia parviflora*

Verbenaceae

- *Verbena bracteata*

FAUNAL LIST

Anostraca

- *Branchinecta sandiegonensis*
- *Branchinecta lindahli*
- *Branchinecta lynchii*
- *Linderiella* sp.
- *Streptocephalus woottoni*

Cladocera

- *Alona cf. diaphana*
- *Ceriodaphnia dubia*
- *Daphnia magna*
- *Daphnia rosea*
- *Macrothrix hirsuticornis*
- *Moina micrura*
- *Scapholebris cf.rammneri*
- *Simocephalus* sp.

Chenopodiaceae

- *Atriplex coronata* var. *notatior*

Copepoda

- *Acanthocyclops robustus*
- *Acanthocyclops vernalis*

Cyperaceae

- *Eleocharis acicularis*
- *Eleocharis macrostachya*

Juncaceae

- *Juncus bufornius*

Lythraceae

- *Rotala ramosior*

Ostracoda

- *Bradleycypris* sp.
- *Cypria pustulosa*
- *Cypriconcha* sp.
- *Cypridopsis vidua*
- *Cypris pubera*
- *Cypris virens*
- *Eucypris* sp.
- *Herpetocypris* sp.
- *Heterocypris* sp.
- *Lymnocythere* sp.
- *Potamocypris* sp.
- *Prionocypris* sp.
- *Pseudoilcypris* sp.

Themidaceae

- *Brodiaea orcuttii*
- *Brodiaea terrestris* var. *kernensis*

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Appendix H
General Plan, Zoning and Land Use Regulation Implementation Actions

1.1 Introduction

To assure implementation of the Subarea Plan, the City will amend the General Plan and Town Center Specific Plan, as required, to incorporate the Subarea Plan by reference and adapt resource management goals and policies. Subsequently amending other municipal codes and ordinances for consistency will achieve a policy and regulatory framework that supports long-term Subarea Plan implementation. These amendments and/or supplements must be instated within 12 months of implementation of this Subarea Plan (the time line may be extended for an additional 6 months upon approval by the Wildlife Agencies).

1.2 General Plan

The Santee General Plan is the long-range public policy document guiding development of public and private lands in the City. As a statement of intent regarding the future development, the General Plan establishes goals and objectives that set specific direction and commitments to action. Mechanisms to achieve desired community goals and objectives are concurrently discussed. The City first adopted the General Plan in 1984, and later incrementally amended it in 1986, 1991, and 1992. The first comprehensive update since 1984 was completed in August 2003.

Pursuant to California planning law, the General Plan is divided into nine topical chapters (seven mandatory and two optional), called "elements," addressing a range of community issues like traffic, land use, noise, public safety and conservation. Several of these elements contain goals, objectives, policies and implementation programs that focus on preservation of natural habitat and open space conservation: the Land Use Element, Conservation Element, Trails Element, and Community Enhancement Element. These elements are described as follows (references to Objectives and Policies in this section are those found in the General Plan, August 2003):

1.2.1 Land Use Element

The Land Use Element establishes a framework to guide both the City's development and form of the environment, and serves as the primary vehicle for ensuring the logical organization of residential, commercial, industrial, open space, and public uses. The Fanita Ranch and Town Center are identified as areas for special study, in part due to the presence of significant biological resources.

The overall goal of the Land Use Element is to promote development of a well-balanced and functional mix of residential, commercial, industrial, open space, recreation, and civic uses that will create and maintain a high quality environment. To this end, objectives and policies establish more specific direction. Policy 1.3 promotes the preservation of the biological and visual resources of the San Diego River as part of any development in the Town Center area. Objective 7.0 and related Policies 7.1, 7.2 and 7.3 address the comprehensive development of large, contiguous, vacant or underutilized parcels.

One of the primary implementation mechanisms in the Land Use Element is the Land Use Map, which illustrates the distribution and character of development, redevelopment and natural land preservation. The land use designation on the Land Use Map implements development goals, and includes residential designations varying in dwelling unit density, as well as various commercial, industrial, recreational, and open space designations. The General Plan specifies that on-site environmental resources must be assessed by the City when considering residential projects and determining appropriate density ranges. Development within the Town Center is subject to consistency with the Specific Plan for the area. As a general rule, when there is natural vegetation on a site, a biological study is required.

Actions to Implement the Subarea Plan:

The Land Use Element objectives and policies are generally consistent with the Subarea Plan, but revisions are required to incorporate the Subarea Plan criteria and standards for preserving open space, including the map of preserve lands.

Required Amendments to the Land Use Element include:

1. Amend the Land Use Map to the extent that there are inconsistencies between the Land Use Map and the Subarea Plan Preserve lands. The City may identify the Subarea Plan Preserve as an overlay, or similar mechanism in the Zoning Ordinance (see Section 6.4.2 of the General Plan). The existing Land Use Map will not be significantly changed.
2. Add a new objective under Objective 8.0 that indicates that the City shall minimize direct and indirect impacts on preserved open space from adjacent development by requiring Land Use Adjacency Guidelines (Section 7.2, *Preserve Management and Monitoring*) to be implemented.
3. Amend the Park/Open Space District to reference the goals and objectives of the Subarea Plan.
4. Incorporate provisions for Subarea Plan Preserve in the development guidelines for the existing Town Center Specific Plan.
5. Add a description of the Subarea Plan to the Land Use Element implementing procedures.
6. Review the entire Land Use Element for consistency with the Subarea Plan.

1.2.2 Conservation Element

The Conservation Element assesses the community's natural and created resources and sets forth directives for management in order to assure their continued availability for use, appreciation, and enjoyment. The discussion of existing biological resources identifies riparian oak woodland in the undeveloped drainages and undisturbed chaparral and sage scrub in the upper slopes as the primary habitats.

The overarching goal of the Conservation Element is to conserve natural and cultural resources. Objective 7.0 and Policies 7.1 and 7.2 require the preservation of biological resources, including use of permanent open space and establishment of appropriate mitigation for development impacts. Additional objectives and policies provide guidance for management of other environmental resources (such as riparian corridors, steep slopes, erosion control and flood control), which directly or indirectly affect efforts to preserve biological habitat. The implementation portion of the

Conservation Element relies on federal, state, regional, and local regulations for achieving the City's conservation goals. Additional implementation measures related to natural habitat protection are use of permanent open space easements and consideration of biological resources during development review.

Actions to Implement the Subarea Plan:

- The objectives and policies of the Conservation Element support the Subarea Plan. Specifically, Policy 7.4 requires the completion of a MSCP Subarea Plan that preserves a minimum of 3,060 acres of natural habitat in the City as permanent open space for the preservation of habitat and species. As such, the Subarea Plan and IA will become the City's primary regulatory vehicle for achieving objectives and policies focused on protection of natural lands. Note: The Conservation Element only calls for preservation not conservation (i.e. management) and should be amended accordingly.
- The Conservation Element tasks the City with identifying those areas located in the City, which because of their location and natural topographic or aesthetic features, merit recognition or preservation for the beneficial community functions they provide. Existing open space resources have been inventoried according to publicly owned designated open space lands, publicly owned recreation areas, other publicly owned land, private open space easements, and other large vacant parcels under private ownership. Open space objectives, policies and implementation measures originate from the goal to preserve open space areas for the purposes of public safety, natural resource management, recreation, and scenic quality.
- Objective 1.0 and Policies 1.1, 1.2 and 1.3 direct the City to preserve significant natural resources, including biological resources, watercourses, hills, canyons, and major rock outcroppings, as part of a citywide open space system. Accomplishing preservation through the development review process is discussed in the policies. Objective 2.0 and Policies 2.1 through 2.7 protect floodways to reduce flood hazards, protect biological resources and preserve aesthetic quality along water corridors. Policy 2.2 promotes open space in conjunction with other appropriate land uses along the San Diego River corridor and other water corridors found in the City. Policy 2.3 is aimed toward habitat protection and recreational enjoyment of the San Diego River. Policy 2.5 seeks to avoid concrete channelization of waterways whenever possible.
- Implementation relies on existing and newly developed local park and open space ordinances and regulations, in addition to floodplain ordinances and regulations. Regulating and conditioning new development through the environmental review process is also cited as an important implementation measure.

Required Amendments to the Conservation Element include:

1. Replace the Biological Resources Exhibit with the Santee Preserve Map (Figure 5-1).
2. Revise the policies under Objective 7.0 to reflect the standards established in the Subarea Plan, including adding language to place preserve lands in permanent open space and into active management consistent with the preserve management and monitoring requirements in the Subarea Plan.

3. Add a discussion of the Subarea Plan and insert the Subarea Plan Preserve Map. Identify the Subarea Plan, the IA, and associated ordinances as the primary mechanisms for protecting biological resources.

4. Add a Subarea Plan Preserve overlay or similar mechanism, and refer to the new Subarea Plan Preserve to be inserted in the Conservation Element.

1.2.3 Community Enhancement Element

The Community Enhancement Element addresses the interrelationships of people and the City in terms of scale, visual pleasure, sense of community, and well being. Furthermore, it is concerned with the essential functions of safety and livability of the environment. Existing positive design assets identified in the Element include the San Diego River corridor, undeveloped hillsides, centrally located hillsides, and undisturbed views, all of which possess qualities of natural lands.

Objective 14.0 and Policies 14.1 through 14.5 require minimal alteration of existing topography, especially in hillside areas, and seek to protect ridgelines during the development and redevelopment process. Objective 15.0 and Policies 15.1, and 15.2 call for maintaining and enhancing existing scenic views, including views of hillsides. Objective 16.0 and Policies 16.1 through 16.5 indicate that natural design elements of the river/creek system within the City should be utilized and preserved, including retaining the natural character of the corridor, habitat enhancement and recreation. Objective 17.0 and Policies 17.1 and 17.2 provide for the preservation of significant habitat and vegetation in strategic locations along watercourses and in undeveloped hillside areas, and incorporation of unique and significant natural resource features (vegetation, habitat and rock outcrops) into development plans.

The implementation section (Section 8.0 of the General Plan) consists of design guidelines for hillside development and for development close to rivers and creeks. The landscaping and site planning directives for these two types of areas interface with Subarea Plan policies for biological resource protection.

Actions to Implement the Subarea Plan:

- The Community Enhancement Element objectives and policies support the habitat preservation plan set forth in the Subarea Plan. Because portions of the designated river/creek system and undeveloped hillside areas overlap with portions of the Subarea Plan Preserve Lands, the City must ensure that design criteria for these two areas are consistent with the Subarea Plan preservation directives.

Required Amendments to the Community Enhancement Element include:

1. Review, and amend as appropriate, the landscaping and site planning directives for the river/creek system and undeveloped hillside areas for consistency with the Subarea Plan.

2. Integrate public awareness of biological resources and habitats with site design and interpretive sign designs.

1.3 Town Center Specific Plan

The Town Center Specific Plan, adopted in 1986, is a master-planned focal point for the City, designed to create a pedestrian-oriented commercial, business, civic, and residential hub along the

San Diego River. The Plan is designed to protect and enhance the natural features of the San Diego River. The Plan contemplates the restoration of disturbed riparian vegetation types "which are representative of natural riparian woodlands and marshlands" in tandem with the development of Town Center.

Among the goals and objectives of the Town Center Specific Plan is the establishment of a comprehensive open space system tied to the San Diego River. The Town Center Specific Plan recognizes that standards, criteria, and an order of importance for the location, quantity, quality, conservation, and preservation of open space should be established. The Subarea Plan establishes a conservation target of 100% for lands within the floodway, and similar to the Town Center Specific Plan, provides for recreational uses.

Required Amendments to the Town Center Specific Plan include:

1. Update and/or remove outdated Figures and Maps as necessary.
2. Add a section that explains the relationship between the Specific Plan and the Subarea Plan.
3. Add a section that explains how the Specific Plan complies with, and implements, the Subarea Plan.
4. Amend the standards in the design manual to include measures addressing compatibility between Subarea Plan Preserve Lands and the adjacent land uses.

1.4 Zoning Ordinance

The City's Zoning Ordinance (Title 17 of the Santee Municipal Code), establishes standards and guidelines that implement the General Plan, including goals and policies pertaining to the comprehensive land use and resource planning. Several chapters of the Zoning Ordinance provide regulatory frameworks that potentially support protection of biological resources and Subarea Plan implementation, as described below. In addition to the inclusion of definitions in Chapter 17.04, the following Chapters will be amended:

1.4.1 Chapter 17.06, Permits

This chapter identifies the types of permits required for various types of development. Most of the chapter pertains to the conditional use permits, variances, minor exceptions, and specific uses requiring special regulations, but two brief sections reference permits for environmental resources. One indicates that development in floodplain/floodway areas is subject to the City's Flood Damage Prevention Ordinance, and the other says that development affecting a historical landmark is subject to a separate chapter of the Municipal Code.

Actions to Implement the Subarea Plan

This section is generally consistent with the Subarea Plan, but it should be modified in order to improve the implementation process:

- Add a section describing the Subarea Plan permit process, and reference the permit regulations detailed in the IA. Chapter 17.06 will be amended to reference the environmental review process. In addition, it is expected that a new Chapter will be added to Title 17 entitled "Habitat Loss and Incidental Take." This Section will include Purpose and

Intent, General Authorization, Definitions, Application for HLIT Permit, the HLIT process, the required findings, general MSCP development regulations, mitigation, deviations, violations and remedies.

1.4.2 Chapter 17.08, Development Review

This chapter establishes review procedures for residential, commercial, industrial and institutional development proposals. Application and development procedures are established, as well as required contents for plan submittals, development review criteria and findings. Environmental considerations play a significant role in the City's development review process.

Actions to Implement the Subarea Plan:

Development review procedures require analysis of environmental issues when reviewing development proposals. Incorporating the Subarea Plan's provisions for identifying Covered Species and preserving open space during development review would strengthen the City's implementation strategy. The following sections that must be added include:

- Update the plan submittal requirements to require description of: (1) the project's relationship to the Subarea Plan Preserve System; (2) the on-site biological resources; (3) the project's impacts to Covered Species in the City's Subarea Plan; (4) the mitigation requirements established in the Subarea Plan; (5) the open space dedications; and (6) the identification of the Subarea Plan and IA requirements.
- In the section on development review criteria, add consistency with the Subarea Plan and IA to the list of criteria. A detailed list of consistency findings which must be made as part of the issuance of an HLIT Permit (see Section 8.3.1, *Habitat Loss and Incidental Take (HLIT) Ordinance*) and will be referenced to this section of the Municipal Code.

1.4.3 Chapter 17.16, Park/Open Space District

Land use regulations for properties included in the City's Park/Open Space (P/OS) District, are established with the basic intent of protecting environmentally sensitive lands and avoiding hazards. The use regulations, development standards, and criteria are intended to provide low intensity development and encourage recreational activities and preservation of natural resources.

Actions to Implement the Subarea Plan:

The P/OS District permits some development which could conflict with the preservation goals of the Subarea Plan. As such, required amendments must include:

- Add new language to Chapter 17.16 that describes the preservation requirements for preserve land in the P/OS District and specify development restrictions.
- Add new language which distinguishes between P/OS that will be incorporated into the Subarea Plan Preserve System and P/OS which will not be incorporated into the Subarea Plan Preserve System.

1.4.4 Chapter 17.18, Town Center District

The Town Center District is intended to provide the City with a mixed use activity center which is oriented towards, and enhances, the San Diego River. Development within this District is governed by a master plan that includes community, commercial, civic, park/open space and residential uses. The general development requirements in this Chapter currently include requirements for a Master Plan, architectural theme consistency, and entitlements.

Actions to Implement the Subarea Plan:

Because the San Diego River runs through Town Center, and it contains sensitive biological resources, it is important that the Town Center District require compliance with the Subarea Plan and Implementing Agreement. Required Amendments to this Chapter must include:

- Require Development Plans to include an explanation of how the project complies with the State and federal permits, the City's Subarea Plan, and IA, and whether a permit will be required for the taking of species covered by the Subarea Plan.
- Add a requirement that the conceptual development plan include a schematic map showing relationship between Subarea Plan Preserve System, on-site biological resources, and proposed uses.

1.4.5 Chapter 17.19, Planned Development District

The Planned Development District (PD) provides for mixed-use development potential, including employment parks, commercial recreational uses, and various densities of residential development pursuant to a development plan and entitlements. The PD is intended for select properties where a variety of development opportunities are viable. These select properties include Fanita Ranch and the Carlton Oaks Golf Course. This chapter establishes regulations, such as land use provisions, site development criteria, and development plan contents to implement the General Plan goals and policies.

Actions to Implement the Subarea Plan:

Because these areas contain sensitive biological resources, it is important that the zoning require compliance with the Subarea Plan and IA. To this end the City must:

- Require that development plans include an explanation of how the project complies with the Subarea Plan and IA, and whether a permit will be required for taking of species covered by the Subarea Plan.
- Add a requirement that the conceptual development plan include a schematic map showing relationship between Subarea Plan Preserve System, on-site biological resources, and proposed uses.

1.4.6 Chapter 17.22, Overlay Districts

Overlay Districts establish development standards to address the special or unique needs or characteristics of particular areas, to assure a harmonious relationship between the existing and proposed uses. The existing Hillside Overlay District is intended to maintain natural open space character, protect natural landforms, minimize erosion, provide for public safety, protect water and

biological resources, and establish design standards to provide for limited development that is compatible with the environment.

Actions to Implement the Subarea Plan:

While the Hillside Overlay District is conceptually compatible with the Subarea Plan, it will not result in preservation of biological resources on hillsides to the extent required by the Subarea Plan. Modifications to this chapter for Subarea Plan implementation should be consistent with the overlays designated in the General Plan, or the General Plan will be amended. Required Amendments to this Chapter include:

- Consider a new overlay depicting the Subarea Plan Preserve System. Rather than reiterating the land use restrictions in this chapter of the Zoning Ordinance, the City will require conformance with the Subarea Plan.

1.5 Subdivision Ordinance

The division of land in the City is regulated by Title 16, Part II of the Municipal Code. Section 16.08.030 requires that all subdivisions conform to the General Plan, and applicable Specific Plans or regulatory ordinances of the City. The procedures for processing Tentative, Vesting Tentative and Final Maps are established, as well as requirements for plan form, content and accompanying material. These requirements primarily pertain to grading, land use, lot pattern, infrastructure and easements. Environmental review also accompanies the Tentative Map. Chapter 16.28 sets forth requirements for dedications and improvements for public uses.

Actions to Implement the Subarea Plan:

The subdivision process is an important opportunity for requiring development to comply with applicable Subarea Plan requirements. Required Amendments to this Chapter include:

1. Add the requirement for Subarea Plan compliance in the tentative map review procedures.
2. Add the requirements for dedication and management of conservation easements for Subarea Plan Preserve System.

1.6 Grading Ordinance

The City's Grading Ordinance, located in Chapter 15.58 of the Municipal Code, establishes minimum requirements for the grading, excavating, and filling of land. It also provides for the issuance of permits, and provides for enforcement of chapter provisions. The stated intent is to ensure that land development occurs in the manner most compatible with surrounding natural areas, protects soil resources, maximizes safety and human enjoyment, minimizes adverse visual impacts, and retains significant natural biological resources. The design standards establish minimum standards for ground cover, setbacks, cuts, fills, terraces, berms, storm water runoff, subsurface drains and contour grading, and mandates the City to deny issuance of a grading permit if the proposed earth work will damage any private or public property, expose any property to landslide, flood or geologic hazard, adversely interfere with existing drainage courses or patterns, cause erosion, or conflict with the General Plan, any Specific Plan, any land use ordinance or regulation, zoning ordinance, or subdivision map.

Actions to Implement the Subarea Plan:

Controlling grading is another principal means of implementing the Subarea Plan. Required Amendments to Chapter 15.58 include:

1. Add compliance with the Subarea Plan, to the criteria for issuance of grading permits.
2. Apply specific fees and penalties assessed for violations of the grading ordinance, and reference penalties imposed by the resource agencies for illegal clearance of protected biological habitat and species. In the process of developing implementing ordinances for the Subarea Plan, the City will review the current penalty schedules for illegal grading, grubbing, and clearing. A new structure shall be considered which incorporates a combination of 1) increased financial penalties; 2) restoration of illegally cleared land as provided for in Section 5.5.2 of the Subarea Plan; 3) mitigation for illegal impacts consistent with Section 5.5.2 of the Subarea Plan ; 4) prohibition of further permit applications for an appropriate period of time; and 5) in situations where ruderal habitat conditions are the result of unauthorized activities, a "forensic" analysis (i.e., use of historic aerial photos for example) will be used to determine what habitat type would be present if not for the disturbance and appropriate Uniform Mitigation Standard would then be applied based on the habitat which should be present.

1.7 Weed/Brush Abatement and Urban Wildland Interface Ordinance

The purpose of the Weed/Brush Abatement Ordinance, (Municipal Code Chapter 8.48) is to minimize fire hazards constituted by certain weeds, dry grasses, dead shrubs, dead trees or tree limbs, and other vegetation. Annual maintenance requirements depend on the size and development character of the property. When fire breaks occur between structures and adjacent wildlands, the width of these on-site firebreaks range in width from 30 to 50 feet. (however, see the next ordinance regarding fuel break widths). In implementing the ordinance, the City excludes infill vacant property and property with sensitive habitat and species from complete weed/brush clearance requirements. Implementation procedures also include close coordination with the City prior to maintenance activities in the vicinity of sensitive habitat and species.

In 2006, the City adopted an Urban Wildland Interface Ordinance (UWIO, Ordinance 457) as part of a Fire Code update. The purpose of the UWIO is to lessen the risk to life and structures from intrusion of fire from wildland fire exposures and fire exposures from adjacent structures, and to prevent structure fires from spreading to wildland fuels (vegetation). Two key elements of the UWIC, as it relates to the Subarea Plan, are the special building construction regulations and the fuel modification provisions.

Fuel modification standards include the provision of a minimum of 100 feet of fuel modified defensible space between structures and wildland areas. This entails special landscaping and thinning of native vegetation within 100 feet of structures. As such, this "fire buffer" area is considered an integral part of the development footprint and not part of the Subarea Plan Preserve System.

Actions to Implement the Subarea Plan:

Generally, all weed abatement and brush management activity is contemplated to occur outside of the Subarea Plan Preserve. Nevertheless, maintenance activities pursuant to the Weed/Brush Abatement Ordinance could potentially conflict with Subarea Plan implementation. Required Amendments to Chapter 8.48 include:

1. Establish a fuel modification zone between development and the Subarea Plan Preserve, and prohibit certain activities within the buffer (e.g., outdoor bar-b-que grills, fire pits, wood storage).
2. Restrict clearing during the avian breeding season to the extent feasible without threat to public health, welfare and safety as determined by the Fire Chief. To the extent feasible, clearing (brushing) should be performed outside of the peak of the bird-nesting season (i.e., no clearing between February 15 and August 31), unless the Fire Chief determines otherwise necessary on a case-by-case basis.
3. Establish brushing (i.e., root structures are left intact) as the preferred method of clearing over disking (disking promotes re-establishment of non-native species, such as mustard and promotes erosion).
4. Require coordination with the Wildlife Agencies when clearing would affect sensitive biological resources.
5. Adhere to the Urban Wildland Interface development standards as prescribed in the Subarea Plan, Section 4.3.4
6. Establish the clearance requirements for roads (10 feet) and infill sites (30 feet) within developed areas.

Appendix I
Covered Activities Impact Tables

This appendix contains includes tables of the impacts on biological resources for each individual Covered Activity:

Table I.1, *Covered Activity Impacts on Vegetation Communities*.

Table I.2, *Covered Activity Impacts on Covered Species Suitable Habitat.*

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Table I-1: Covered Activity Permenant Direct Impacts on Vegetation Communities

			Vegetation Communities										Natural Habitat Total	Non-Native Habitat					Non-Native Habitat Total	Grand Total
Covered Activity Type	**MapID**	Project Name	Coastal Sage Scrub	Chaparral	Grassland	Coast Live Oak Woodland	Riparian	Freshwater Marsh	Vernal Pool	Disturbed Wetland	Freshwater	Non-Vegetated Channel or Floodway		Eucalyptus Woodland	Non-Native Vegetation	Disturbed Habitat	Agriculture	Urban/Developed		
Covered Development Projects	DP06	Parkside	10.0		6.9								16.9							16.9
	DP10	Fanita Ranch	378.0	305.0	183.8	2.3	1.5	0.1	0.4	0.0		2.9	874.1		1.4	40.7		12.3	54.4	928.5
Covered Development Projects Total			388.0	305.0	190.7	2.3	1.5	0.1	0.4	0.0		2.9	891.0		1.4	40.7		12.3	54.4	945.4
Covered Drainage Projects	D05	East of Atlas View Drive from south of Pryor Drive to Forester Creek														0.1		0.4	0.6	0.6
	D06	Placid View from Prospect Avenue to Mission Gorge Road														0.1		0.2	0.3	0.3
	D10	Woodglen Vista Park Channel Stabilization																0.4	0.4	0.4
	D11	Town Center Linear Park Corridor	0.5		1.5		0.4						2.4			1.0		0.2	1.2	3.7
	D12	Sycamore Creek Multi-Jurisdictional Drainage Project	0.2		0.0		5.5	0.9		0.6	0.2	0.0	7.4		0.1	0.0		0.9	1.0	8.3
	D13	Halberns Channel Vegetated Segment								0.6			0.6					0.1	0.1	0.7
	D14	Carlton Hills Boulevard														0.5		0.1	0.6	0.6
	D15	Fanita Drive Channel South																0.2	0.2	0.2
	D16	Big Rock Creek					0.6						0.6					0.1	0.1	0.7
Covered Drainage Projects Total			0.7		1.6		6.5	0.9		1.2	0.2	0.0	11.0		0.1	1.7		2.6	4.5	15.5
Covered Street Projects	S04	Graves Avenue Extension															0.2	1.8	2.1	2.1
	S05	Cottonwood Avenue Extension			0.1		0.6			0.0			0.7	0.1		1.1		2.2	3.4	4.1
	S07	Town Center Extension over Drainage Channel			0.1		0.2						0.3			0.3			0.3	0.6
	S13	Prospect Avenue widening from Cuyamaca Street to Mesa Road					0.0						0.0			0.5		22.4	22.9	22.9
	S15	Marrokal Lane														0.0		1.7	1.7	1.7
	S22	Cottonwood Avenue widening between Mission Gorge Road and Prospect Avenue																3.7	3.7	3.7
	S23	Cuyamaca Bridge					0.1						0.1					0.0	0.0	0.1
Covered Street Projects Total					0.3		0.9			0.0			1.2	0.1		1.9	0.2	31.9	34.1	35.3
New Trail Segments	T01	San Diego River Trail - South (Fanita Parkway to Magnolia Street)					0.9						0.9					0.0	0.0	0.9
	T02	San Diego River Trail - South (Mission Gorge to Fanita Drive)					0.1						0.1			0.0		0.0	0.0	0.1
	T03	San Diego River Trail - North (Cuyamaca Road to City Ventures Planned Development)	0.0		0.3		0.2						0.5		0.0			0.0	0.0	0.5
	T04	Mesa Road	0.1	0.2	0.1								0.3					0.4	0.4	0.7
	T05	San Diego River North between Carlton Oaks Drive and Trail Within Mast West					0.1						0.1					0.0	0.0	0.1
	T06	Walker Preserve Hilltop Trail	0.2										0.2					0.0	0.0	0.2
	T07	Town Center Iconic Pedestrian Bridge (Sage project)			0.0		0.1	0.1			0.1		0.3			0.0			0.0	0.3
New Trail Segments Total			0.3	0.2	0.4		1.3	0.1			0.1		2.4		0.0	0.0		0.5	0.5	2.9
Future Development Areas		Mission Trails Softline Area (25%)	42.6	3.1	5.8		0.1						51.6							51.6
		North Magnolia Softline Area (25%)	53.3	1.5	2.1							0.0	56.9							56.9
		Other Natural Habitat Subject to Development Based on General Plan	69.4	8.3	35.3	6.9	31.6	0.8		6.5	0.0	0.2	158.9							158.9
Future Development Areas Totals			165.4	12.9	43.1	6.9	31.6	0.8	-	6.5	0.0	0.2	267.5	-	-	-	-	-	-	267.5
Grand Total			**554.4**	**318.0**	**236.0**	**9.2**	**41.9**	**2.0**	**0.4**	**7.7**	**0.3**	**3.1**	**1,173.0**	**0.1**	**1.5**	**44.3**	**0.2**	**47.3**	**93.5**	**1,266.5**

Table I-2: Covered Activity Impacts on Covered Species Suitable Habitat

Covered Activity Type	MapID	Project Name	San Diego ambrosia	San Diego barrel cactus	San Diego goldenstar	San Diego thornmint				Variegated dudleya	Willowy monardella
			Suitable Habitat	Suitable Habitat	Suitable Habitat	0 - 0.25	0.25 - 0.5	0.5 - 0.75	0.75 - 1	Suitable Habitat	Suitable Habitat
Covered Development Projects	DP06	Parkside	12.5	16.9	16.9		7.7			16.9	
	DP10	Fanita Ranch	133.9	562.2	549.4		248.2	291.2	322.1	562.2	28.5
Covered Development Projects Total			146.4	579.1	566.4		255.9	291.2	322.1	579.1	28.5
Covered Street Projects	S05	Cottonwood Avenue Extension	1.8	0.1	0.0	0.1				0.0	0.2
	S07	Town Center Extension over Drainage Channel	0.6			0.1					
	S13	Prospect Avenue widening from Cuyamaca Street to Mesa Road	0.5								0.0
	S15	Marrokal Lane	0.0								
	S23	Cuyamaca Bridge	0.1								0.1
Covered Street Projects Total			3.1	0.1	0.0	0.2				0.0	0.2
Covered Drainage Projects	D05	East of Atlas View Drive from south of Pryor Drive to Forester Creek	0.1								
	D06	Placid View from Prospect Avenue to Mission Gorge Road	0.1								
	D11	Town Center Linear Park Corridor	2.3	1.8	2.0	2.1				2.0	
	D12	Sycamore Creek Multi-Jurisdictional Drainage Project	5.2	0.2	0.2		0.0			0.2	6.7
	D13	Halberns Channel Vegetated Segment									0.5
	D14	Carlton Hills Boulevard	0.5								
	D16	Big Rock Creek	0.6								0.5
Covered Drainage Projects Total			8.8	2.0	2.1	2.1	0.0			2.1	7.7
New Trail Segments	T01	San Diego River Trail - South (Fanita Parkway to Magnolia Street)	0.9								0.1
	T02	San Diego River Trail - South (Mission Gorge to Fanita Drive)	0.1								0.1
	T03	San Diego River Trail - North (Cuyamaca Road to City Ventures Planned Development)	0.5								0.1
	T04	Mesa Road	0.1	0.2	0.3		0.2	0.1		0.3	0.2
	T05	San Diego River North between Carlton Oaks Drive and Trail Within Mast West	0.1								
	T06	Walker Preserve Hilltop Trail	0.1	0.2	0.1	0.1	0.1			0.1	
	T07	Town Center Iconic Pedestrian Bridge (Sage project)	0.1								0.1
New Trail Segments Total			1.9	0.4	0.4	0.1	0.3	0.1		0.4	0.5
Future Development Areas		Mission Trails Softline Area (25%)	7.6	48.4	40.7	1.3	35.1	11.0	1.4	41.1	1.0
		North Magnolia Softline Area (25%)	3.7	54.7	55.0	2.4	28.6	17.3	7.8	48.5	1.0
		Other Natural Habitat Subject to Development Based on General Plan	55.4	96.6	92.1	11.3	58.3	21.9	7.6	91.6	38.4
Future Development Area Totals			66.7	199.7	187.8	15.1	122.0	50.2	16.8	181.3	40.4
Grand Total			**226.8**	**781.1**	**756.6**	**17.5**	**378.2**	**341.5**	**338.8**	**763.0**	**77.4**

Table I-2: Covered Activity Impacts on Covered Species Suitable Habitat

			Hermes copper butterfly	Quino checkerspot butterfly	Belding's orange-throated whiptail	Blainville's horned lizard	Southwestern pond turtle		Western spadefoot toad			
Covered Activity Type	MapID	Project Name	Potentially Suitable Vegetation Communities	Potentially Suitable Habitat	Suitable Habitat	Suitable Habitat	Suitable Habitat	Upland Habitat Buffer	Known Breeding Habitat	Other Suitable Upland Habitat	Potentially Suitable Breeding Habitat	Suitable Upland Habitat Adjacent to Areas of Known Breeding Habitat
Covered Development Projects	DP06	Parkside	10.0	16.9	16.9	16.9		10.9				
	DP10	Fanita Ranch	683.0	602.5	868.7	871.0	0.1	184.3	0.0	517.1	0.7	378.0
Covered Development Projects Total			693.0	619.4	885.6	887.9	0.1	195.2	0.0	517.1	0.7	378.0
Covered Street Projects	S05	Cottonwood Avenue Extension		1.2	0.7	0.7		0.7				
	S07	Town Center Extension over Drainage Channel		0.4	0.3	0.3		0.3				
	S13	Prospect Avenue widening from Cuyamaca Street to Mesa Road		0.5	0.0	0.0						
	S15	Marrokal Lane		0.0								
	S23	Cuyamaca Bridge			0.1	0.1		0.1				
Covered Street Projects Total				2.1	1.2	1.2		1.2				
Covered Drainage Projects	D05	East of Atlas View Drive from south of Pryor Drive to Forester Creek		0.1								
	D06	Placid View from Prospect Avenue to Mission Gorge Road		0.1								
	D11	Town Center Linear Park Corridor	0.5	3.1	2.4	2.4		2.0				
	D12	Sycamore Creek Multi-Jurisdictional Drainage Project	0.2	0.2	5.7	5.7	1.1	5.4				
	D13	Halberns Channel Vegetated Segment										
	D14	Carlton Hills Boulevard		0.5								
	D16	Big Rock Creek			0.6	0.6						
Covered Drainage Projects Total			0.7	4.0	8.8	8.8	1.1	7.4				
New Trail Segments	T01	San Diego River Trail - South (Fanita Parkway to Magnolia Street)			0.9	0.9		0.9				
	T02	San Diego River Trail - South (Mission Gorge to Fanita Drive)		0.0	0.1	0.1		0.1				
	T03	San Diego River Trail - North (Cuyamaca Road to City Ventures Planned Development)	0.0	0.3	0.5	0.5		0.5				
	T04	Mesa Road	0.3	0.2	0.3	0.3				0.3		
	T05	San Diego River North between Carlton Oaks Drive and Trail Within Mast West			0.1	0.1		0.1				
	T06	Walker Preserve Hilltop Trail	0.2	0.2	0.2	0.2		0.2				
	T07	Town Center Iconic Pedestrian Bridge (Sage project)		0.1	0.1	0.1	0.2	0.1				
New Trail Segments Total			0.4	0.7	2.2	2.2	0.2	1.8		0.3		
Future Development Areas		Mission Trails Softline Area (25%)	45.8	48.4	51.6	51.6				47.1	4.3	
		North Magnolia Softline Area (25%)	54.8	55.4	56.2	56.2				52.2	0.0	
		Other Natural Habitat Subject to Development Based on General Plan	77.7	104.7	144.5	151.4	0.9	59.6		50.5		
Future Development Area Totals			178.2	208.5	252.3	259.1	0.9	59.6	-	149.8	4.3	-
Grand Total			**872.4**	**834.8**	**1,150.0**	**1,159.2**	**2.3**	**265.2**	**0.0**	**667.2**	**5.0**	**378.0**

Table I-2: Covered Activity Impacts on Covered Species Suitable Habitat

			Coastal California gnatcatcher			Least Bell's vireo	San Diego cactus wren		Southwestern willow flycatcher	Tricolored blackbird		Western burrowing owl
Covered Activity Type	MapID	Project Name	Very High Habitat Value	High Habitat Value	Moderate Habitat Value	Suitable Habitat	Higher Suitability (values 0.75 - 1)	Moderate Suitability (values 0.5 - 0.75)	Suitable Habitat	Suitable Colony Habitat	Suitable Foraging Habitat (breeding season)	Suitable Habitat
Covered Development Projects	DP06	Parkside	9.4	0.5			3.4	8.5			6.9	13.4
	DP10	Fanita Ranch	339.9	35.0	2.4	1.6	288.8	146.5	1.6	0.2	185.3	380.4
Covered Development Projects Total			349.3	35.5	2.4	1.6	292.2	155.0	1.6	0.2	192.2	393.8
Covered Street Projects	S05	Cottonwood Avenue Extension				0.6			0.6	0.0	0.7	1.2
	S07	Town Center Extension over Drainage Channel				0.2			0.2		0.3	0.4
	S13	Prospect Avenue widening from Cuyamaca Street to Mesa Road				0.0			0.0		0.0	0.5
	S15	Marrokal Lane										0.0
	S23	Cuyamaca Bridge			0.0	0.1			0.1		0.1	
Covered Street Projects Total					0.0	0.9			0.9	0.0	1.2	2.1
Covered Drainage Projects	D05	East of Atlas View Drive from south of Pryor Drive to Forester Creek										0.1
	D06	Placid View from Prospect Avenue to Mission Gorge Road										0.1
	D11	Town Center Linear Park Corridor		0.1	0.4	0.4			0.4		1.9	3.1
	D12	Sycamore Creek Multi-Jurisdictional Drainage Project		0.1	0.0	6.6			6.6	1.5	5.5	0.2
	D13	Halberns Channel Vegetated Segment								0.6		
	D14	Carlton Hills Boulevard										0.5
	D16	Big Rock Creek				0.6			0.6		0.6	
Covered Drainage Projects Total				0.2	0.5	7.6			7.6	2.1	8.1	4.0
New Trail Segments	T01	San Diego River Trail - South (Fanita Parkway to Magnolia Street)				0.9			0.9		0.9	
	T02	San Diego River Trail - South (Mission Gorge to Fanita Drive)				0.1			0.1		0.1	0.0
	T03	San Diego River Trail - North (Cuyamaca Road to City Ventures Planned Development)			0.0	0.2			0.2		0.4	0.3
	T04	Mesa Road	0.0	0.1	0.0		0.2				0.1	0.3
	T05	San Diego River North between Carlton Oaks Drive and Trail Within Mast West				0.1			0.1		0.1	
	T06	Walker Preserve Hilltop Trail	0.1	0.1			0.1	0.0				0.1
	T07	Town Center Iconic Pedestrian Bridge (Sage project)				0.3			0.3	0.1	0.1	0.1
New Trail Segments Total			0.1	0.1	0.0	1.5	0.3	0.0	1.5	0.1	1.7	0.7
Future Development Areas		Mission Trails Softline Area (25%)	32.1	10.4		0.1	23.0	10.5	0.1		5.8	16.5
		North Magnolia Softline Area (25%)	38.3	14.5			43.8	6.8			1.4	18.8
		Other Natural Habitat Subject to Development Based on General Plan	34.8	25.5	4.8	32.4	26.6	5.0	32.4	7.4	66.8	46.7
Future Development Area Totals			105.3	50.3	4.8	32.5	93.4	22.3	32.5	7.4	74.0	82.0
Grand Total			**454.7**	**86.2**	**7.7**	**44.1**	**385.9**	**177.4**	**44.1**	**9.7**	**277.2**	**482.6**

Appendix J
Funding Analysis

As described in Section 5.3.1, *Preserve Assembly and Components*, the Subarea Plan Preserve System will consist of a collection of preserve properties managed by multiple land management entities. An estimate of the funding required for the preserve management and monitoring included in this appendix.

Table J-1: Preserve Management and Monitoring: Existing Preserves

The City completed an inventory of the annual funding and funding sources for the existing preserves within the Subarea Plan Area based on annual reports submitted to the City by the Preserve Manager.

Table J-2: Rates per Acre for Preserve Management and Monitoring

Averages of 'per-acre' preserve management and monitoring costs for different preserve size ranges and habitat types

Table J-3: Estimated Amount for Preserve Management and Monitoring: Current Protected, Not Fully Managed Properties

Table J-4: Estimated Amount for Preserve Management and Monitoring: Current Protected, Not Fully Managed Properties

Table J-5: Estimated Amount for Preserve Management and Monitoring: Current Protected, Not Fully Managed Properties

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Table J-1
Annual Funding for Preserve Management and Monitoring
Existing Preserves, Fully Managed

Property Name	Property Owner	Land Management Entity	Map ID	Total Acres of Property	Annual Costs (2018 dollars)	Funding Source
Mast Park Wetland Restoration Project / Preserve	City of Santee	San Diego Habitat Conservancy	18	12.4	$ 22,778	endowment
Lowes Preserve	City of Santee	San Diego Habitat Conservancy	19	9.4	$ 16,736	endowment
Caltrans Forester Creek Mitigation Site	Caltrans	San Diego Habitat Conservancy (pending)	21	14.9	$ 23,766	endowment
Mission Trails Regional Park	City/ County of San Diego	City/ County of San Diego	26	185.3	$ 26,498	various
CNLM Rattlesnake Mountain HCA	CNLM	CNLM	1	288.5	$ 89,190	endowment
CNLM Santee Hills (Boys and Girls Club Parcel) HCA	CNLM	CNLM	11	9.8	$ 3,030	endowment
CNLM East Mesa (Hagenmaier and Gross Parcels) HCA	CNLM	CNLM	24	65.0	$ 20,095	endowment
Lantern Crest	Private	Urban Corps of San Diego County	2	18.0	$ 18,153	endowment
Ryan Company Smooth Tarplant Preserve	Private	San Diego Habitat Conservancy	30	0.7	$ 13,990	endowment
Cutri Onsite Preserve	Private	Endangered Habitats Conservancy	33	6.8	$ 3,866	endowment
Railroad Avenue Ambrosia Conservation Easement	Private	Mitigation Credit Services	34	0.5	$ 12,019	endowment
Calvary Chapel Offsite Mitigation Site	Endangered Habitats Conservancy	Endangered Habitats Conservancy	42	1.8	$ 915	Church for years 2 & 3, LDCA funding in perpetuity
Weston Vernal Pool Complex	TBD	TBD	41	0.9	$ 1,800	TBD
				614.0	$ 252,834	

Table J-2

Rates per Acre for Preserve Management and Monitoring

Used to Estimate Annual Management and Monitoring Fees for Future Preserves

Type	Acreage Range	Per Per Acre		
Riparian	1-20 acres	$	1,800.00	Based on Lowes, Mast West Wetlands, and Caltrans Forester Creek
Riparian	20-50 acres	$	900.00	
Riparian	> 50 acres	$	600.00	
Upland	1-20 acres	$	965.00	Latern Crest, Cutri, Calvery Chapel
Upland	20-50 acres	$	500.00	Mid-point.
Upland	> 50 acres	$	300.00	CNLM Annual Report
Large Complex Preserves				
Large	> 1,000 acres	$	143.00	Based on Chula Vista Preserve Annual Work Plan
Rare Plant Preserves				
Rare Plant	1-2 acres	$	12,000.00	Railroad Mitigation Property, Ryan Company Smooth Tarplant

Table J-3
Estimated Amount for Management and Monitoring

Currently Protected, Not Fully Managed

Property Name	Property Owner	Land Management Entity	Map ID[1]	Acres of Natural Habitat	Type	Size	Per Acre Rate	Estimated Annual Costs
Walker Preserve	City of Santee	City of Santee	6	75.1	Riparian	> 50 acres	$ 600.00	$ 45,060.00
City Hall Open Space	City of Santee	City of Santee	10	2.6	Upland	1-20 acres	$ 965.00	$ 2,509.00
Mast Park East (Mission Creek)	City of Santee	City of Santee	17	36.5	Riparian	20-50 acres	$ 900.00	$ 32,850.00
Mast Park West	City of Santee	City of Santee	20	42.6	Riparian	20-50 acres	$ 900.00	$ 38,340.00
City Property near Walker Preserve	City of Santee	City of Santee	43	12.5	Upland	1-20 acres	$ 965.00	$ 12,062.50
Walker Trails Open Space Component (RCP Site)	City of Santee	City of Santee	44	5.5	Riparian	1-20 acres	$ 1,800.00	$ 9,900.00
Floodway Protection	City of Santee	City of Santee		7.7	Riparian	20-50 acres	$ 900.00	$ 6,930.00
MTS Restoration Site (15)	County of San Diego	County of San Diego	15	20.9	Riparian	1-20 acres	$ 1,800.00	$ 37,620.00
MTS Restoration Site (16)	County of San Diego	County of San Diego	16	4.5	Riparian	1-20 acres	$ 1,800.00	$ 8,100.00
County of San Diego San Diego River	County of San Diego	County of San Diego	31	4.5	Riparian	> 50 acres	$ 600.00	$ 2,700.00
PDMWD Mesa Reservoir Conservation Easement	PDMWD	PDMWD	40	56.7	Upland	1-20 acres	$ 965.00	$ 54,715.50
Cheyenne EHC Preserve	EHC	EHC	35	0.9	Upland	> 50 acres	$ 300.00	$ 270.00
Capralis EHC Preserve	EHC	EHC	36	114.5	Upland	> 50 acres	$ 300.00	$ 34,350.00
Brown	EHC	EHC	37	20.5	Upland	> 50 acres	$ 300.00	$ 6,150.00
B. Bailey	EHC	EHC	38	8.6	Upland	1-20 acres	$ 965.00	$ 8,299.00
Gallagher	EHC	EHC	39	14.5	Upland	> 50 acres	$ 300.00	$ 4,350.00
Altair	City of Santee	City of Santee	3	6	Upland	1-20 acres	$ 965.00	$ 5,790.00

Table J-3
Estimated Amount for Management and Monitoring

Currently Protected, Not Fully Managed

Property Name	Property Owner	Land Management Entity	Map ID[1]	Acres of Natural Habitat	Type	Size	Per Acre Rate	Estimated Annual Costs
Santee Environmental Inc.	Private	Private	5	22.8	Upland	20-50 acres	$ 500.00	$ 11,400.00
Deerpark Santee Unit #3	Private	Private	8	10.3	Upland	1-20 acres	$ 965.00	$ 9,939.50
Bella Vida HOA	Private	Private	9	0.7	Upland	1-20 acres	$ 965.00	$ 675.50
Prospect Hills Open Space	Private	Private	25	2.7	Upland	1-20 acres	$ 965.00	$ 2,605.50
Mission View Estates by Concordia	Private	Private	27	30.5	Upland	20-50 acres	$ 500.00	$ 15,250.00
				501.1				$ 349,866.50

Table J-4
Estimated Preserve Management and Monitoring

Future Preserves - Hardlines

Property Name	Property Owner	Land Management Entity	Map ID[1]	Acres of Natural Habitat	Type	Size	Per Acre Rate	Estimated Annual Costs	Funding Source
Fanita Ranch	HomeFed	TBD	DP10	1589.4	Large	> 1,000 acre	$ 143.00	$ 227,284.20	HOA with Dormant CFD
Parkside	Lakeside Investment Co.	TBD	DP06	27.0	Upland	20-50 acres	$ 500.00	$ 13,500.00	Endowment
				1616.4				$ 240,784.20	

Table J-5
Estimated Preserve Management and Monitoring

Future Preserves - Softlines

Property Name	Property Owner	Land Management Entity	Acres of Natural Habitat	Type	Size	Per Acre Rate	Estimated Annual Costs	Funding Source
Softlines - Small	TBD	TBD	100	Upland	1-20 acres	$ 965.00	$ 96,500.00	Endowment
Softlines - Medium	TBD	TBD	100	Upland	20-50 acres	$ 500.00	$ 50,000.00	Endowment
Softlines - Larger	TBD	TBD	128.7	Upland	> 50 acres	$ 300.00	$ 38,610.00	CFD or Endowment
			328.7				$ 185,110.00