

Kearny Mesa Logistics

Vernal Pool Monitoring and Management Plan

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Vernal Pool Management and Monitoring Plan

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TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Purpose of Report	1
1.2 Background	1
1.3 Preserve Manager	3
2.0 PRESERVE DESCRIPTION	4
2.1 Preserve Location	4
2.2 Geographical and regional setting	4
2.3 Preserve Boundaries and Historic/Current Land Use	4
2.4 Geology, Soils, and Hydrology	5
2.5 Ownership and Legal Description	5
2.6 Conservation Mechanism	5
3.0 HABITAT AND SPECIES DESCRIPTION	5
3.1 City Vernal Pools	5
3.2 Vegetation Communities	6
3.3 Plant Species	8
3.4 Wildlife Species	9
3.5 Wildlife Corridors and Linkages	10
3.6 Fire History	10
3.7 Threats	10
4.0 MANAGEMENT AND MONITORING	11
4.1 Biological Goals and tasks	11
4.2 Public Use Goals and Tasks	18
4.3 Fire Management	18
4.4 Constraints to Implementing ASMDs	19
4.5 Potential Impacts of Implementing ASMDs	19
5.0 ADAPTIVE MANAGEMENT	19
6.0 ADMINISTRATION AND REPORTING	22
6.1 Annual Reports and Preserve Management Plan	22
6.2 Data management	22
6.3 Budget/Endowment Management	22
6.4 Operations and Staffing	22
7.0 REFERENCES	24

TABLE OF CONTENTS (cont.)

LIST OF APPENDICES

A	Plant Species Observed
B	Plant Species Observed or with Potential to Occur
C	Animal Species Observed or Otherwise Detected
D	Animal Species Observed or with Potential to Occur
E	Cal-IPC High and Moderate Invasive Plants

LIST OF FIGURES

<u>No.</u>	<u>Title</u>	<u>Follows Page</u>
1	Regional Location.....	4
2	Preserve Location Map (Aerial Photo).....	4
3	Preserve Location Map (USGS Topography).....	4
4	Vernal Pool Habitat Conservation Plan.....	4
5	Vegetation Communities and Sensitive Resources	4
6	Preserve Conceptual Fencing and Signage	4

LIST OF TABLES

<u>No.</u>	<u>Title</u>	<u>Page</u>
1	Level 1 Management Actions.....	3
2	Existing Vegetation Communities/Land Cover Types Within the Preserve.....	6
3	Level 1 Monitoring and Management Actions	16
4	Quantitative Management Triggers.....	20

ACRONYMS AND ABBREVIATIONS

APN	Assessor Parcel Number
ASMD	Area Specific Management Directives
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of San Diego
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
DSD	Development Services Department (City of San Diego)
ESD	Environmental Services Department (City of San Diego)
GIS	Geographic Information System
HELIX	HELIX Environmental Planning, Inc.
MCAS	Marine Corps Air Station
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
NWI	National Wetlands Inventory
Preserve Project	Kearny Mesa Logistics Vernal Pool Preserve Kearny Mesa Logistics Project
SDMC	San Diego Municipal Code
SR	State Route
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VPHCP	Vernal Pool Habitat Conservation Plan
VP MMP	Vernal Pool Management and Monitoring Plan

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1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

The purpose of this Vernal Pool Management and Monitoring Plan (VPMMP) is to document the long-term management, monitoring, and reporting directives for approximately 5.8 acres biological open space associated with the Kearny Mesa Logistics Project (project) located in the community of Kearny Mesa in the City of San Diego (City), California. The 5.8 acres of biological open space is herein referred to as the Kearny Mesa Logistics Vernal Pool Preserve (preserve). The preserve occurs within the boundaries of the City's Vernal Pool Habitat Conservation Plan (VPHCP; City 2020) which is part of the City's Multi-Habitat Planning Area (MHPA) and contains the previously identified vernal pool complex U 19 (Cubic).

Implementation of this VPMMP will help ensure that vernal pools and other biological resources present within the project's preserve are managed in perpetuity consistent with the City's VPHCP (City 2020), overall VPMMP for the City's VPHCP (City 2017), and Multiple Species Conservation Program (MSCP; City 1997).

Specifically, this VPMMP is intended to accomplish the following:

- Meet the requirements for environmental documentation to comply with City regulations;
- Summarize existing data on the biological resources that occur and have potential to occur within the preserve; and
- Provide an overview of the preserve's management goals and objectives, as well as specific directives for the protection and management of biological resources;
- Outline the use allowances and restrictions of the preserve and its resources.
- Identify required personnel qualifications for implementing management goals and objectives;
- Serve as a budget planning aid for annual budget preparation;

1.2 BACKGROUND

This VPMMP has been prepared in accordance with the City's VPHCP (City 2020) and the VPMMP for the City's VPHCP (City 2017) which require the preparation of site-specific management plans for target properties supporting vernal pool resources. The larger property that supports the preserve addressed in this VPMMP is also planned for development by a private entity. The development project is referred to as the "Kearny Mesa Logistics Center" (project) and is planned within allowed development areas of the property, outside of the VPHCP Hardline and preserve boundaries. Therefore, in addition to being prepared in compliance with the City's VPHCP and overall VPMMP, this project VPMMP has been prepared in accordance with the project's requirements for demonstrating consistency with the City's MSCP and VPHCP, as documented in the project's Biological Technical Report (HELIX 2020).

In developing the property, the project proponent, their successor's and assigns, would establish the on-site preserve and implement the required measures for long-term management including installation of fencing and signage, implementation of maintenance and monitoring directives, recordation of a protective instrument (e.g., covenant of easement, restrictive covenant, conservation easement, deed restriction, etc.), and establishment of a funding mechanism. As the preserve is not being utilized for any project mitigation, the project proponent, their successor's and assigns, reserves the right to utilize the preserve as mitigation for other projects.

The City's VPMMP uses a tiered, three-level approach to adaptive monitoring and management of vernal pool complexes. Management Level 1 (Stewardship) is the least intensive level of management, which aims to maintain existing habitat conditions and covered species populations within conserved complexes. Level 2 is intended to stabilize covered species population status by enhancing habitat conditions to a level that can support existing populations to achieve the VPHCP habitat and species-specific objectives. Level 3 is to restore habitat conditions to a level that can increase covered species populations identified in the species-specific objectives. Under certain conditions, management and monitoring of the preserve would move to a different level.

The U 19 (Cubic) vernal pool complex that is the focus of the preserve is specified for Management Level 1 (Stewardship) in the City's VPMMP. The stated management goal of this complex is to maintain the habitat conditions and focal species population status consistent with Management Recommendations in order to conduct all Management Level 1 recommended activities. To achieve this goal, this VPMMP has been prepared in accordance with the Management Level 1 actions of the City's VPMMP (Table 1, *Level 1 Management Actions*) which include targeting significant invasive problems (plants or animals), trash removal, and other general management activities.

To assess the status and need for management actions at the U 19 (Cubic) vernal pool complex, the VPMMP includes the following City VPMMP standards for management and monitoring:

- 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 percent average rainfall.
- Prevent a 20 percent decline in the density of the covered shrimp species over 3 years (average within complex).
- At complexes with 10 percent 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 percent of baseline) functions.

Table 1
LEVEL 1 MANAGEMENT ACTIONS

Management Action	Management Requirement
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.
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.

1.3 PRESERVE MANAGER

A third-party Preserve Manager who meets the City's qualifications and has been approved by the City and Wildlife Agencies (California Department of Fish and Wildlife [CDFW] and U.S. Fish and Wildlife Service [USFWS]), such as the San Diego Habitat Conservancy or Urban Corps of San Diego County Habitat Management Services, shall manage the preserve.

2.0 PRESERVE DESCRIPTION

2.1 PRESERVE LOCATION

The approximately 5.8-acre Kearny Mesa Logistics Vernal Pool Preserve is located in the community of Kearny Mesa in the City, San Diego County, California (Figure 1, *Regional Location*). The site is specifically located immediately north and west of State Route (SR-) 163, south of SR-52, and west of Kearny Mesa Road, within the current Cubic Corporation property (Figure 2, *Preserve Location Map [Aerial Photo]*). It lies within an unsectioned portion of Township 15 South, Range 3 West of the La Jolla U.S. Geological Survey (USGS) 7.5-minute quadrangle map (Figure 3, *Project Vicinity Map [USGS Topography]*). The preserve is within the boundary of the City's MSCP and VPHCP (City 2020), which is included as part of the City's MHPA, and designated as VPHCP hardline (Figure 4, *Kearny Mesa Logistics Vernal Pool Preserve*).

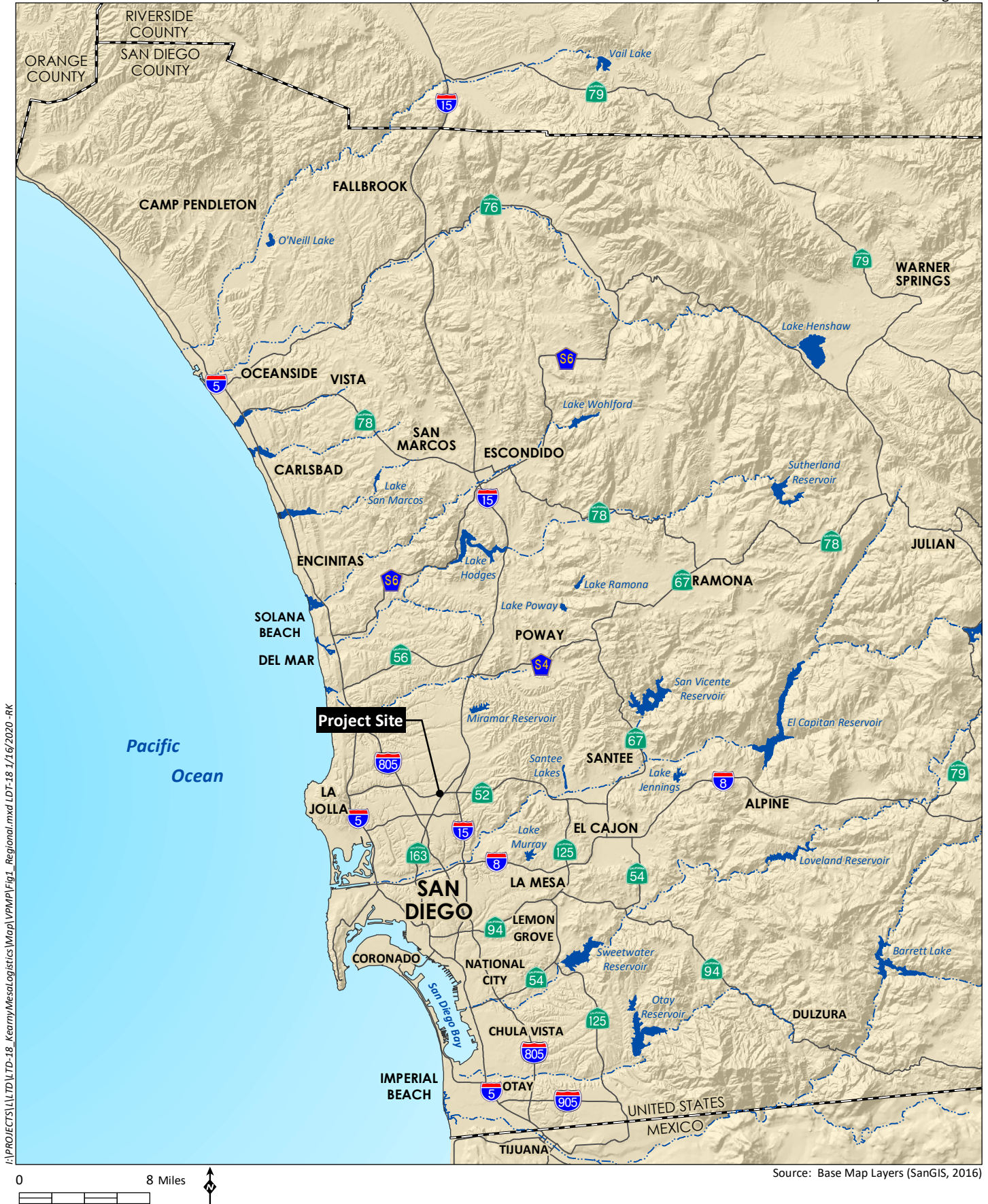
2.2 GEOGRAPHICAL AND REGIONAL SETTING

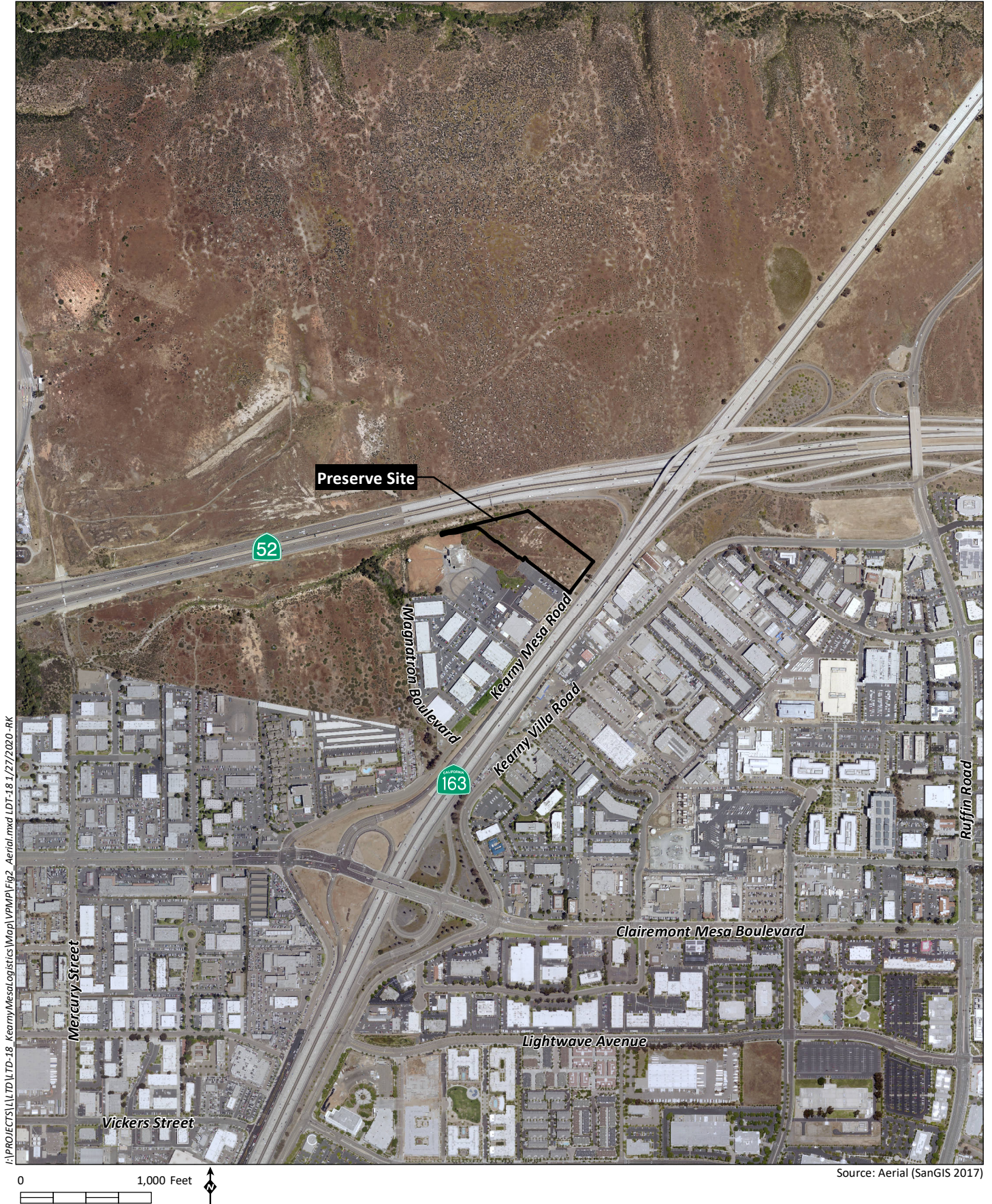
The bioregion that generally defines the area is influenced by a coastal Mediterranean climate. The area's climate, coupled with coastal geological formations and land features, gives rise to an array of habitat types and species that are unique to coastal southern California. Although past agricultural practices and urbanization have resulted in the conversion of land within much of the region, habitat blocks and linkages of undeveloped land occur amongst existing developments that provide important habitat for plant and animal species that reside and migrate to and from the area. Larger habitat blocks exist in Marine Corps Air Station (MCAS) Miramar to the north of the preserve, and Mission Trails Regional Park to the east. Grasslands, coastal sage scrub, chaparral, and riparian woodlands and forests all contribute to the overall biological value and aesthetic appeal of the region. Vernal pools occur in undeveloped areas in the vicinity of the preserve. The U 19 (Cubic) vernal pool complex within the preserve is geographically related to the surrounding vernal pools at Sander and MCAS Miramar.

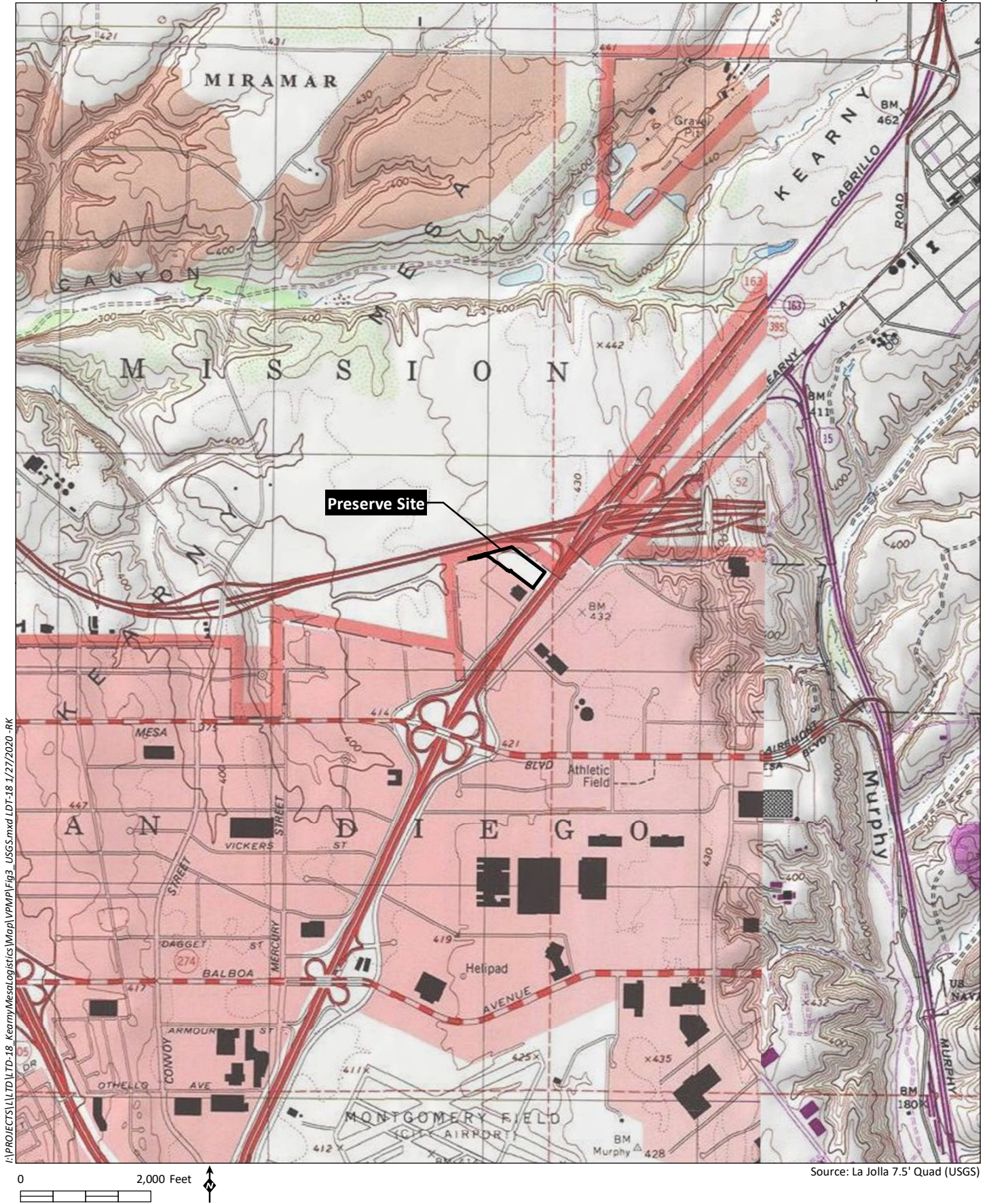
2.3 PRESERVE BOUNDARIES AND HISTORIC/CURRENT LAND USE

The preserve occurs on 5.8 acres of a 13.5-acre property (Assessor Parcel Number [APN] 356-031-08) (Figure 4). The preserve is undeveloped, except for an access path to a road sign and abandoned section of railroad track. Previous ground disturbance occurred within the western portion of the preserve related to the development and operation of the Cubic property. The preserve is constrained by surrounding development on all sides, including commercial development to the south, SR- 52 to the north, and Kearny Mesa Road and SR-163 to the south and east. Undeveloped lands associated MCAS Miramar occur north of the property, to the north of SR-52.

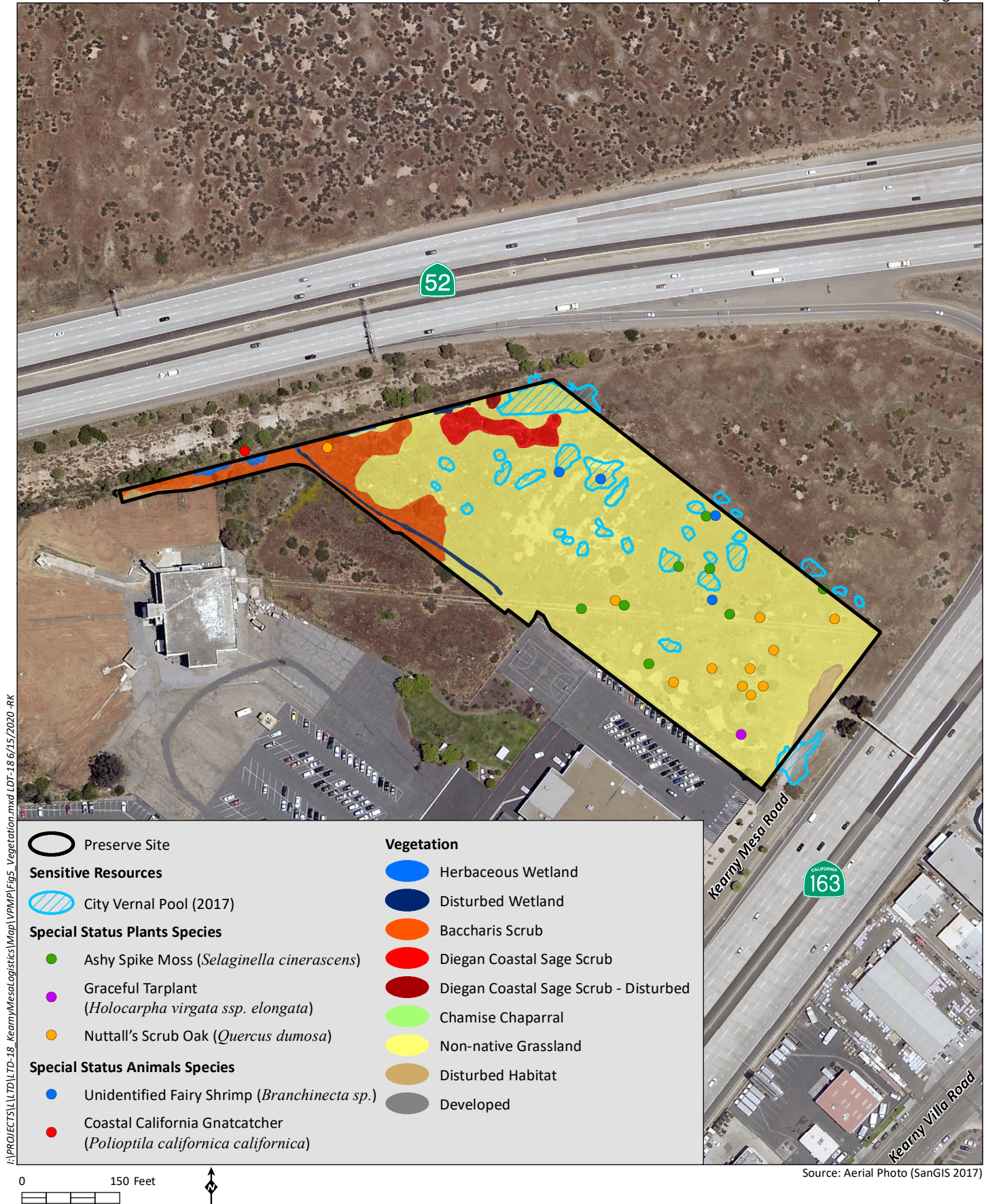
The preserve is generally characterized by non-native grassland, with scattered vernal pools (Figure 5, *Vegetation Communities and Sensitive Resources*). Diegan coastal sage scrub and baccharis scrub occurs on the northwestern edge of the preserve. A small amount of disturbed habitat occurs along Kearny Mesa Road, in the vicinity of the road sign along Kearny Mesa Road. A portion of the preserve boundary is currently fenced. Existing fencing comprised of a chain link fence is present along the adjacent developed areas (Figure 6, *Conceptual Fencing and Signage*).













2.4 GEOLOGY, SOILS, AND HYDROLOGY

Elevations within the preserve range from approximately 414 to 428 feet above mean sea level. A single soil mapping unit, as mapped by the U.S. Department of Agriculture (USDA; 2020), occurs within the preserve: Redding gravelly loam, 2-9 percent slopes. Redding gravelly loam is gently sloped soil with a shallow restrictive feature at about 20 to 40 inches. The soil is well drained in the very high runoff class. This agrees with the vernal pool conditions expressed above the ground. The surface soils throughout the entire preserve exhibit a low degree of disturbance. The National Wetlands Inventory (NWI) shows freshwater emergent wetlands, temporarily flooded, within the preserve (USFWS 2020).

The preserve is situated primarily on flat land that serves as the headwaters for the encompassing hydrology regime. Overall, flows move to the north, then northwest, then west through the preserve. These headwaters comprise the U 19 vernal pool complex and generally drain to the northwest, ultimately into narrow gullied land that occurs off site and runs east to west, in parallel with the preserve's northern boundary. An existing southeast-northwest trending ditch sits below and outside of the feeding watershed to the vernal pools. This ditch is also included within the preserve boundaries. The ditch flows to the northwest, ultimately terminating into the off-site gullied land that runs east to west, in parallel with the northern boundary. There is no substantial sign of surface flow within any of the preserve's hydrology features; flows are evidently subsurface, except where they pool at the various vernal pool features.

2.5 OWNERSHIP AND LEGAL DESCRIPTION

The owner of the property is Lincoln Property Company:

Scott Moffat – Vice Present
Lincoln Property Company
600 B Street, Suite 1540
San Diego, California 92101

2.6 CONSERVATION MECHANISM

The preserve will be preserved in perpetuity through establishment of a covenant of easement or similar protective mechanism as approved by the City.

3.0 HABITAT AND SPECIES DESCRIPTION

3.1 CITY VERNAL POOLS

The preserve encompasses the U 19 (Cubic) vernal pool complex, which consists of 23 vernal pool totaling 0.37 acre (City 2017; Figure 5, *Vegetation Communities and Sensitive Resources*). Based on the results of the City's previous vernal pool inventory surveys, the federally listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) has been previously documented within six of these pools, the federal and state listed endangered San Diego mesa mint (*Pogogyne abramsii*) was documented within one pool, and federal and state listed endangered San Diego button celery (*Eryngium aristulatum* var. *parishii*) was documented within two pools (City 2017).

3.2 VEGETATION COMMUNITIES

Eight vegetation communities or land use types were mapped within the preserve during HELIX's 2019 general biological survey: herbaceous wetland, disturbed wetland, Diegan coastal sage scrub (including disturbed), baccharis scrub, chamise chaparral, non-native grassland, and disturbed land (HELIX 2020).

The communities/habitat types are presented in Table 2, *Existing Vegetation Communities/Land Cover Types within the Preserve*, in order by MSCP Tier and shown on Figure 5.

Table 2
EXISTING VEGETATION COMMUNITIES/LAND COVER TYPES WITHIN THE PRESERVE

Vegetation Community	Tier ¹	Acres ²
Wetlands		
Herbaceous Wetland	Wetland	0.03
Disturbed Wetland	Wetland	0.04
Subtotal		0.07
Uplands		
Diegan Coastal Sage Scrub (Including Disturbed)	II	0.2
Baccharis Scrub	II	0.5
Chamise Chaparral	IIIA	<0.1 (0.002)
Non-native Grassland	IIIB	4.9
Disturbed Land	IV	0.1
Subtotal		5.7
TOTAL		5.77

¹ Tiers refer to City MSCP Subarea Plan (City 1997) habitat classification system.

² Upland habitats are rounded to the nearest tenth (0.1). Wetland habitats are rounded to the nearest hundredth (0.01).

Herbaceous Wetland

Herbaceous wetland is a low-growing, herbaceous community that is dominated by a variety of native wetland species. It typically occurs in seasonally wet areas with heavy soils. Dominant species usually include wrinkled rush (*Juncus rugulosus*), toad rush (*Juncus bufonius*), and wetland grasses. Herbaceous wetland accounts for 0.03 acre of land along the northern edge of the preserve.

Disturbed Wetland

This vegetation community is dominated by exotic wetland species that invade areas that have been previously disturbed or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include giant reed (*Arundo donax*), bristly ox-tongue (*Helminthotheca echioides*), cocklebur (*Xanthium strumarium*), and tamarisk (*Tamarix* sp.). A total of 0.04 acre of disturbed wetlands occurs along the northern edge of the preserve.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub consists mainly of facultative drought-deciduous, low-growing, soft-woody shrubs. This type of community is dominated by California sage brush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Diegan coastal sage scrub is commonly found on steep, xeric slopes containing clay soils and little water. This vegetation community is found from southern California to Baja California along the coast. Disturbed Diegan coastal sage scrub contains many of the same shrub species as undisturbed Diegan coastal sage scrub but is sparser and has a higher proportion of non-native annual species. Patches of Diegan coastal sage scrub (including disturbed) totaling 0.2 acre occur in the northeastern corner of the preserve.

Baccharis Scrub

Baccharis scrub is a sub-type of Diegan coastal sage scrub dominated by *Baccharis* species – especially broom baccharis (*B. sarothroides*) and coyote brush (*B. pilularis*). Other elements of DCSS such as California sagebrush, California buckwheat, and black sage may be present at lower densities. This vegetation community generally lacks trees and grass, although native coast live oaks, scrub oaks, and bunch-grasses may occur in low numbers. Baccharis scrub often occurs on disturbed sites or areas with nutrient-poor soils in the coastal and foothill regions of San Diego County. An approximately 0.5-acre patch of baccharis scrub occurs in the northwestern corner of the preserve.

Chamise Chaparral

Chamise chaparral is the most widely distributed chaparral shrub and is dominated by the species chamise (*Adenostoma fasciculatum*). This vegetation community is found from Baja to northern California in pure or mixed stands. Chamise chaparral's ubiquitous distribution may be the result of chamise's ability to regenerate from both an underground root crown and the production of seeds traits following fire events. It often dominates at low elevations and on xeric south facing slopes with 60 to 90 percent canopy cover. Along its lower elevation limit, chamise chaparral intergrades with coastal sage scrub. Mission manzanita (*Xylococcus bicolor*) and black sage (*Salvia mellifera*) are minor plant species associated within this vegetation community. A very small amount (0.002 acre) of this habitat type occurs within the preserve.

Non-native Grassland

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include oats (*Avena* sp.), red brome (*Bromus madritensis* ssp. *rubens*), ripgut (*B. diandrus*), rye grass (*Festuca* sp.), and mustard (*Brassica* sp.). The majority of the preserve (approximately 4.8 acres) consists of non-native grassland.

Disturbed Land

Disturbed habitat or disturbed land includes land cleared of vegetation; land containing a preponderance of non-native plant and disturbance-tolerant species; or land showing signs of past or present usage that removes any capability of providing viable habitat. This classification includes ruderal (weedy) areas dominated by species typical of highly disturbed sites. This includes areas that have been physically disturbed (by previous legal human activity) and are no longer recognizable as a native or

naturalized vegetation association, but continue to retain a soil substrate. Typically vegetation, if present, is made up of non-native plant species such as non-native ornamentals, non-native grasses, and ruderal species that take advantage of disturbance. An approximately 0.1-acre patch of disturbed habitat occurs along the southeastern edge of the preserve, along Kearny Mesa Road.

3.3 PLANT SPECIES

A botanical inventory of the project site, including the preserve, was conducted in 2019 and rare plant surveys were conducted in the spring and summer of 2020. Plants observed on site are listed in Appendix A, *Plant Species Observed*. Three sensitive plants listed as special status by the California Native Plant Society ([CNPS] 2020) were observed during the 2019 and 2020 surveys: graceful tarplant (*Holocarpha virgata* ssp. *elongata*), Nuttall's scrub oak (*Quercus dumosa*), and ashy spike-moss (*Selaginella cinerascens*). Additionally, the State and federally-listed endangered San Diego mesa mint and State and federally-listed endangered San Diego button celery have reportedly been previously documented within the U 19 (Cubic) complex pools (City 2017).

Graceful tarplant (*Holocarpha virgata* ssp. *elongata*)

Status: --/--; California Rare Plant Rank (CRPR) 4.2

Distribution: San Diego, Orange, and Riverside counties

Habitat(s): Occurs in coastal mesas and foothills with grassland habitats

Status within Preserve: One patch of graceful tarplant totaling approximately 130 individuals was observed within the preserve (Figure 5).

Nuttall's scrub oak (*Quercus dumosa*)

Status: --/--; CRPR 1B.1

Distribution: San Diego, Orange, and Santa Barbara counties; Baja California, Mexico

Habitat(s): Chaparral with a relatively open canopy cover is the preferred habitat in flat terrain (also found in coastal scrub). On north-facing slopes, may grow in dense monotypic stands. Sandy or clay loam soils

Status within Preserve: A total of 12 scrub oak shrubs occur within the preserve (Figure 5).

Ashy spike-moss (*Selaginella cinerascens*)

Status: --/--; CRPR 4.1

Distribution: Orange and San Diego counties; northwestern Baja California, Mexico

Habitat(s): Occurs on flat mesas in coastal sage scrub and chaparral. A good indicator of site degradation, as it rarely inhabits disturbed soils.

Status within Preserve: Eight (8) small patches of ashy spike moss were observed within the preserve (Figure 5).

San Diego mesa mint (*Pogogyne abramsii*)

Status: FE/SE; CRPR 1B.1; City Narrow Endemic; MSCP/VPHP Covered

Distribution: Western San Diego County; Baja California, Mexico

Habitat(s): This small annual is restricted to vernal pools in grasslands, chamise chaparral, and coastal sage scrub on mesas.

Status within Preserve: Previously recorded in one of the U 19 (Cubic) complex pools (City 2020).

San Diego button celery (*Eryngium aristulatum*)

Status: FE/SE; CRPR 1B.1; City Narrow Endemic; MSCP/VPHP Covered

Distribution: San Diego and Riverside counties; Baja California, Mexico

Habitat(s): Vernal pools or mima mound areas with vernal moist conditions are preferred habitat.

Status within Preserve: Previously recorded in two of the U 19 (Cubic) complex pools (City 2020).

Special status plant species with potential to occur are included in Appendix B, *Special Status Plant Species Observed or with Potential to Occur*. Species with high potential to occur within the preserve include Orcutt's brodiaea (*Brodiaea orcuttii*), vernal barley (*Hordeum intercedens*), spreading navarretia (*Navarretia fossalis*), Orcutt's grass (*Orcuttia californica*), and Otay mesa mint (*Pogogyne nudiuscula*). Additionally, San Diego County viguiera (*Bahiopsis laciniata*), San Diego goldenstar (*Bloomeria clevelandii*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), and decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) have high or moderate potential to occur within the preserve's upland areas.

3.4 WILDLIFE SPECIES

Wildlife species observed on the project site, including the preserve, are listed in Appendix C, *Animal Species Observed or Otherwise Detected*. No special status animals were observed or otherwise detected in the preserve during the 2019 and 2020 biological surveys; however, the federally-listed endangered San Diego fairy shrimp has reportedly been previously documented within the U 19 (Cubic) complex pools (City 2017) and the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*) was observed just north of the preserve in August 2019.

San Diego fairy shrimp (*Branchinecta sandiegonensis*)

Status: FE/--, CNPS Rank 1B.1, City Narrow Endemic, MSCP Covered

Distribution: San Diego and Riverside counties; Baja California, Mexico

Habitat(s): Vernal pools or mima mound areas with vernal moist conditions are preferred habitat.

Status within Preserve: Previously recorded in six of the U 19 (Cubic) complex pools (City 2020). Fairy shrimp of the genus *Branchinecta* were observed within four of the eastern vernal pools, though the individuals were not identified to the species level (Figure 5).

Coastal California gnatcatcher (*Polioptila californica californica*)

Status: FT/SSC; MSCP Covered

Distribution: Year-round resident occurring from southern California south to northwest Baja California. In California, the species is found from Ventura County south to San Diego County and east to the western portions of San Bernardino and Riverside Counties.

Habitat(s): Arid, open sage scrub habitats on gently sloping hillsides to relatively flat areas at elevations below 3,000 feet. California sagebrush is typically present as a dominant or co-dominant species.

Presence within the Study Area: A family group of three gnatcatchers consisting of two adults and one juvenile were observed outside of the preserve in August 2019. The family group was observed foraging along the south facing hillside just north of the preserve (Figure 5).

Special status species with potential to occur in the preserve are included in Appendix D, *Special Status Animal Species Observed or with Potential to Occur*. Species with high potential to occur include Riverside fairy shrimp (*Streptocephalus woottoni*) and western spadefoot toad (*Spea hammondi*). A variety of species have high or moderate potential to occur in uplands within the preserve including Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), red diamond rattlesnake (*Crotalus*

ruber), Blainville's horned lizard (*Phrynosoma blainvillii*), Coronado skink (*Plestiodon skiltonianus interparietalis*), California horned lark (*Eremophila alpestris actia*), Dulzura pocket mouse (*Chaetodipus californicus femoralis*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

3.5 WILDLIFE CORRIDORS AND LINKAGES

The northern portion of the preserve occurs within the Biological Core Area 15 (Vernal Pools, Kearny Mesa), as identified in the MSCP. This area has a high concentration of sensitive biological resources which, if lost, could not be replaced or mitigated elsewhere (City 1998). The preserve is not part of a known regional linkage or corridor. Wildlife movement through the local area is already constrained by existing commercial/industrial and transportation developments. The preserve will conserve the limited movement functions that do exist by protecting over five acres of habitat that directly connect with a narrow strip of habitat that runs off-site along the south side and parallel with SR-52. This off-site strip connects the preserve with additional open space within the Sanders Property further to the west of the site. The preserve and off-site strip connecting the preserve to the Sanders Property would continue to facilitate movement of smaller- (e.g., reptiles, amphibians, etc.) and medium-sized (e.g., bobcat, coyote, etc.) wildlife through the local area.

3.6 FIRE HISTORY

There were no records of any fire occurring on the preserve.

3.7 THREATS

The following threats exist for the preserve, as identified for the U 19 (Cubic) complex in Appendix B of the VPMMP (City 2017).

Edge Effects

The site is adjacent to roadways and industrial developments. Edge effects may include trampling of vegetation, introduction of non-native species, unauthorized dumping, introduction of trash, harassment of wildlife, and other adverse impacts. Impacts to the preserve may be minimized by new and existing fencing. As a condition of project approval, permanent fencing and signage will be installed along the entire preserve boundary (Figure 6, *Conceptual Fencing and Signage*).

Fire and Fire Suppression

The U 19 (Cubic) vernal pool complex is located between MCAS Miramar and business park developments. The site might be impacted as a result of emergency fire suppression activities in the event of a fire at Miramar, and the developed nature of the surrounding area would necessitate stringent fire-fighting measures.

Trespass

The preserve is situated adjacent to areas that are regularly used by people. Trespass is generally limited to foot traffic, although the area has been presumably impacted by off-road vehicles and grading in the past. As a condition of project approval, permanent fencing and signage will be installed along the entire preserve boundary (Figure 6). Along the edges of commercial development and Kearny Mesa Road, the

preserve will be posted with signs precluding access due to habitat sensitivity and prohibiting dumping. Further, the preserve will be inspected regularly by the Preserve Manager to monitor for unauthorized human use.

Litter

The site may be impacted by wind-blown trash and other litter and debris from trespassers.

Topographic Disturbance

The vernal pools at the U 19 (Cubic) vernal pool complex have been affected by off-road vehicles and other physical damage over the years, which may have resulted in changes in hydrologic connection, flow patterns, and inundation characteristics. These activities and physical damage would cease with the implementation of site protection (i.e., fencing and signage) and active management.

Invasive Plant Species

Non-native and invasive plant species are the high threat to the preserve. Invasive species, particularly grasses, occur in both upland and vernal pool habitats in the preserve. Non-native plant species present in the preserve include slender oat (*Avena barbata*), common ripgut grass (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), red brome (*Bromus madritensis* ssp. *rubens*), pampas grass (*Cortaderia* sp.), fescue (*Festuca myuros*), Italian ryegrass (*Festuca perennis*), purple fountain grass (*Pennisetum setaceum*), and annual beardgrass (*Polypogon monspeliensis*). Species such as sea fig (*Carpobrotus chilensis*), shortpod mustard (*Hirschfeldia incana*), bull thistle (*Cirsium vulgare*), totalote (*Centaurea melitensis*), stinkwort (*Didtrichia graveolens*), Russian thistle (*Salsola tragus*), Australian saltbush (*Atriplex semibaccata*), grass poly (*Lythrum hyssopifolia*), curly dock (*Rumex crispus*), eucalyptus (*Eucalyptus* sp.), olive (*Olea europaea*), and Mexican fan palm (*Washingtonia robusta*) were also observed in the preserve.

4.0 MANAGEMENT AND MONITORING

This section provides goals and tasks in the form of area specific management directives (ASMDs) to direct management of and monitoring within this preserve. The goals and ASMDs guide management decisions until the VPMMP is revised and updated. Because management and monitoring are interdependent, they are discussed together.

Preserve management and implementation of ASMDs will be the responsibility of the Preserve Manager. The management and monitoring tasks prescribed for this preserve are detailed below.

4.1 BIOLOGICAL GOALS AND TASKS

GOAL 1: MONITOR HABITAT STATUS AND SENSITIVE SPECIES

Preserve monitoring includes a baseline and annual surveys. Some surveys may be required on an as-needed basis. An example annual monitoring cycle for Level 1 (Stewardship) of the U 19 (Cubic) vernal pool complex is provided in Table 3, *Level 1 Monitoring and Management Actions*. An example monitoring form is provided as Attachment C of the City's VPMMP.

ASMD 1

- **Baseline hydrologic survey** – One time (within 5 years of VPHCP permit approval) the Preserve Manager will conduct baseline surveys in accordance with the HGM Guidebook (Bauder et al. 2009). This effort shall be coordinated with the City of San Diego for implementation of a standardized approach and consistent data collection throughout the City. The baseline hydrologic survey will involve measuring maximum basin depth, and basin inlet and outlet locations using a laser transit. Baseline hydrologic data will serve as a benchmark from which to evaluate potential topographic and/or hydrologic disturbance observed during monitoring.
- **Threat Assessment** (Qualitative monitoring) – During an annual qualitative monitoring site visit, as well as during quantitative monitoring, the complex will be evaluated for the following current or potential conditions and threats, and management recommendations will be provided. A threat assessment will also occur as incidental observations during management activities. Visits should occur in the winter and spring seasons (generally February through May).
 - a) *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.
 - b) *Edge Effects* – The 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.
 - c) *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.).
 - d) *Trespass* – The complex shall be inspected for signs of trespass or illegal off-highway vehicle (OHV) activity.
 - e) *Topographic Disturbance* – The complex shall be evaluated for topographic disturbance or altered hydrology from vehicle damage, illegal trespass, or other landscape-damaging impacts. The analysis should include 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
 - f) *Invasive Species* – Non-native plant and animal invasion shall be assessed. Observations of invasive plant species and invasive wildlife presence shall be noted.
 - g) *Inundation* – A visual check for pool inundation shall be performed; inundation of at least 1.5 inches in depth shall be noted.
 - h) *Other* – Any additional observed disturbances that could affect habitat quality shall be noted.

It should be noted if a management action is recommended immediately. For example, if an invasive or problematic weed species is identified within a vernal pool, immediate weed control would be recommended to address the weed issue.

As part of the threat assessment, 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. Based on the conditions evaluated in preparation of this VPMMP, the preserve would be expected to have a moderate to high disturbance rating.

- **Pool inundation verification and wet season fairy shrimp sampling** (Qualitative monitoring) – The Preserve Manager or qualified biologist will conduct a visual assessment of all basins in the U 19 (Cubic) vernal pool complex on an as-needed basis. These visits shall be timed, when feasible, to occur following a large rain event when inundation of the pools is expected, and only if there is a notable change to hydrology or other functions, which would trigger a Level 2 or 3 management response. Wet season assessment includes checking for pool inundation and visually surveying pools for the presence of fairy shrimp and gravid females to verify that fairy shrimp are viable and reproduction is occurring. Monitoring 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 resting fairy shrimp eggs [cysts]) are minimized. Currently, all wet season surveys fairy shrimp must be conducted by a USFWS permitted biologist and pursuant to the Survey Guidelines for the Listed Large Branchiopods (USFWS 2017).
- **Covered fairy shrimp density surveys** (Quantitative monitoring) – The Preserve Manager will implement dry season sampling with genetic identification of cysts on an as-needed basis. These surveys would be required only if a notable change to hydrology or other vernal pool functions is observed, which would trigger a Level 2 or 3 management response. 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.

Sampling for shrimp cyst density and identification shall be done by a USFWS permitted biologist 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:

- a) Samples should be collected within 1.0 meter from each pool's lowest point where shrimp cyst densities are the highest.
- b) 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.
- c) Five core samples (2 inches in diameter and 2 inches deep) should 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.
- d) The core samples should be taken when each pool's sediments are completely dry at the surface and subsurface.

- e) Core samples should be processed in the laboratory using standard washing protocol and cysts should be removed from the damp soil by trained personnel under a dissecting microscope.
- f) 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.

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 City VPMMP Standard “E” (Chapter 3.0 of the City VPMMP).

- **Covered plant surveys** – The Preserve Manager will conduct covered plant species monitoring annually, at the optimal flowering time when detection and identification of both early and late vernal pool plant species are possible. Covered plant surveys will be conducted to track changes in cover over time to inform management decisions.

At Monitoring Level 1, 10 percent of the vernal pools with a covered plant species will be assessed quantitatively. If less than 10 pools for a particular covered species occur in the preserve, at least one pool where that covered species is known to occur will be assessed. Pools with more than one covered species shall be preferentially chosen to reduce the total number of pools required for sampling. If all covered plant species in a complex do not co-occur in the same pools, additional pools shall be chosen to meet the 10 percent criterion. The same pools will be sampled every year. At Monitoring Levels 2 and 3, should this be required, monitoring shall be conducted in all vernal pools occupied by covered plant species.

Monitoring shall include cover estimates within the pool basins using a modification of the cover classes in CNPS methodology - the McEachern et al. (2006) MSCP rare plant monitoring protocol. With modifications described in the City’s VPMMP, estimated absolute percent cover of each covered plant species in a pool will be estimated in the following cover classes: <10%, 10–25%, 25–50%, 50%+. In addition to the covered plant species, other native and non-native vegetative cover can be estimated with this modified CNPS class system.

Cover class data will also be collected for each non-native plant species, and for all non-native species as a group. Individual non-native species and problematic invasive species shall be listed to direct management actions for nonnatives. The total non-native cover estimate is necessary to determine if management efforts will remain at Level 1, or would be required at Level 2 or 3.

Monitoring 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. Monitoring data will be presented similar to the example monitoring form, presented in Appendix C of the VPHCP.

- **Topographic disturbance assessment** – If topographic and/or hydrologic disturbance is observed during qualitative monitoring, the disturbed basins will be assessed. 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; refer to City’s VPMMP Standard “E”).
- **Photo-documentation** – At least two photo documentation stations will be mapped on an aerial photo using Global Positioning Satellite (GPS) equipment. These locations will be selected to capture large areas of contiguous habitat to allow for monitoring of visual changes in habitat quality and quantity, and will be utilized on an annual basis. The photo documentation stations will be utilized for the life of the project.
- **Rainfall assessment** - In low rainfall years, vernal pool flora and fauna may not be adequately expressed to determine covered species population status. Each year, the Preserve Manager should determine the rainfall total from July to June of that year at the nearest National Weather Service Forecast Office RTP Station (Miramar), which is available at <http://www.wrh.noaa.gov/sgx/obs/rtp/rtpmap.php?wfo=sgx>. If the annual rainfall amount is less than 55 percent of the mean normal rainfall (i.e., less than 6.3 inches, which is 55 percent of 11.4 inches; City 2017), then quantitative monitoring results will not be compared to City’s VPMMP standards listed in Section 1.2.
- **Annual Reporting** – The Preserve Manager shall prepare and submit to the City of San Diego Planning Department, a brief report by July 31 of each year summarizing the monitoring and maintenance activities performed, efforts toward achieving each goal identified in this VPMMP, problems encountered, corrective actions taken, and adaptive management recommendations for the following year. Any new vernal pool resources discovered during annual monitoring shall be mapped and discussed in the annual report. New sensitive species or significant changes in status of sensitive species in the preserve should be discussed in the annual report. In addition, monitoring data shall be provided annually to the San Diego Management and Monitoring Program.

Table 3
LEVEL 1 MONITORING AND MANAGEMENT ACTIONS

Task	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Overview of Annual Site Visits	X	X	X	X	X	X	X	X	X	X	X	X
Monitoring Level 1												
Annual Qualitative Visit			X									
Quantitative Floral Surveys					X							
Quantitative Fairy Shrimp Surveys								X				
Ponding Verification	X	X										X
Management Level 1												
Access Control Patrol/Access Repair			X				X				X	
Trash and Debris Removal (if needed)			X				X				X	
Edge Effect Repair (if needed)			X				X				X	
General Weed Control Level 1		X		X								
Vernal Pool Weed Control Level 1				X		X						
Maintenance Oversight		X		X								

GOAL 2: ELIMINATE INVASIVE AND NON-NATIVE PLANTS

Non-native and invasive plant species are a particularly significant threat to natural communities throughout southern California, and are prevalent within the preserve. Weed control within vernal pools occupied by covered species (ASMD 2.1) is more stringent than weed control in vernal pools lacking covered species and weed control within the associated upland watershed (i.e., the remainder of the preserve; ASMD 2.2). Because of their ability to persist in vernal pools, grass poly (*Lythrum hyssopifolia*), Italian ryegrass (*Festuca perennis*), canary grass (*Phalaris* sp.), annual beardgrass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*) are species of particular concern in the preserve. An example annual maintenance cycle for Level 1 (Stewardship) of the U 19 (Cubic) vernal pool complex is provided in Table 3. The City's VPMMP requires additional maintenance for Management Level 2 and 3.

ASMD 2.1

- Covered Vernal Pool Weed Control** – In vernal pools occupied by covered species, non-native plant species shall be weeded twice a year in spring. No weeding should occur in vernal pools when basins are wet to avoid damage to the pools, flora, and fauna. Additionally, no herbicide should be applied within vernal pools. Weeding should take care to remove and properly dispose of seed-bearing plants (or seed heads) to minimize their contribution to the seed bank.

Non-native plant species treatment and removal activities such as use of weed whippers that may disturb raptors and migratory birds should avoid the general bird breeding season (February 1 through September 15). If these activities must occur during the breeding season, they shall be limited to areas where the Preserve Manager has confirmed the absence of active bird nests.

ASMD 2.2

- General Weed Control** – Outside of covered species vernal pools (i.e., in non-covered species vernal pools and in uplands), non-native plant species considered to be highly or moderately

invasive by the California Invasive Plant Council (Cal-IPC) High and Moderate category species; Appendix A-3) shall be targeted for eradication. General weeding will occur in twice a year in spring and shall focus on preventing the spread of invasive plant species into covered species pools and to eradicate problematic invasive species upon detection. No weeding should occur in vernal pools when basins are wet to avoid damage to the pools, flora, and fauna. Additionally, no herbicide should be applied within vernal pools. Herbicides may only be applied outside of vernal pools, by a licensed pesticide applicator, and under the supervision of a qualified biologist. The least toxic method that effectively removes the weeds shall be used. Weeding should take care to remove and properly dispose of seed-bearing plants (or seed heads) to minimize their contribution to the seed bank.

Non-native plant species treatment and removal activities such as use of gas-powered chainsaws and weed whippers that may disturb raptors and migratory birds should avoid the general bird breeding season (February 1 through September 15). If these activities must occur during the breeding season, they shall be limited to areas where the Preserve Manager has confirmed the absence of active bird nests.

GOAL 3: PREVENT UNAUTHORIZED ACCESS/HUMAN USE

Due to the proximity of development to the preserve, unauthorized trails, trash, and dumping are a continued threat. The owner will install fencing around the entire perimeter of the preserve. Along the edges of commercial development and Kearny Mesa Road, the preserve will be posted with signs precluding access due to habitat sensitivity and prohibiting dumping (Figure 6). Further, the preserve will be inspected regularly by the Preserve Manager to monitor for unauthorized human use.

ASMD 3

- **Qualitative Monitoring** – The Preserve Manager will perform a threat assessment/qualitative monitoring of the preserve during an annual qualitative monitoring site visit, as well as during quantitative monitoring, as described under ASMD 1. During these visits, the preserve will be visually inspected for unauthorized access, fencing and signage damage, edge effects, and topographic disturbance or altered hydrology. Specifically, the Preserve Manager shall complete the following during regular site visits each year:
 - a) *Monitoring of Unauthorized Access, Fencing and Signage, Edge Effects, and Topographic Disturbance or Altered Hydrology* – Visual inspection of the preserve for unauthorized access, fencing and signage damage, edge effects, and topographic disturbance or altered hydrology shall be completed by the Preserve Manager. Fencing of the preserve shall be kept in place consistent with the fencing plan (Figure 6). Signage should remain adequate to identify the preserve at publicly accessible locations. Fencing and signage that is damaged and no longer effective to control access and notify the public shall be replaced. Damage due to edge effects (i.e., erosion control and dust suppression measures), unauthorized access to the preserve (i.e., trails, erosion, and vandalism), and topographic or hydrologic disturbance (i.e., footprints, trails, and tire ruts) shall be repaired as possible within the limits of the existing maintenance budget. If edge effects problems are being caused by adjacent land use and management, the Preserve Manager or City will contact adjacent property owners/managers to address the issues. Illegal trespass, vagrant use, vandalism, and other illegal activities shall be reported to the City of San Diego Police Department.

- b) *Trash Removal* –Trash removal will be completed at least once a year, or as needed by the Preserve Manager during non-native plant species treatment events. Trash shall be disposed of properly at off-site locations.

GOAL 4: 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.

ASMD 4

Any damage resulting from fire suppression (fencing damage, vehicle damage, contamination from fire suppressant chemicals, etc.) will be addressed immediately. Weed treatment will occur in damaged areas during regular weeding events. Additional measures may be implemented, at the direction of the Preserve Manager.

4.2 PUBLIC USE GOALS AND TASKS

GOAL 5: LIMIT PUBLIC USE TO ACTIVITIES THAT BENEFIT THE PRESERVE

The preserve is not identified for recreational use and does not include any authorized trails; therefore, there will be no public use except as specified below.

ASMD 5

- **Enforce Access Restrictions** – The Preserve Manager will enforce access rules during site visits. The Preserve Manager will allow access to the preserve for maintenance of the preserve, science, research, and volunteer habitat management (trash removal, invasive plant removal), as long as these activities do not adversely affect the preserve. Any volunteers conducting habitat management tasks will be supervised by the Preserve Manager or a qualified biologist. The perimeter of the preserve will be fenced, and the owner will post appropriate signage. Each sign will identify that the property is protected habitat, provide contact information, and other pertinent information.

4.3 FIRE MANAGEMENT

Protecting human life and safety is the first priority of every fire management activity. This is the responsibility of the City of San Diego fire department. It is expected that the fire department will suppress 100 percent of all unplanned wildland fires, regardless of ignition source, to the smallest size possible, protecting preserved habitat and adjacent property. It is expected that the fire department could use the adjacent parking lot, Kearny Mesa Road, or State Route 52 if they had to put out a fire in the preserve. Nevertheless, wildland fire is a substantial threat to the preserve given its proximity to MCAS Miramar and that the developed nature of the surrounding area would necessitate fire-fighting measures.

4.4 CONSTRAINTS TO IMPLEMENTING ASMDS

There are no significant constraints on preserve management. The preserve is small in size and easily accessible.

4.5 POTENTIAL IMPACTS OF IMPLEMENTING ASMDS

There is the potential for temporary adverse impacts to habitats and species as part of the overall management of the preserve. Specific examples include incidental impacts to native plant species during non-native plant removal efforts, and potential for harassment of nesting bird species during non-native plant removal and survey efforts. These impacts will be avoided and/or minimized by the ASMD's noted above, and the activities associated with these impacts are anticipated to have a net long-term benefit to the habitat and sensitive species within the preserve.

5.0 ADAPTIVE MANAGEMENT

GOAL 6: EVALUATE RESULTS AND ADJUST MANAGEMENT APPROPRIATELY TO MEET THE VPMMP GOALS AND THE CITY OF SAN DIEGO'S COMMITMENT TO THE CONSERVATION GOALS OF THE VPHCP/VPHMMP

The term adaptive management was adopted by Holling (1978) for natural resource management, who described adaptive management as an interactive process that not only reduces but also benefits from uncertainty. Adaptive management includes steps that may be involved in a long-term adaptive implementation program, including opportunistic learning, management, monitoring, and directing the results of analysis and assessment back into the program through decision makers. It is important that the VPMMP incorporate the flexibility to change implementation strategies after initial startup. The VPMMP is intended to be flexible enough to develop adaptive management strategies that will facilitate and improve the decision-making process for operating the conservation program of the VPMMP as well as provide for informative decision-making. The VPMMP is also intended to be flexible enough to incorporate management and monitoring methods provided by the regional management and monitoring group that would be appropriate for the preserve.

Adaptive management relies on monitoring efforts such as those outlined in Section 4 above to detect changes in species, habitats, and/or threats. When change is detected, the Preserve Manager assesses the information and responds by initiating, modifying, or even ending a particular management strategy, if necessary. Additionally, the City's VPMMP has guidance for changing the level of management effort for the preserve.

As directed by the City's VPMMP, monitoring results are compared to the City's VPMMP Standards. The City's VPMMP has established Management Action Triggers to move between management levels (Level 1, 2, or 3). These triggers are summarized in Table 4, *Quantitative Management Triggers*. The U 19 (Cubic) complex will remain at Level 1 in perpetuity unless the Management Action Triggers to move to Level 2 or Level 3 are met, as outlined in Table 4. Should the U 19 (Cubic) complex management level change, management efforts should follow additional management actions for the higher level, which are detailed in the City's VPMMP. Adaptive management measures shall be limited to funds available for adaptive management as detailed in the estimate for long-term management for the preserve.

Table 4
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.
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.

Table 4 (cont.)
QUANTITATIVE MANAGEMENT TRIGGERS

Management Trigger	Monitored Vernal Pool Resource	Monitoring Observation Compared to VPMMP Standards
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.
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.

ASMD 6

- Adaptive Management Measures** – The need to implement adaptive management measures pertaining to non-native species control, trash and debris removal, fencing and signage maintenance, trespass repair, edge effects maintenance, fire damage repair, and topographic disturbance repair will be determined during the monitoring site visits. Adaptive management measures shall be implemented under the direction of the Preserve Manager, as-needed and as funding is available.

Modify Management and Coordinate with Regional Efforts – Continue to learn and modify management approaches by testing assumptions through purposeful monitoring and coordinating with local and regional monitoring and management entities, such as the San Diego Management and Monitoring Program.

Management Levels – If Management Action Triggers are met, change management strategy to be in compliance with a new Management Level.

6.0 ADMINISTRATION AND REPORTING

This section addresses the operation and maintenance of the VPMMP, including funding and staffing, and reporting.

6.1 ANNUAL REPORTS AND PRESERVE MANAGEMENT PLAN

As addressed under ASMD 1, a brief annual report summarizing the status of the preserve, monitoring survey results, and all major management tasks will be prepared and provided to the City of San Diego Planning Department, by July 31 following the first year of management and annually thereafter.

The report shall discuss the previous year's management and monitoring activities as well as management/monitoring anticipated in the upcoming year. It shall provide a concise and complete summary of management and monitoring methods, monitoring results, rainfall totals, identify new management issues and the need for any adaptive management resulting from monitoring, address management issues raised in the previous year's report, report on the success or failure of management approaches (based on monitoring). New sensitive species or significant changes in status of sensitive species in the preserve should be discussed in the annual report. Photos from the photo monitoring stations shall be attached to the report. The annual report will also provide a financial summary describing expenditures for the year, and the status of the endowment.

6.2 DATA MANAGEMENT

Baseline hydrologic data and data collected during as-needed topographic disturbance assessment will be maintained in a digital (Geographic Information System [GIS]) format, and will be provided in digital format to the City annually unless there has been no change from the previous year, but at least every five years. During years with no change, the City shall be notified of this and that no GIS will be provided for that year. Photo documentation of the site will be maintained digitally, and will also be provided to the City every five years, if not already submitted with annual reports. Monitoring data, collected under ASMD 1, shall be provided annually to the San Diego Management and Monitoring Program.

6.3 BUDGET/ENDOWMENT MANAGEMENT

Implementation of the VPMMP will be paid for by funds provided by a start-up payment for the first three years of management, as well as an annual operation fund or non-wasting cash endowment, unless otherwise approved by the City. Lincoln Property Company, or their successors and assigns, would be responsible for funding that generates a minimum of \$8,300 annually, which is the annual cost identified by the City for Level 1 management (City 2020). If an endowment is used for the funding, the endowment shall be held by a qualified entity, such as The San Diego Foundation. The Preserve Manager shall have a duty of loyalty and shall not use the funds for its own personal benefit. The entity is expected to act as a prudent investor of the funds. These safeguards will ensure that the funds will be available for long-term management in perpetuity.

6.4 OPERATIONS AND STAFFING

A City-approved Preserve Manager who meets the City's qualifications will be responsible for implementation of in the field management and monitoring efforts. Weeding and specific management

efforts requiring significant labor will be conducted by landscape maintenance crews overseen by the Preserve Manager. The Preserve Manager will oversee implementation of the VPMMP, as well as provide budget oversight.

7.0 REFERENCES

- Bauder, E. T., A. J. Bohonak, B. H., M. A. Simovich, D. S., D. G. Jenkins, and M. Rains. 2009. A Draft Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Vernal Pool Depressional Wetlands in Southern California. San Diego State University, San Diego, CA.
- Bohonak, A. J. and M. A. Simovich. 2011. Development of a Monitoring Protocol to Quantify Population Sizes for the San Diego Fairy Shrimp. Final Section 6 Grant Report to the California Department of Fish and Game and the U. S. Fish and Wildlife Service.
- California Native Plant Society (CNPS). 2020. Inventory of Rare and Endangered Plants of California. Internet searchable database. Retrived from: www.rareplants.cnps.org.
- City of San Diego. 2020. Final City of San Diego Vernal Pool Habitat Conservation Plan. October.
2017. Final City of San Diego Vernal Pool Habitat Conservation Plan. Vernal Pool Management and Monitoring Plan. October.
2004. City of San Diego Vernal Pool Inventory. Planning Department, San Diego, California.
1998. Final Multiple Species Conservation Program. MSCP Plan. August.
1997. Multiple Species Conservation Program. City of San Diego MSCP Subarea Plan. March.
- McEachern, K., B. Pavlik, J. Rebman, and R. Sutter. 2006 San Diego Multiple Species Conservation Plan Rare Plant Monitoring Program Review and Revision. Technical report prepared for California Department of Fish and Game. Western Ecological Research Center, U.S. Geological Survey, Mills College, San Diego Natural History Museum, and The Nature Conservancy.
- HELIX Environmental Planning, Inc. (HELIX). 2020. Kearny Mesa Logistics Biological Technical Report. June.
- Holling, C. S. (ed). 1978. Adaptive Environmental Management and Assessment. Wiley, Chichester.
- U.S. Department of Agriculture (USDA). 2019. Web Soil Survey. Natural Resources Conservation Service. Online. Retrieved from: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- U.S. Fish and Wildlife Service (USFWS). 2020. National Wetland Inventory, Wetlands Mapper. Retrieved from: <https://www.fws.gov/wetlands/data/mapper.html>.
2017. Survey Guidelines for the Listed Large Branchiopods. November 13.
1996. Habitat Conservation Planning Handbook. November.

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Appendix A

Plant Species Observed

Appendix A

Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat ¹
Agavaceae	<i>Chlorogalum parviflorum</i>	small-flower soap-plant	NNG
Aizoaceae	<i>Carpobrotus chilensis</i> *	sea-fig	DCSS, NNG
	<i>Carpobrotus edulis</i> *	hottentot-fig	NNG
Anacardiaceae	<i>Malosma laurina</i>	laurel sumac	BS, DCSS, NNG
Arecaceae	<i>Washingtonia robusta</i> *	Mexican fan palm	BS, DH, SWS
Asteraceae	<i>Artemisia californica</i>	California sagebrush	DCSS
	<i>Baccharis salicifolia</i>	mule fat	BS
	<i>Baccharis sarothroides</i>	broom baccharis	BS, DCSS, NNG
	<i>Centaurea melitensis</i> *	totalote	NNG
	<i>Cirsium vulgare</i> *	bull thistle	NNG
	<i>Deinandra fasciculata</i>	fascicled tarplant	NNG
	<i>Dittrichia graveolens</i> *	stinkwort	DCSS, DW
	<i>Erigeron canadensis</i>	horseweed	NNG, DH
	<i>Eriophyllum confertiflorum</i>	golden-yarrow	DCSS
	<i>Hedypnois cretica</i> *	Crete hedypnois	NNG
	<i>Helminthotheca echioides</i> *	bristly ox-tongue	NNG
	<i>Holocarpha virgata</i> ssp. <i>elongata</i> †	graceful tarplant	DCSS, NNG
	<i>Hypochaeris glabra</i> *	smooth catsear	NNG, DH
	<i>Isocoma menziesii</i>	goldenbush	DCSS
	<i>Lactuca serriola</i> *	wild lettuce	NNG
	<i>Pseudognaphalium beneolens</i>	fragrant everlasting	NNG
	<i>Pseudognaphalium californicum</i>	California everlasting	NNG
	<i>Pseudognaphalium canescens</i>	everlasting	NNG
	<i>Sonchus asper</i> *	spiny sowthistle	DW, NNG
	<i>Sonchus oleraceus</i> *	common sow thistle	NNG
	<i>Stephanomeria virgata</i>	virgate wreath-plant	NNG
	<i>Stylocline</i> sp.	nest straw	DCSS
Boraginaceae	<i>Cryptantha</i> sp.	cryptantha	NNG
	<i>Plagiobothrys</i> sp.	popcorn flower	NNG
Brassicaceae	<i>Brassica nigra</i> *	black mustard	NNG
	<i>Hirschfeldia incana</i> *	short-pod mustard	DCSS, NNG
	<i>Lepidium lasiocarpum</i>	sand peppergrass	NNG
Caprifoliaceae	<i>Lonicera subspicata</i>	San Diego honeysuckle	DCSS
Caryophyllaceae	<i>Silene gallica</i> *	common catchfly	NNG
Chenopodiaceae	<i>Amaranthus albus</i> *	white tumbleweed	NNG
	<i>Amaranthus blitoides</i>	procumbent pigweed	NNG
	<i>Atriplex semibaccata</i> *	Australian saltbush	NNG
	<i>Salsola tragus</i> *	Russian thistle	NNG
Cistaceae	<i>Helianthemum scoparium</i>	peak rush-rose	DCSS
Cucurbitaceae	<i>Marah macrocarpa</i>	wild cucumber	CC

Appendix A (cont.) Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat ¹
Cyperaceae	<i>Cyperus eragrostis</i>	tall flatsedge	DW
	<i>Eleocharis macrostachya</i>	pale spike-rush	HW
Ericaceae	<i>Xylococcus bicolor</i>	mission manzanita	DCSS
Euphorbiaceae	<i>Croton setigerus</i>	dove weed	NNG
	<i>Euphorbia albomarginata</i>	rattlesnake sandmat	NNG, DH
	<i>Euphorbia maculata</i> *	spotted spurge	NNG
Fabaceae	<i>Acacia pycnantha</i> *	golden wattle	DH
	<i>Acmispon americanus</i>	Spanish-clover	NNG
	<i>Acmispon glaber</i>	deerweed	NNG
Fagaceae	<i>Quercus dumosa</i> †	Nuttall's scrub oak	NNG, CHAP
Gentianaceae	<i>Zeltnera venusta</i>	canchalagua	NNG
Geraniaceae	<i>Erodium botrys</i> *	long-beak filaree	NNG
	<i>Erodium cicutarium</i> *	redstem filaree	NNG
	<i>Erodium moschatum</i> *	green-stem filaree	NNG
	<i>Geranium dissectum</i> *	cutleaf geranium	DH
Iridaceae	<i>Sisyrinchium bellum</i>	blue-eyed grass	NNG
Juncaceae	<i>Juncus dubius</i>	mariposa rush	HW
	<i>Juncus mexicanus</i>	Mexican rush	HW
Lamiaceae	<i>Salvia mellifera</i>	black sage	DCSS
Liliaceae	<i>Calochortus</i> sp.	mariposa lily	NNG
Lythraceae	<i>Lythrum hyssopifolia</i> *	grass poly	DW, NNG
Molluginaceae	<i>Glinus lotoides</i> *	Lotus sweetjuice	DW
Montiaceae	<i>Calandrinia</i> sp.	red maids	NNG
	<i>Cistanthe</i> sp.	cistanthe	NNG
Myrsinaceae	<i>Lysimachia arvensis</i> *	scarlet pimpernel	NNG
Myrtaceae	<i>Eucalyptus</i> sp.*	eucalyptus	EW, DH
Nyctaginaceae	<i>Bougainvillea</i> sp.*	bougainvillea	NNV
Oleaceae	<i>Olea europaea</i> *	olive	CSS
Oxalidaceae	<i>Oxalis pes-caprae</i> *	Bermuda buttercup	NNG, DH
Phrymaceae	<i>Diplacus puniceus</i>	Sticky monkeyflower	CC, DCSS
Plantaginaceae	<i>Callitriche marginata</i>	long-stalk water-starwort	NNG
	<i>Plantago erecta</i>	dwarf plantain	NNG
Poaceae	<i>Avena barbata</i> *	slender oat	NNG
	<i>Bromus diandrus</i> *	common ripgut grass	NNG
	<i>Bromus hordeaceus</i> *	soft brome	NNG
	<i>Bromus madritensis</i> ssp. <i>rubens</i> *	red brome	NNG
	<i>Cortaderia</i> sp.*	pampas grass	DW
	<i>Cynodon dactylon</i> *	Bermuda grass	DW, NNG
	<i>Deschampsia danthonioides</i>	annual hairgrass	NNG
	<i>Festuca myuros</i> *	fescue	DCSS, NNG

Appendix A (cont.) Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat ¹
Poaceae	<i>Festuca perennis</i> *	Italian ryegrass	NNG
	<i>Gastridium phleoides</i> *	nit grass	DCSS
	<i>Lamarckia aurea</i> *	goldentop	NNG
	<i>Pennisetum setaceum</i> *	purple fountain grass	NNG
	<i>Phalaris</i> sp.*	canary grass	NNG
	<i>Polypogon monspeliensis</i> *	annual beardgrass	NNG, DW
	<i>Schismus barbatus</i> *	Mediterranean grass	NNG
	<i>Stipa pulchra</i>	purple needlegrass	NNG
Polygonaceae	<i>Eriogonum fasciculatum</i>	buckwheat	DCSS
	<i>Rumex crispus</i> *	curly dock	NNG, DW
Rhamnaceae	<i>Ceanothus oliganthus</i>	Orcutt ceanothus	CC
Rosaceae	<i>Adenostoma fasciculatum</i>	chamise	CC, NNG
	<i>Heteromeles arbutifolia</i>	toyon	DCSS
Salicaceae	<i>Salix gooddingii</i>	Gooding's black willow	EW, SWS
Selaginellaceae	<i>Selaginella cinerascens</i> †	ashy spike-moss	NNG

† Special Status Species

* Non-native Species

¹ BS=Baccharis Scrub (including disturbed); CC=Chamise Chaparral; DW=Disturbed Wetland; DCSS=Diegan Coastal Sage Scrub (including disturbed); EW=Eucalyptus Woodland; DH=Disturbed Habitat; DEV=Developed; HW=Herbaceous Wetland; NNG=Non-Native Grassland; NNV=Non-Native Vegetation; SWS=Southern Willow Scrub

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Appendix B

Special Status Plant Species
Observed or with Potential to Occur

Appendix B

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Red sand-verbena (<i>Abronia maritima</i>)	--/-- CRPR 4.2	Perennial herb. Occurs in coastal areas of central and southern California; nearly extirpated in southern California. Grows in prostrate mats on well-developed beach dunes away from the heavy foot traffic of humans, which has severely degraded habitat on most southern California beaches. Flowering period: February to November. Elevation: below 330 feet (100 meters).	None. Suitable beach dune habitat is absent from the project site. The site occurs above the known elevation range of the species.
San Diego thorn-mint (<i>Acanthomintha ilicifolia</i>)	FT/SE CRPR 1B.1 MSCP Covered NE	Annual herb. Typically found on clay soils within chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Flowering period: April to June. Elevation: below 3,150 feet (960 meters).	Low. Suitable habitat and vernal pools occur within the project site but there are no recent occurrences of the species within the project vicinity. A single historical record from 1936 occurs north of the site within MCAS Miramar.
California adolphia (<i>Adolphia californica</i>)	--/-- CRPR 2B.1	Perennial shrub. Most often found in sage scrub but occasionally occurs in peripheral chaparral habitats, particularly hillsides near creeks on clay soils. Flowering period: December to April. Elevation: below 1,312 feet (400 meters).	Low. Though the suitable sage scrub and chaparral habitat occurs within the project site, suitable clay soils are not mapped. Furthermore, there are no recent records of the species within the project vicinity.
Shaw's agave (<i>Agave shawii</i> var. <i>shawii</i>)	--/-- CRPR 2B.1 MSCP Covered NE	Perennial succulent. Most often found on coastal bluffs and along mesas and foothills. Flowering period: September to May. Elevation: below 984 feet (300 meters).	Low. There are no recent records of the species within the project vicinity. This conspicuous perennial succulent would most likely have been observed if present.
Singlewhorl burrobrush (<i>Ambrosia monogyra</i>)	--/-- CRPR 2B.2	Perennial shrub. Found on sandy soils within washes and dry riverbeds within chaparral communities. Flowering period: September to November. Elevation: below 1,640 feet (500 meters).	None. Suitable sandy soils and washes are absent from the project site. Furthermore, this conspicuous perennial shrub would most likely have been observed if present. Previous observations from 1965 occur along Murphy Canyon approximately 1 mile east of the site.
San Diego ambrosia (<i>Ambrosia pumila</i>)	FE/-- CRPR 1B.1 MSCP Covered NE	Perennial herb. Occurs on sandy loam or clay, sometimes alkaline, soils. Found in native grassland, valley bottoms, dry drainages, stream floodplain terraces, and vernal pool margins. Also occurs on slopes, disturbed places, and in coastal sage scrub or chaparral. Flowering period: April to July. Elevation: 164 to 1,969 feet (50 to 600 meters).	Low. Potentially suitable vernal pool habitat occurs within the project site; however, there are no records of the species in the immediate vicinity of the site. The nearest occurrences of the species are located over 5 miles east within Mission Trails Regional Park along the San Diego River.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Aphanisma (<i>Aphanisma blitoides</i>)	--/-- CRPR 1B.2 MSCP Covered NE	Annual herb. Found coastally on bluffs and saline sand within sage scrub communities. Flowering period: June to September. Elevation: below 656 feet (200 meters).	None. The project site lacks suitable coastal bluffs and is situated too far inland for this coastal species to occur. Furthermore, there are no reported occurrences of the species within the project vicinity.
San Diego sagewort (<i>Artemisia palmeri</i>)	--/-- CRPR 4.2	Perennial herb. Typically found along stream courses, often beneath riparian woodland, on sandy and mesic soils. May occur in coast live oak woodland, coastal sage scrub, and southern mixed chaparral. Flowering period: June to October. Elevation: below 1,969 feet (600 meters).	Low. Suitable natural stream habitat is absent from the project site. Furthermore, there are no reported occurrences of the species within the project vicinity. The closest observations of the species are located approximately 4 miles north of the site within Soledad Canyon and further east within Mission Trails Regional Park.
Coastal dunes milk vetch (<i>Astragalus tener</i> var. <i>titi</i>)	FE/SE CRPR 1B.1 MSCP Covered NE	Annual herb. Occurs in coastal bluff scrub, coastal dunes, and coastal prairie. Associated with moist, sandy depressions of bluffs or dunes near the Pacific Ocean. Flowering period: March to May. Elevation: below 65 feet (20 meters).	None. Suitable coastal bluffs and dunes are absent from the project site which is situated too far inland for this coastal species to occur. Additionally, the site is located above the known elevation range of the species.
Coulter's saltbush (<i>Atriplex coulteri</i>)	--/-- CRPR 1.B.2	Perennial herb. Occurs on alkaline or clay soils within coastal dunes, coastal bluffs, coastal sage scrub, and grasslands. Flowering periods March to October. Elevation: below 1,510 feet (460 meters).	None. Suitable alkaline and clay soils are not mapped within the project site and there are no records of the species within the project vicinity.
Encinitas baccharis (<i>Baccharis vanessae</i>)	FT/SE CRRP 1B.1 MSCP Covered NE	Perennial shrub. Grows on sandstone within chaparral, maritime chaparral, woodlands, and Torrey-pine forest understory. Flowering period: August to December. Elevation: 196 to 2,400 feet (60 to 720 meters).	None. Suitable sandstone soils are absent from the project site and there are no records of the species within the project vicinity. Furthermore, this conspicuous perennial shrub would most likely have been observed if present.
San Diego County viguiera (<i>Bahiopsis laciniata</i>)	--/-- CRPR 4.3	Perennial shrub. Occurs on a variety of soil types within coastal sage scrub. Generally, shrub cover is more open than at mesic, coastal locales supporting sage scrub. Flowering period: February to August. Elevation: 295 to 2,461 feet (90 to 750 meters).	High. Suitable sage scrub habitat occurs within the project site and the species has been recorded within the project vicinity.
Golden-spined cereus (<i>Bergerocactus emoryi</i>)	--/-- CRPR 2B.2	Stem succulent shrub. Occurs coastally on sandy open hills within chaparral, sage scrub, and closed-cone pine forests. Flowering period: May to June. Elevation: below 328 feet (100 meters).	Low. Suitable sandy soils are not mapped within the project site and there are no records of the species within the project vicinity.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
San Diego goldenstar (<i>Bloomeria clevelandii</i>)	--/-- CRPR 1B.1 MSCP Covered	Perennial bulbiferous herb. Occurs in valley grasslands and coastal scrub, particularly near mima mound topography or in the vicinity of vernal pools, on clay soils. Flowering period: April to May. Elevation: 164 to 1,526 (50 to 465 meters).	High. Suitable vernal pool habitat, often associated with this species, occurs within the project site and there are several reported occurrences of the species to the north of the site within MCAS Miramar.
Thread-leaved brodiaea (<i>Brodiaea filifolia</i>)	FT/SE CRPR 1B.1 MSCP Covered NE	Perennial bulbiferous herb. Often associated with vernal pools and known from habitats including valley grassland, foothill woodland, coastal sage scrub, freshwater wetlands, and wetland-riparian. Flowering period: March to June. Elevation: 82 to 2821 feet (25 to 860 meters).	Low. Suitable vernal pool habitat occurs within the project site; however, there are no reported occurrences of the species within the project vicinity.
Orcutt's brodiaea (<i>Brodiaea orcuttii</i>)	--/-- CRPR 1B.1 MSCP Covered	Perennial bulbiferous herb. Occurs within closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Prefers mesic or clay soils. Flowering period: May to July. Elevation: 98 to 5,550 feet (30 to 1,692 meters).	High. Suitable vernal pool habitat occurs within the project site and there are several reported occurrences of the species within the project vicinity including an observation from 1985 located just east of the project site within the Landmark Vernal Pool Preserve.
Lewis' evening-primrose (<i>Camissoniopsis lewisii</i>)	--/-- CRPR 3	Annual herb. Occurs on sandy or clay soils within grasslands, coastal scrub, cismontane woodland, and coastal bluffs and dunes. Flowering period: March to June. Elevation: below 984 feet (300 meters).	Low. Suitable habitat occurs within the project site, though sandy and clay soils were not mapped within the site. The closest reported occurrence of the species is located approximately 1.5 miles east of the site within MCAS Miramar from 2000.
Otay Mountain ceanothus (<i>Ceanothus otayensis</i>)	--/-- CRPR 1B.2	Perennial shrub. Found in chaparral dominated by chamise and ceanothus species on metavolcanic or gabbroic soils. Mild soil disturbances may enable this plant to pioneer on road cuts and in burn areas. Only known from Otay Mountain in San Diego County. Flowering period: January to April. Elevation: 1,960 to 3,600 feet (597 to 1,097 meters).	None. Suitable metavolcanic or gabbroic soils are not mapped within the project site. The closest occurrence of the species is located north of the project site within San Clemente Canyon in MCAS Miramar.
Wart-stemmed ceanothus (<i>Ceanothus verrucosus</i>)	--/-- CRPR 2B.2 MSCP Covered	Perennial shrub. Found on rocky slopes within chaparral, particularly southern maritime chaparral. Flowering period: December to May. Elevation: below 1,148 feet (350 meters).	None. Suitable rocky slopes do not occur within the project site. The closest occurrence of the species is located north of the project site within San Clemente Canyon in MCAS Miramar.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Orcutt's spineflower (<i>Chorizanthe orcuttiana</i>)	FE/SE CRPR 1B.1	Annual herb. Found in sandy openings of coastal sage scrub, chaparral, and coniferous forests. Flowering period: March to May. Elevation: below 410 feet (125 meters).	Low. Suitable sandy soils are not mapped within the project site. A single occurrence from 1967 occurs approximately 1 mile west of the site; no other reported observations occur within the project vicinity.
Long-spined spineflower (<i>Chorizanthe polygonoides</i> var. <i>longispina</i>)	--/-- CRPR 1B.2	Annual herb. Occurs in chaparral, coastal scrub, and native grassland, often in sandy soils. Flowering period: April to June. Elevation: 98 to 4,920 feet (30 to 1,500 meters).	High. Suitable habitat occurs within the project site and the species was reportedly observed just west of the site in 1995.
Seaside cistanthe (<i>Cistanthe maritima</i>)	--/-- CRPR 4.2	Annual herb. Occurs on sandy bluffs near the beach and sandy openings in coastal sage scrub and grasslands. Flowering period: February to June. Elevation: below 984 feet (300 meters).	None. Suitable sandy bluffs do not occur within the project site and the site is situated too far inland to support this coastal species. Additionally, there are no reported occurrences of the species within the project vicinity.
Summer holly (<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>)	--/-- CRPR 1B.2	Perennial shrub. Occurs in chaparral and cismontane woodland. Flowering period: May to June. Elevation: 328 to 1,804 feet (100 to 550 meters).	High. Suitable chaparral habitat occurs within the project site and the species has been observed north of the site within MCAS Miramar. However, this conspicuous perennial shrub would most likely have been observed if present.
Small-flowered morning-glory (<i>Convolvulus simulans</i>)	--/-- CRPR 4.2	Annual herb. Occurs on clay soils and serpentinite seeps in openings within chaparral, coastal scrub, and native grassland. Flowering period: April to June. Elevation: 98 to 2,871 feet (30 to 875 meters).	None. Suitable clay soils and serpentinite seeps are not mapped within the project area. There are no reported occurrences of the species within the project vicinity.
Snake cholla (<i>Cylindropuntia</i> [<i>Opuntia</i>] <i>californica</i> var. <i>californica</i>)	--/-- CRPR 1B.1 MSCP Covered NE	Perennial stem succulent. Occurs in chaparral and coastal scrub. Flowering period: April to July. Elevation: 50 to 950 feet (15 to 290 meters).	Low. Suitable habitat occurs within the project site but there are no reported occurrences within the project vicinity. This conspicuous perennial stem succulent would most likely have been observed if present.
Low bush monkeyflower (<i>Diplacus aridus</i>)	--/-- CRPR 4.3	Perennial shrub. Occurs on rocky chaparral and within Sonoran desert scrub. Flowering period: April to July. Elevation: 2,460 and 3,940 feet (750 to 1,200 meters).	None. The project site is outside of the known elevation range for this species and does not support rocky chaparral or Sonoran desert scrub. Furthermore, there are no reported occurrences of the species within the project vicinity.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Blochman's dudleya (<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>)	--/-- CRPR 1B.1 MSCP Covered NE	Perennial herb succulent. Grows on open, rocky slopes, often on serpentine or clay dominated soils in coastal sage scrub and valley grassland communities. Flowering period: April to June. Elevation: below 1,476 feet (450 meters).	None. Suitable rocky slopes and serpentine or clay soils do not occur within the project site. The project site is situated too far inland to support this coastal species and there are no reported occurrences within the project vicinity.
Variegated dudleya (<i>Dudleya variegata</i>)	--/-- CRPR 1B.2 MSCP Covered NE	Perennial herb succulent. Occurs on clay soils of dry hillsides and mesas within chaparral, valley grassland, foothill woodland and coastal sage scrub communities. Flowering period: April to June. Elevation: below 984 feet (300 meters).	Low. Suitable clay soils are not mapped within the project site and there is only one historical occurrence from 1936 located north of the project site within MCAS Miramar. There are no other reported occurrences within the project vicinity.
San Diego button-celery (<i>Eryngium aristulatum</i> var. <i>parishii</i>)	FE/SE CRPR 1B.1 MSCP Covered VP species	Annual or perennial herb. Grows in vernal pools and other mesic areas, such as marshes. Flowering period: May to June. Elevation: below 2,313 feet (705 meters).	High. Vernal pools occur within the eastern portion of the project site and there are multiple occurrences of the species directly west and north of the site. The species was reportedly found within two pools in the eastern portion of the site as part of the City's vernal pool inventory surveys in 2003 (City 2004).
Cliff spurge (<i>Euphorbia misera</i>)	--/-- CRPR 2B.2	Perennial shrub. Found in rocky areas of coastal bluffs, coastal sage scrub, and Mojavean desert scrub. Flowering period: December to August. Elevation: below 1,800 feet (500 meters).	None. Suitable rocky areas are absent from the project site and there are no reported occurrences of the species within the project vicinity.
San Diego barrel cactus (<i>Ferocactus viridescens</i>)	--/-- CRPR 2B.1 MSCP Covered	Perennial (stem succulent) shrub. Grows in sandy to rocky areas within coastal scrub, chaparral, grasslands, and vernal pools. Flowering period: May to June. Elevation: below 1,480 feet (450 meters).	Low. Suitable habitat occurs within the project site but there are no reported observations of the species within the project vicinity. The closest occurrence is located over 3.5 miles southeast within Mission Trails Regional Park.
Palmer's frankenia (<i>Frankenia palmeri</i>)	--/-- CRPR 2B.1	Perennial herb. Found in coastal salt marshes and swamps, playas, and coastal dunes. Flowering period: May to July. Elevation: below 1,476 feet (450 meters).	None. Suitable salt marsh, swamp, playa, or coastal dune habitat does not occur within the project site.
Otay tarplant (<i>Hemizonia [Deinandra] conjugens</i>)	FT/SE CRPR 1B.1 MSCP Covered NE	Annual herb. Grows in clay soils within coastal scrub openings and grasslands. Flowering period: May to June. Elevation: 66 to 984 feet (20 to 300 meters).	None. Suitable clay soils are not mapped within the project site and the project site is located outside the known distribution of the species. The species is restricted to the southwestern portion of San Diego County.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Palmer's grapplehook (<i>Harpagonella palmeri</i>)	--/-- CRPR 4.2	Annual herb. Found in clay soils in annual grasslands and coastal sage scrub. Flowering period: March to May. Elevation: 65 to 3,100 feet (20 to 955 meters).	Low. Suitable clay soils are not mapped within the study area; however, a single occurrence of the species was reported just north of the project site in 1981. There are no other reported occurrences of the species within the project vicinity.
Graceful tarplant (<i>Holocarpha virgata</i> ssp. <i>elongata</i>)	--/-- CRPR 4.2	Annual herb. Occurs in grasslands, coastal scrub, chaparral, and cismontane woodland. Flowering period: May to November. Elevation: 66 to 3,675 feet (20 to 1,120 meters).	Present. Two patches of graceful tarplant totaling approximately 134 individuals were observed in the eastern portion of the study area within Diegan coastal sage scrub and non-native grassland.
Vernal barley (<i>Hordeum intercedens</i>)	--/-- CRPR 3.2	Annual herb. Occurs in vernal pools, alkaline flats, and dry, saline streambeds. Also found in saline flats and depressions within grasslands. Flowering period: March to June. Elevation: below 3,280 feet (1,000 meters).	High. Suitable vernal pool habitat was mapped within the study area, and the species was observed just north of the project site within MCAS Miramar in 2004.
Decumbent goldenbush (<i>Isocoma menziesii</i> var. <i>decumbens</i>)	--/-- CRPR 1B.2	Perennial shrub. Occurs in sandy soil and disturbed areas on the inland side of dunes, hillsides, and arroyos within coastal sage scrub and chaparral communities. Flowering period: July to November. Elevation: below 656 feet (200 meters).	Moderate. Suitable habitat and disturbed areas occur within the project site. However, reported occurrences of the species are located over 1.5 miles northeast within Murphy Canyon, 3 miles southeast within Mission Trails Regional Park, and 3 miles west within Marian Bear Memorial Park. This conspicuous perennial shrub would most likely have been observed if present.
San Diego marsh-elder (<i>Iva hayesiana</i>)	--/-- CRPR 2B.2	Perennial herb. Found in alkaline flats, depressions, and streambanks within wetland communities. Flowering period: April to October. Elevation: 32 to 1,640 feet (10 to 500 meters).	None. Suitable alkaline flats, streambanks, and other wetland habitat to support is absent from the project site. This conspicuous perennial shrub would most likely have been observed if present.
Southwestern spiny rush (<i>Juncus acutus</i> ssp. <i>leopoldii</i>)	--/-- CRPR 4.2	Perennial herb. Found in moist saline environments such as alkaline seeps and meadows, and coastal salt marshes and swamps. Flowering period: May to June. Elevation: below 984 feet (300 meters).	None. Suitable saline habitats, alkaline seeps and meadows, and marsh or swamp habitat to support is absent from the project site. This conspicuous perennial shrub would most likely have been observed if present.
Robinson's pepper-grass (<i>Lepidium virginicum</i> var. <i>robinsonii</i>)	--/-- CRPR 4.3	Annual herb. Grows in openings in sage scrub and chaparral at the coastal and foothill elevations. Typically observed in relatively dry, exposed locales rather than beneath a shrub canopy. Also, found in disturbed areas. Flowering period: March to June. Elevation: below 9,186 feet (2,800 meters).	Low. Suitable habitats occur within the project site but there are not reported observations of the species within the project vicinity. The nearest occurrence is located over 3 miles northwest along Rose Canyon from 2003.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Sea dahlia (<i>Leptosyne maritima</i>)	--/-- CRPR 2B.2	Perennial herb. Occurs within coastal scrub and coastal bluffs scrub. Flowering period: March to May. Elevation: below 500 feet (150 meters).	None. Suitable coastal bluff habitat is absent from the site and the project site is situated too far inland to support this coastal species. Furthermore, there are no reported occurrences of the species within the project vicinity.
California box-thorn (<i>Lycium californicum</i>)	--/-- CRPR 4.2	Perennial shrub. Occurs within coastal scrub and coastal bluff scrub. Flowering period: March through August (December). Elevation: below 492 feet (152 meters).	None. Suitable coastal bluff habitat is absent from the site and the project site is situated too far inland to support this coastal species. Furthermore, there are no reported occurrences of the species within the project vicinity.
Willow monardella (<i>Monardella viminea</i>)	FE/SE CRPR 1B.1 MSCP Covered	Perennial herb. Occurs within alluvial ephemeral washes within coastal scrub, chaparral, and riparian habitats. Generally, there is no canopy cover, and river cobbles may lie in close proximity. Flowering period: June to August. Elevations below 1,000 feet (305 meters).	None. Natural alluvial, ephemeral washes are absent from the project site. The nearest occurrences of the species occur northwest within San Clemente Canyon in MCAS Miramar from 2000 and historical sightings from the 1930s to the east within Murphy Canyon.
Little mouse-tail (<i>Myosurus minimus</i> ssp. <i>apus</i>)	--/-- CRPR 3.1	Annual herb. Occurs in alkaline vernal pools within native grassland. Flowering period: March to June. Elevation: 65 to 2,100 feet (20 to 640 meters).	Low. Suitable vernal pool habitat occurs within the eastern portion of the site, but native grasslands are absent. The species was observed north of the project site within MCAS Miramar in 1979 but there are not other recent occurrences of the species within the project vicinity.
Spreading navarretia (<i>Navarretia fossalis</i>)	FT/-- CRPR 1B MSCP Covered VP species	Annual herb. Occurs in vernal pools, vernal swales, or roadside depressions. Population size is strongly correlated with rainfall. Depth of pool appears to be a significant factor as this species is rarely found in shallow pools. Flowering period: April to June. Elevation: 98 to 4,265 feet (30 to 1,300 meters).	High. Suitable vernal pool habitat occurs within the eastern portion of the site, and the species was observed north of the project site within MCAS Miramar in 2009 and 2011.
Prostrate vernal pool navarretia (<i>Navarretia prostrata</i>)	--/-- CRPR 1B.1	Annual herb. Occurs in mesic soil within vernal pools in coastal scrub, meadows, seeps, valleys, and foothill grasslands. Grows at mid-levels within the deeper pools to the basin bottoms of the shallower pools. Flowering period: April to July. Elevations below 4,000 feet (1,220 meters).	Low. Suitable vernal pool habitat occurs within the eastern portion of the site; however, there are no recent reports of this species within the project vicinity. The recent occurrences are from the late 1970s and early 1980s to the east and south of the site within lands that are now developed.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Orcutt's grass (<i>Orcuttia californica</i>)	FE/SE CRPR 1B.1 MSCP Covered VPHCP Covered VP species	Annual grass. Grows in vernal pools in valley grassland and wetland communities. Flowering period: April to August. Elevation: 197 to 2,165 feet (60 to 660 meters).	High. Suitable vernal pool habitat occurs within the eastern portion of the site and the species was observed to the north within MCAS Miramar in 2011.
San Diego mesa mint (<i>Pogogyne abramsii</i>)	FE/SE CRPR 1B.1 MSCP Covered VPHCP Covered VP Species	Annual herb. Occurs within vernal pools. Flowering period: March to July. Elevation: 295 and 660 feet (90 to 200 meters).	High. Suitable vernal pool habitat occurs within the eastern portion of the site and the species has been recorded north of the site within MCAS Miramar and directly east within the Landmark Vernal Pool Preserve. The species was reportedly found within 1 pool in the eastern portion of the site as part of the City's vernal pool inventory surveys in 2003 (City 2004).
Otay mesa mint (<i>Pogogyne nudiuscula</i>)	FE/SE CRPR 1B.1 MSCP Covered VPHCP Covered VP Species	Annual herb. Grows in coastal mesa vernal pools within chaparral, coastal sage scrub, and wetland communities. Flowering period: March to June. Elevation: 328 to 820 feet (100 to 250 meters).	Moderate. Suitable vernal pool habitat occurs within the eastern portion of the site; however, are not recent reports of the species within the project vicinity. Reported occurrences of the species within the project vicinity are from the 1970s or earlier. There are not
Nuttall's scrub oak (<i>Quercus dumosa</i>)	--/-- CRPR 1B.1	Perennial shrub. Occurs on sandy or clay loam soils near the coast within coastal scrub, chaparral, cismontane woodland, and riparian woodland. Flowering period: March to May. Elevation: below 656 feet (200 meters).	Present. A total of 41 shrubs were observed within the study area including 36 within the project boundary and five within eastern portion of the study area north of Magnatron Boulevard.
Munz's sage (<i>Salvia munzii</i>)	--/-- CRPR 2B.2	Perennial shrub. Occurs within chaparral and coastal scrub. Flowering period: February to April. Elevation: 370 and 3,500 feet (115 to 1,065 meters).	Low. Suitable habitat occurs within the project site but there are no reported occurrences within the project vicinity. This conspicuous perennial shrub would most likely have been observed if present.
Ashy spike-moss (<i>Selaginella cinerascens</i>)	--/-- CRPR 4.1	Rhizomatous fern. Occurs in chaparral and coastal sage scrub. Elevation: below 1,804 feet (550 meters).	Present. A total of 16 small patches of this species were observed within the eastern portion of the study area within Diegan coastal sage scrub, chamise chaparral, and non-native grassland.
Chaparral ragwort (<i>Senecio aphanactis</i>)	--/-- CRPR 2B.2	Annual herb. Occurs on alkali flats and dry, open, rocky areas within foothill woodland, northern coastal scrub, and coastal sage scrub communities. Flowering period: February to May. Elevation: 33 to 1,804 feet (10 to 550 meters).	None. Suitable alkali flats and dry, open rocky areas do not occur within the project site and there are no reported occurrences of the species within the project vicinity.

Appendix B (cont.)

Special Status Plant Species Observed or With Potential to Occur

Species	Status ¹	Habit, Ecology and Life History	Potential to Occur ²
Salt spring checkerbloom (<i>Sidalcea neomexicana</i>)	--/-- CRPR 2B.2	Perennial herb. Occurs within chaparral, lower montane coniferous woodland, Mojavean desert scrub, playas, and coastal scrub. Flowering period: March to June. Elevation: 50 and 5,020 feet (15 to 1,530 meters).	Low. Suitable habitat occurs within the project site; however, the only reported occurrence of the species is located over 3.5 miles northeast of the site near Miramar Nation Cemetery from 1961. There are no other reported occurrences of the species within the project vicinity.
Purple stemodia (<i>Stemodia durantifolia</i>)	--/-- CRPR 2B.1	Perennial herb. Grows on wet sand or rocks and drying streambeds within riparian habitats. Flowering period: year-round. Elevation: below 1,312 feet (400 meters).	None. Suitable natural streambed and riparian habitat is not present within the project site. Furthermore, there are no reported occurrences of the species within the project vicinity.
San Diego County needle grass (<i>Stipa diegoensis</i>)	--/-- CRPR 4.2	Perennial herb. Found in rocky, mesic soils near streams or along the coast within coastal scrub and chaparral. Flowering period: February to June. Elevation: 30 to 2,600 feet (10 and 800 meters).	None. Suitable rocky, mesic soils and natural stream habitat occur within the project site. Furthermore, there are no reported occurrences of the species within the project vicinity.
Woolly seablite (<i>Suaeda taxifolia</i>)	--/-- CRPR 4.2	Shrub. Occurs in the margins of coastal salt marshes, coastal dunes, and coastal bluff scrub. Flowering period: all year. Elevation: below 49 feet (15 meters).	None. Suitable coastal salt marsh, coastal dunes, and coastal bluff habitat does not occur within the project site. Furthermore, the project site is above the known elevation range of the species.

¹ Listing codes as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare

CRPR = California Native Plant Society Rare Plant Rank: 1A – presumed extirpated in California and either rare or extinct elsewhere; 1B – rare, threatened, or endangered in California and elsewhere; 2A – presumed extirpated in California, but more common elsewhere; 2B – rare, threatened, or endangered in California, but more common elsewhere; 3 – more information needed; 4 – watch list for species of limited distribution. Extension codes: .1 – seriously endangered; .2 – moderately endangered; .3 – not very endangered.

MSCP Covered Species: Covered Species under City Multiple Species Conservation Plan (MSCP) Subarea Plan; VPHCP Covered Species: Covered Species under the City Vernal Pool Habitat Conservation Plan (VPHCP); NE = Narrow Endemic Species; VP Species = Vernal Pools Species listed under the VPHCP.

² Potential to Occur is assessed as follows: **None:** There are no present or historical records of the species occurring on or in the immediate vicinity of the project site and the diagnostic habitats and soils associated with the species do not occur on or in the immediate vicinity of the project; **Low:** Suitable habitat is present in the project site and a historical record of the species occurs in the immediate vicinity but existing conditions such as elevation, soils, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation substantially reduce the possibility that the species may occur; **Moderate:** The diagnostic habitats associated with the species occur on or in the immediate vicinity of the project site, but there is not a recorded occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High:** Suitable habitat occurs in the project site and the species has been recorded recently on or in the immediate vicinity but the species was not observed during project surveys; **Present:** The species was observed during biological surveys for the project and is assumed to occupy the project site; **Presumed Absent:** Species would be visible all year and would have been observed if present.

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Appendix C

Animal Species Observed or Detected

Appendix C

Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	Family		
INVERTEBRATES			
Anostraca	Branchinectidae	<i>Branchinecta</i> sp.	unidentified fairy shrimp
Lepidoptera	Hesperiidae	<i>Erynnis funeralis</i>	Funereal Duskywing
	Nymphalidae	<i>Danaus plexippus</i>	Monarch
		<i>Vanessa</i> sp.	unidentified Lady
	Riodinidae	<i>Apodemia virgulti</i>	Behr's Metalmark
VERTEBRATES			
Birds			
Accipitriformes	Accipitridae	<i>Buteo jamaicensis</i>	Red-tailed Hawk
		<i>Buteo lineatus</i>	Red-shouldered Hawk
Apodiformes	Trochilidae	<i>Calypte anna</i>	Anna's Hummingbird
Columbiformes	Columbidae	<i>Zenaida macroura</i>	Mourning Dove
Falconiformes	Falconidae	<i>Falco sparverius</i>	American Kestrel
Passeriformes	Aegithalidae	<i>Psaltiriparus minimus</i>	Bushtit
	Corvidae	<i>Corvus brachyrhynchos</i>	American Crow
	Fringillidae	<i>Haemorhous mexicanus</i>	House Finch
		<i>Spinus psaltria</i>	Lesser Goldfinch
	Icteridae	<i>Icterus cucullatus</i>	Hooded Oriole
	Mimidae	<i>Mimus polyglottos</i>	Northern Mockingbird
		<i>Toxostoma redivivum</i>	California Thrasher
	Passerellidae	<i>Melospiza crissalis</i>	California Towhee
	Poliophtilidae	<i>Poliophtila californica californica</i> †	Coastal California Gnatcatcher
	Tyrannidae	<i>Sayornis nigricans</i>	Black Phoebe
		<i>Sayornis saya</i>	Say's Phoebe
		<i>Tyrannus</i> sp.	unidentified Kingbird
Mammals			
Lagomorpha	Leporidae	<i>Sylvilagus audubonii</i>	desert cottontail

[†] Special Status Species

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Appendix D

Special Status Animal Species
Observed or with Potential to Occur

Appendix D

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Invertebrates			
San Diego fairy shrimp (<i>Branchinecta sandiegonensis</i>)	FE/-- MSCP Covered VPHCP Covered VP Species	Restricted to vernal pools and other ephemeral basins in southern California from coastal Orange County to San Diego County. Found in seasonally astatic pools which occur in tectonic swales or earth slump basins and other areas of shallow, standing water often in patches of grassland and agriculture interspersed in coastal sage scrub and chaparral.	High. The project is located within USFWS-designated critical habitat for the species and suitable vernal pool habitat occurs within the eastern portion of the site. The species was reportedly found within several of these eastern vernal pools part of the City's vernal pool inventory surveys in 2003 (City 2004). Fairy shrimp of the genus <i>Branchinecta</i> were observed within four of the eastern vernal pools, though the individuals were not identified to the species level.
Quino checkerspot butterfly (<i>Euphydryas editha quino</i>)	FE/-- MSCP Covered	Occurs in California from western Riverside County southwards to southern San Diego County. Inhabits open and sparsely vegetated areas that contain larval host plant species (principally dot-seed plantain [<i>Plantago erecta</i>], woolly plantain [<i>Plantago patagonia</i>] but also Coulter's snapdragon [<i>Antirrhinum coulterianum</i>], and rigid bird's beak [<i>Cordylanthus rigidus</i>]) and nectar sources. Often found on rounded hilltops, ridgelines, and occasionally rocky outcrops. Occurs within a wide range of open-canopied habitats including vernal pools, sage scrub, chaparral, grassland, and open oak and juniper woodland communities.	Low. Suitable habitat occurs within the project site; however, there are no recent observations of the species in the vicinity of the project likely due its disturbed nature and landscape position, which is isolated from core populations. The project site occurs outside the recommended quino survey area (USFWS 2014).
Riverside fairy shrimp (<i>Streptocephalus woottoni</i>)	FE— MSCP Covered VPHCP Covered VP Species	In California, occurs from Los Angeles County south to coastal San Diego County, and east to western Riverside County. Found in deep seasonal vernal pools, ephemeral ponds, stock ponds, and other human modified depressions at least 30 centimeters deep. Associated with grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation.	Moderate. Vernal pool habitat was mapped on the project site outside the proposed development footprint; however, there are no reports of the species within the project vicinity. The closest reported occurrence of the species is located approximately 4 miles northwest within Marine Corps Air Station (MCAS) Miramar from 1994. The majority of occurrences within San Diego County are located in Otay Mesa and Marine Corps Base Camp Pendleton. Additionally, the vernal pools within the project site may not pond as deeply as 30 cm.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Amphibians			
Western spadefoot toad (<i>Spea hammondi</i>)	--/SSC	Occurs from northern California southward to San Diego County, and to the west of the Sierra Nevada at elevations below 4,500 feet. Terrestrial species requiring temporary pools for breeding. Suitable upland habitats include coastal sage scrub, chaparral, and grasslands. Most common in grasslands with vernal pools or mixed grassland-coastal sage scrub areas. Breeds in temporary pools formed by heavy rains, but also found in riparian habitats with suitable water resources. Breeding pools must lack exotic predators such as fish, bullfrogs, and crayfish for the species to successfully reproduce. Estivates in burrows within upland habitats adjacent to potential breeding sites.	High. Suitable vernal pool habitat occurs within the eastern portion of the site, outside of the proposed development footprint, which could be used for breeding. Additionally, tadpoles were reported to the west of the site within the Sander vernal pools in 2012.
Reptiles			
San Diegan legless lizard (<i>Anniella stebbinsi</i>)	--/SSC	Occurs in southern California from San Barbara County south to San Diego County, and east into Antelope Valley of the western Mojave Desert. An isolated population is found in the Tehachapi and Piute mountains of Kern County. Inhabits sparsely vegetated areas with moist warm, loose soil with plant cover; moisture is essential. Common in several habitats but especially in beach dunes, coastal scrub, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Found primarily in areas with sandy or loose organic soils or where there is plenty of leaf litter. Sometimes found in suburban gardens in southern California.	Low. Suitable habitat is present within the project site; however, there are no recent reported occurrences of the species within the project vicinity. The closest recorded observations are located approximately 1.5 miles north within MCAS Miramar and date back to the 1940s.
California glossy snake (<i>Arizona elegans occidentalis</i>)	--/SSC	Occurs along the coastal regions from San Francisco south to San Diego County; though it is absent along the central coast of California. Inhabits arid scrub, rocky washes, grasslands, and chaparral. Prefers open areas and areas with soils loose enough for easy burrowing.	Low. Suitable habitat occurs within the project site; however, there are no recent reported occurrences of the species within the project vicinity. The closest recorded observation is located approximately 1.6 miles south at the Montgomery-Gibbs Executive Airport where the species was collected in 1926.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Reptiles (cont.)			
Belding's orange-throated whiptail (<i>Aspidoscelis hyperythra beldingi</i>)	--/WL MSCP Covered	Found within the southwestern portion of California in southern San Bernardino, western Riverside, Orange, and San Diego Counties on the western slopes of the Peninsular ranges below 3,500 feet. Suitable habitat includes coastal sage scrub, chaparral, juniper woodland, oak woodland, and grasslands along with alluvial fan scrub and riparian areas. Occurrence of the species correlated with the presence perennial plants (such as California buckwheat, California sagebrush, black sage, or chaparral) to provide a food base for its major food source, termites.	High. Suitable habitat, including chaparral and sage scrub, occurs within the project site and there are multiple reported observations of the species within the project vicinity, specifically within MCAS Miramar.
Red diamond rattlesnake (<i>Crotalus ruber</i>)	--/SSC	Occurs in the southwestern portion of California from San Bernardino County southward to San Diego County at elevations below 5,000 feet. Has a wide tolerance for varying environments including the desert, dense foothill chaparral, warm inland mesas and valleys, and cool coastal zones. Most commonly found near heavy brush with large rocky microhabitats. Chamise and red shank chaparral associations may offer better structural habitat for refuges and food resources.	Moderate. Suitable habitat sage scrub and chaparral habitat occurs within the project site, though rocky areas are generally absent. However, there are few reported observations of the species within the project vicinity. The most recent reported occurrences are located approximately 4.5 miles northeast of the site within Elliott Chaparral Reserve, formerly part of the Camp Elliott Military Reservation.
Blainville's horned lizard (<i>Phrynosoma blainvillii</i>)	--/SSC MSCP Covered	Occurs from southern California to northern Baja California. In California, the species predominately occurs from Kern County south to San Diego County west of the desert at elevations below 8,000 feet. Inhabits a wide variety of vegetation types including sagebrush scrub, chaparral, grasslands, forests, and woodlands but is restricted to areas with suitable sandy, loose soils with open areas for basking. Diet primarily composed of native harvester ants (<i>Pogonomyrmex</i> sp.) and are generally excluded from areas invaded by Argentine ants (<i>Linepithema humile</i>).	Moderate. Suitable sage scrub and chaparral habitat occurs within the project site but sandy soils generally absent. There are several reported observations of the species within the project vicinity, mostly within MCAS Miramar.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Reptiles (cont.)			
Coronado skink (<i>Plestiodon skiltonianus interparietalis</i>)	--/WL	Occurs from in coastal and inland portions of southern San Diego County, though the can occur up into Riverside County where it intergrades with Skilton's skink (<i>Plestiodon skiltonianus skiltonianus</i>). Suitable habitats include grassland, woodlands, pine forests, and chaparral, especially in open sunny areas such as clearings and edges of creeks or rivers. Prefers rocky areas near streams with lots of vegetation but can also be found in areas away from water. Occasionally seen foraging in leaf litter but more commonly found underneath surface objects, such as bark or rocks, where it lives in extensive burrows.	Moderate. Suitable habitat grassland and chaparral habitat occurs within the project site; however, the site lacks creeks or rivers with a single man-made drainage occurring within the eastern portion of the site. There are reported observations of the species within the project vicinity, mostly within Elliott Chaparral Reserve located approximately 4.5 miles northeast of the site.
California newt (<i>Taricha torosa</i>)	--/SSC	Found along coastal drainages from central Mendocino County south to San Diego County at elevations below 6,000 feet. Populations in southern California appear to be highly fragmented. Adult newts eat a wide variety of aquatic and terrestrial invertebrates (earthworms, insects, snails, beetles, butterflies, and stoneflies; as well as egg masses and larvae, and carrion.	None. Suitable aquatic habitat to support the species is absent from the site. A single historical occurrence from 1958 is located approximately 1.1 miles west of the site. This species is known almost entirely from the Cuyamaca Mountains, over 25 miles east.
Two-striped garter snake (<i>Thamnophis hammondi</i>)	--/SSC	Found in California from Monterey County south along the coast to San Diego County and into northern Baja California at elevations below 7,000 feet. Commonly inhabits perennial and intermittent streams with rocky beds bordered by riparian habitats dominated by willows and other dense vegetation. The species has also been found in stock ponds and other artificially created aquatic habitats if bordered by dense vegetation and potential prey, such as amphibians and fish, are present.	None. Suitable aquatic habitat to support the species is absent from the site. The closest reported occurrences of the species are located 1 mile west of site within Murphy Canyon and over 3.5 miles west within Mission Trails Regional Park.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Birds			
Cooper's hawk (<i>Accipiter cooperii</i>)	--/WL MSCP Covered	In California, the species breeds from Siskiyou County south to San Diego County and east to the Owens Valley at elevations below 9,000 feet. Inhabits forests, riparian areas, and more recently suburban and urban areas nesting within dense woodlands and forests and isolated trees in open areas.	High. Suitable habitat occurs within the project site and there are numerous occurrences of the species reported within the project vicinity.
Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)	--/WL MSCP Covered	Restricted to southwestern California occurring from Santa Barbara County southwards to San Diego County at elevations below 5,000 feet. Generally found on moderate to steep slopes vegetated with grassland, coastal sage scrub, and chaparral. Prefer areas with California sagebrush but area also generally absent from areas with dense stands of coastal sage scrub or chaparral. May occur on steep grassy slopes without shrubs if rock outcrops are present.	Low. Though coastal sage scrub and chaparral occurs within the project site, the site is generally flat lacking suitable sloped areas to support the species. There are several eBird (2019) sightings reported within the project vicinity including to the north within MCAS Miramar.
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	--/SSC	In California, generally occurs west of the Cascade and Sierra Nevada foothills from Del Norte County south to San Diego County below 4,900 feet. Primarily a grassland species that prefers short to middle-height, moderately open grasslands with scattered shrubs. More likely to be found in large tracts of habitat instead of small fragments.	Low. Non-native grassland with scattered shrub occurs within the eastern portion of the site, mostly outside the proposed development footprint. However, this habitat is highly fragmented and surrounded by development. Recent eBird sightings of the species occur north of the site within higher quality habitat located within MCAS Miramar.
Bell's sparrow (<i>Artemisiospiza belli</i>)	BCC/WL	Non-migratory resident on the coastal ranges of California and western slopes of the central Sierra Nevada mountains. Occurs year-round in southern California. Breeds in dry coastal sage scrub and chaparral, desert scrub, and similar other open, scrubby habitats. In foothill chaparral, they tend toward younger, less dense stands that are recovering from recent fires; less common in older, taller stands that have remained unburned.	Low. Potentially suitable sage scrub habitat occurs within the project site; however, there are few reported observations of the species within the project vicinity. Reported occurrences of the species are located north of the site within MCAS Miramar and further east within Mission Trail Regional Park.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Birds (cont.)			
Burrowing owl (<i>Athene cunicularia</i>)	BCC/SSC MSCP Covered MSCP NE	Found from central California east to the Mojave Desert and south to coastal San Diego County. Primarily a grassland species that prefers areas with level to gentle topography and well-drained soils. Species can also occupy agricultural areas, vacant lots, and pastures. Requires underground burrows for nesting and roosting that are typically dug by other species such as California ground squirrel (<i>Spermophilus beecheyi</i>). Also utilizes natural rock cavities, debris piles, culverts, and pipes for nesting and roosting.	Low. Though potentially suitable grassland habitat occurs within the project site, suitable burrows and California ground squirrels were not detected during project surveys conducted to date. Furthermore, there is only a single reported occurrence of the species within the project vicinity. The species was detected approximately 2 miles southeast of the site at the Montgomery-Gibbs Executive Airport in September/October 1993. Though migrating individuals may temporarily utilize the site, the species is not anticipated to winter or breed within the project site based on the lack of observations within the surrounding area.
California horned lark (<i>Eremophila alpestris actia</i>)	--/WL	One of 21 recognized subspecies occurring in the coastal ranges of California from San Joaquin Valley to northern Baja California. Inhabits a wide variety of open habitats with low, sparse vegetation where trees and large shrubs are generally absent. Suitable habitats include grasslands along the coast, deserts within the inland regions, shrub habitat at higher elevations, and agricultural areas.	High. Suitable habitat is present within the project site and there a reported eBird sightings of the sites northwest of the site within MCAS Miramar.
Prairie falcon (<i>Falco mexicanus</i>)	BCC/WL	In California, the species is an uncommon permanent resident and migrant that ranges from southeastern deserts northwest along the inner coastal mountains and Sierra Nevada but is absent from northern coastal fog belt. Primary habitats include grasslands, savannahs, alpine meadows, some agricultural fields during the winter season, and desert scrub areas where suitable cliffs or bluffs are present for nest sites. Requires sheltered cliff ledges for cover and nesting which may range in height from low rock outcrops of thirty feet to cliffs up to and higher than 400 feet.	Low. Suitable foraging habitat occurs within the project site, but suitable nesting habitat is absent. If present, this species likely only occurs as a migrant or foraging visitor. Reported eBird sightings of the species are located approximately 5 miles east of the site within Mission Trails Regional Park.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Birds (cont.)			
Coastal California gnatcatcher (<i>Polioptila californica californica</i>)	FT/SSC MSCP Covered	Year-round resident of California occurring from Ventura County south to San Diego County, and east to the western portions of San Bernardino and Riverside Counties. Typically occur in arid, open sage scrub habitats on gently slopes hillsides to relatively flat areas at elevations below 3,000 feet. The composition of sage scrub in which gnatcatchers are found varies; however, California sagebrush is at least present as dominant or co-dominant species. The species is mostly absent from areas dominated by black sage, white sage, or lemonadeberry, though the species may occur more regularly in inland regions dominated by black sage.	Present. A family group of three individuals were observed foraging and calling on the slope north of the site.
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE/SE MSCP Covered	Breeds within California and northern Baja California, wintering in southern Baja California. In California, breeds along the coast and western edge of the Mojave Desert from Santa Barbara County south to San Diego County, and east to Inyo County, San Bernardino, and Riverside Counties. Breeding habitat consists of early to mid-successional riparian habitat, often where flowing water is present, but also found in dry watercourses within the desert. A structurally diverse canopy and dense shrub cover is required for nesting and foraging. Dominant species within breeding habitat includes cottonwood and willows with mule fat, oaks, and sycamore, and mesquite (<i>Prosopis glandulosa</i>) and arrowweed (<i>Pluchea sericea</i>) within desert habitats. The species can be tolerant of the presence of non-native species such as tamarisk.	None. Suitable riparian habitat required by the species is absent from the project site. Reported occurrences of the species are located northeast and east of the site within San Clemente and Murphy Canyons.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Mammals			
Dulzura pocket mouse (<i>Chaetodipus californicus femoralis</i>)	--/SSC	Occurs within the foothills and mountains of southern California from Orange County, western Riverside County, and San Diego County. Inhabits a variety of habitats including grassland, coastal scrub, chaparral, sagebrush, desert wash and scrub, oak woodland, and pinyon-juniper woodlands. Prefers gravelly substrates with good sun exposure and is often found within or on the edge of chaparral. More abundant on steeper than gentler slopes and may occur on the upper portions of the desert slopes of the mountains.	Moderate. Suitable habitat and soils are present within the project site; however, there are few reported occurrences of the species within the project vicinity. The species was reported approximately 1.5 miles northwest of the site within MCAS Miramar in 1999 and over 4 miles east of the site within Mission Trail Regional Park in 1994. The project site is geographically isolated and separated from these areas by multiple large transportation corridors and development reducing the likelihood that the species occupies the site.
Northwestern San Diego pocket mouse (<i>Chaetodipus fallax fallax</i>)	--/SSC	Occurs throughout southwestern California from western Riverside County south to San Diego County at elevations below 6,000 feet. Inhabits coastal sage scrub, grasslands, and chaparral communities, and generally exhibits a strong microhabitat affinity for moderately gravelly and rocky substrates. Forage for seeds from California sagebrush, California buckwheat, lemonadeberry, and grasses under shrub and tree canopies, or around rock crevices.	Moderate. Suitable habitat and soils are present within the project site. The species has been observed approximately 1.5 miles northwest of the site within MCAS Miramar in the 1990s and over 4 miles east of the site within Mission Trail Regional Park as recently as 2004. However, the project site is geographically isolated and separated from these areas by multiple large transportation corridors and development reducing the likelihood that the species occupies the site.
Mexican long-tongued bat (<i>Choeronycteris mexicana</i>)	--/SSC	Found in southern California from Ventura County south to San Diego County. Occurs in arid habitats below 7,900 feet such grasslands, scrub, mixed forest, and canyons in mountain ranges rising from the desert. Primarily found in urban and suburban areas in San Diego County. Roosts in caves and mines, and man-made structures such as garages, office buildings, under porches, and warehouses.	Low. Potentially suitable habitat and roosting structures occur within the project site; however, there is only one reported occurrence of the species within the project vicinity from 1946. This species feeds on agave nectar which is not available at the project site.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Mammals (cont.)			
Western mastiff bat (<i>Eumops perotis californicus</i>)	--/SSC	In California, the species occurs from Monterey County south to San Diego County from the coast eastward to the Colorado Desert. Found in open, semi-arid to arid habitats including coastal and desert scrub, grasslands, woodlands, and palm oases. Prefers to roost in high situations above the ground on vertical cliffs, rock quarries, outcrops of fractured boulders, and occasionally tall buildings.	Low. Potentially suitable habitat occurs within the project site, but the site lacks tall buildings and other suitable roosting structures for the species. Two historical reports from 1900 occur within the project vicinity with other more recent observations from 1997 located north of the project site along San Clemente Canyon within MCAS Miramar.
Western red bat (<i>Lasiurus blossevillii</i>)	--/SSC	In California, the species is locally common occurring from Shasta County south to San Diego County and west of the Sierra Nevada/Cascade Range and deserts. Mainly occurs in riparian woodlands populated by willows, cottonwoods, sycamores, and oak trees but can be found in non-native vegetation such as tamarisk, eucalyptus, and orchards. Primarily roosts in trees preferring heavily shaded areas that are open underneath.	Low. Preferred riparian habitat does not currently occur on site. One historical report from 1900 is located within the project vicinity with other more recent observations from located over 4 miles southeast of the site within Mission Trails Regional Park.
San Diego black-tailed jackrabbit (<i>Lepus californicus bennettii</i>)	--/SSC	Occurs along the coastal regions of southern California south to northern Baja California. Found in arid regions preferring grasslands, agricultural fields, and sparse scrub. Typically absent from areas with high-grass or dense brush, such as closed-canopy chaparral, primarily occupying short-grass and open scrub habitats.	Low. Potentially suitable habitat within the project site is highly fragmented and separated from higher quality habitat within MCAS Miramar by State Route (SR-) 52. Additionally, there are no reported occurrences located within the project vicinity. Observations of the species are located over 4 miles northeast and southeast of the site within Elliott Chaparral Reserve and Mission Trails Regional Park.

Appendix D (cont.)

Special Status Animal Species Observed or With Potential to Occur

Species	Status ¹	Habitat Associations	Potential to Occur ²
Mammals (cont.)			
San Diego Bryant's (formerly desert) woodrat (<i>Neotoma bryanti</i> [formerly <i>lepida</i>] <i>intermedia</i>)	--/SSC	Occurs along the coastal regions of California being found as far north as San Luis Obispo County, south to San Diego County, and in the western portions of San Bernardino and Riverside Counties. Inhabits a variety of shrub and desert habitats such as coastal sagebrush scrub, chaparral, pinyon-juniper woodland, and Joshua tree woodland among others. Often associated with rock outcroppings, boulders, cacti patches, and areas with dense understories. Construct dens used for shelter, food storage, and nesting around rock outcroppings and cacti using various materials such as twigs, sticks, and other debris.	Moderate. Suitable sage scrub and chaparral habitat occurs within the project site but rock outcroppings and cacti where dens are constructed are absent from the site. There are several reports of the species north of the project site within MCAS Miramar and further east within Mission Trails Regional Park.
Pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	--/SSC	Rare in California occurring from Los Angeles County eastwards to San Bernardino County, and southwards to San Diego County. Closely associated with their preferred roosting habitats consisting of vertical cliffs, quarries, and rocky outcrops. Sometimes roosts under tiled roofs and observed utilizing bat boxes. Habitat generalists foraging in grasslands, shrublands, riparian areas, oak woodlands, forests, meadows, and ponds favoring larger water bodies for drinking.	Moderate. Potentially suitable foraging habitat occurs within the project site, but preferred roosting habitat is absent. There are several reports of the species north of the project site within MCAS Miramar and further east within Mission Trails Regional Park.

¹ Listing codes are as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; CE = Candidate Endangered; R = Rare; BCC = Federal Bird of Conservation Concern; SSC = State Species of Special Concern; FP = State Fully Protected; WL = Watch List

MSCP Covered Species: Covered Species under City Multiple Species Conservation Plan (MSCP) Subarea Plan; VPHCP Covered Species: Covered Species under the City Vernal Pool Habitat Conservation Plan (VPHCP); NE = Narrow Endemic Species; VP Species = Vernal Pools Species listed under the VPHCP.

² Potential to Occur is assessed as follows: **None:** Species is so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur in the project site; **Not Expected:** There are no present or historical records of the species occurring on or in the immediate vicinity of the project site. The species moves freely and might disperse through or across the site, but suitable habitat for residence or breeding does not occur; **Low:** Suitable habitat is present in the project site and there is a historical record of the species in the project vicinity, but no sign of the species was observed during surveys. Existing conditions such as elevation, species composition, density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, and/or isolation may substantially reduce the possibility that the species may occur; **Moderate:** Diagnostic habitats associated with the species occur on or adjacent to the project site, but there is not a recorded occurrence of the species within the immediate vicinity. Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity; **High:** Suitable habitat associated with the species occurs in the project site and the species has been recorded recently on or near the project, but was not observed during biological surveys; **Present:** The species was observed during biological surveys for the project and is assumed to occupy the project site.

Appendix E

Cal-IPC High and Moderate
Invasive Plants

Appendix E

Cal-IPC High and Moderate Invasive Plants

Scientific Name	Common Name
Cal-IPC Ranking High	
<i>Aegilops triuncialis</i>	barb goatgrass
<i>Alternanthera philoxeroides</i>	alligator weed
<i>Ammophila arenaria</i>	European beachgrass
<i>Arundo donax</i>	giant reed
<i>Brassica tournefortii</i>	Saharan mustard
<i>Bromus madritensis</i> ssp. <i>rubens</i>	red brome
<i>Bromus tectorum</i>	downy brome, cheatgrass
<i>Carpobrotus edulis</i>	hottentot-fig, iceplant
<i>Carthamus lanatus</i>	woolly distaff thistle
<i>Centaurea solstitialis</i>	yellow starthistle
<i>Centaurea stoebe</i> ssp. <i>micranthus</i>	spotted knapweed
<i>Cortaderia jubata</i>	jubatagrass
<i>Cortaderia selloana</i>	pampasgrass
<i>Cytisus scoparius</i>	Scotch broom
<i>Delairea odorata</i>	Cape-ivy, German-ivy
<i>Egeria densa</i>	Brazilian egeria
<i>Ehrharta calycina</i>	purple veldtgrass
<i>Eichhornia crassipes</i>	water hyacinth
<i>Elymus caput-medusae</i>	medusahead
<i>Euphorbia virgata</i>	leafy spurge
<i>Genista monspessulana</i>	French broom
<i>Hedera helix</i> , <i>H. canariensis</i>	English ivy, Algerian ivy
<i>Hydrilla verticillata</i>	hydrilla
<i>Lepidium latifolium</i>	perennial pepperweed, tall whitetop
<i>Limnobium spongia</i>	South American spongeplant
<i>Ludwigia hexapetala</i>	Uruguay water-primrose
<i>Ludwigia peploides</i> ssp. <i>montevidensis</i>	creeping water-primrose
<i>Lythrum salicaria</i>	purple loosestrife
<i>Myriophyllum aquaticum</i>	parrotfeather
<i>Myriophyllum spicatum</i>	spike watermilfoil
<i>Onopordum acanthium</i>	Scotch thistle
<i>Rubus armeniacus</i>	Himalaya blackberry
<i>Salvinia molesta</i>	giant salvinia
<i>Sesbania punicea</i>	red sesbania, scarlet wisteria
<i>Spartina alterniflora</i> x <i>S. foliosa</i>	smooth hybrid cordgrass
<i>Spartina densiflora</i>	dense-flowered cordgrass
<i>Spartium junceum</i>	Spanish broom
<i>Tamarix chinensis</i>	Chinese tamarisk

Appendix E (cont.)

Cal-IPC High and Moderate Invasive Plants

Scientific Name	Common Name
Cal-IPC Ranking High	
<i>Tamarix gallica</i>	French tamarisk
<i>Tamarix parviflora</i>	smallflower tamarisk
<i>Tamarix ramosissima</i>	saltcedar, tamarisk
<i>Ulex europaeus</i>	gorse
Cal-IPC Ranking Moderate	
<i>Acacia dealbata</i>	silver wattle
<i>Acroptilon repens</i>	Russian knapweed
<i>Ageratina adenophora</i>	croftonweed, eupatorium
<i>Ailanthus altissima</i>	tree-of-heaven
<i>Alhagi maurorum</i>	camelthorn
<i>Arctotheca calendula</i> (sterile)	sterile capeweed
<i>Arctotheca prostrata</i>	capeweed
<i>Asparagus asparagoides</i>	bridal creeper
<i>Asphodelus fistulosus</i>	onionweed
<i>Atriplex semibaccata</i>	Australian saltbush
<i>Avena barbata</i>	slender oat
<i>Avena fatua</i>	wild oats
<i>Brachypodium distachyon</i>	purple false broom
<i>Brachypodium sylvaticum</i>	slender false-brome
<i>Brassica nigra</i>	black mustard
<i>Bromus diandrus</i>	ripgut brome
<i>Carduus nutans</i>	musk thistle
<i>Carduus pycnocephalus</i>	Italian thistle
<i>Carpobrotus chilensis</i>	sea-fig, iceplant
<i>Carrichtera annua</i>	Ward's weed
<i>Centaurea calcitrapa</i>	purple starthistle
<i>Centaurea diffusa</i>	diffuse knapweed
<i>Centaurea jacea</i> ssp. <i>pratensis</i>	meadow knapweed
<i>Centaurea melitensis</i>	toalote
<i>Centaurea virgata</i> var. <i>squarrosa</i>	squarrose knapweed
<i>Chondrilla juncea</i>	skeleton weed
<i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i>	boneseed
<i>Cirsium arvense</i>	Canada thistle
<i>Cirsium vulgare</i>	bull thistle
<i>Clematis vitalba</i>	old man's beard
<i>Colocasia esculenta</i>	taro root
<i>Conium maculatum</i>	poison-hemlock
<i>Cotoneaster franchetii</i>	orange cotoneaster

Appendix E (cont.)

Cal-IPC High and Moderate Invasive Plants

Scientific Name	Common Name
Cal-IPC Ranking Moderate (continued)	
<i>Cotoneaster lacteus</i>	Parney's cotoneaster
<i>Cotoneaster pannosus</i>	silverleaf cotoneaster
<i>Cynara cardunculus</i>	artichoke thistle
<i>Cynodon dactylon</i>	bermudagrass
<i>Cynoglossum officinale</i>	common houndstongue
<i>Cynosurus echinatus</i>	hedgehog dogtailgrass
<i>Cytisus striatus</i>	Portuguese broom
<i>Dipsacus fullonum</i>	common teasel
<i>Dipsacus sativus</i>	fuller's teasel
<i>Dittrichia graveolens</i>	stinkwort
<i>Ehrharta erecta</i>	erect veldtgrass
<i>Elaeagnus angustifolia</i>	Russian-olive
<i>Emex spinosa</i>	spiny emex, devil's-thorn
<i>Fallopia japonica</i>	Japanese knotweed
<i>Fallopia sachalinensis</i>	giant knotweed
<i>Festuca arundinacea</i>	tall fescue
<i>Festuca [Vulpia] myuros</i>	rattail fescue
<i>Festuca perennis</i>	Italian ryegrass
<i>Ficus carica</i>	edible fig
<i>Foeniculum vulgare</i>	fennel
<i>Gazania linearis</i>	gazania
<i>Genista monosperma</i>	bridal veil broom
<i>Glyceria declinata</i>	waxy mannagrass
<i>Halogeton glomeratus</i>	halogeton
<i>Hirschfeldia incana</i>	shortpod mustard
<i>Holcus lanatus</i>	common velvet grass
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Mediterranean barley
<i>Hordeum murinum</i>	foxtail barley
<i>Hypericum canariense</i>	Canary Island hypericum
<i>Hypochaeris radicata</i>	rough catsear, hairy dandelion
<i>Isatis tinctoria</i>	dyer's woad
<i>Lepidium chalepense</i>	lens-podded hoary cress
<i>Lepidium draba</i>	heart-podded hoary cress
<i>Leucanthemum vulgare</i>	ox-eye daisy
<i>Limonium duriusculum</i>	European sea lavender
<i>Linaria dalmatica</i> ssp. <i>dalmatica</i>	Dalmation toadflax
<i>Linaria vulgaris</i>	yellow toadflax
<i>Lythrum hyssopifolium</i>	hyssop loosestrife

Appendix E (cont.)

Cal-IPC High and Moderate Invasive Plants

Scientific Name	Common Name
Cal-IPC Ranking Moderate (continued)	
<i>Mentha pulegium</i>	pennyroyal
<i>Mesembryanthemum crystallinum</i>	crystalline iceplant
<i>Myoporum laetum</i>	myoporum
<i>Nicotiana glauca</i>	tree tobacco
<i>Oxalis pes-caprae</i>	yellow oxalis
<i>Pennisetum setaceum</i>	crimson fountaingrass
<i>Phalaris aquatica</i>	hardinggrass
<i>Potamogeton crispus</i>	curlyleaf pondweed
<i>Rumex acetosella</i>	red sorrel, sheep sorrel
<i>Saccharum ravennae</i>	ravennagrass
<i>Salsola soda</i>	glasswort
<i>Schinus terebinthifolius</i>	Brazilian pepper tree
<i>Senecio glomeratus</i>	cutleaf burnweed
<i>Spartina anglica</i>	English cordgrass
<i>Stipa capensis</i>	Cape ricegrass
<i>Tanacetum vulgare</i>	common tansy
<i>Torilis arvensis</i>	hedgearsley
<i>Triadica sebifera</i>	Chinese tallow tree
<i>Vinca major</i>	big periwinkle
<i>Washingtonia robusta</i>	Mexican fan palm
<i>Zostera japonica</i>	dwarf eelgrass